A STRUCTURAL WEIGHT ESTIMATION PROGRAM (SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND EMPENNAGE MODULE. APPENDIX F: PROGRAM LISTINGS, OVERLAYS (9,0), (10,0) AND (18,0)

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Prepared for:

Aeronautical Systems Division

June 1974

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER ASD/XR 74-10	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER AD/A-00 2863
4. TITLE *(and Subtitle)* A Structural Weight Estimation Program (SWEEP) for Aircraft - Volume VI - Wing and Empennage Module		5. TYPE OF REPORT & PERIOD COVERED 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) G. Hayase		8. CONTRACT OR GRANT NUMBER(s) F33615-71-C-1922
9. PERFORMING ORGANIZATION NAME AND ADDRESS Rockwell International Corp, L.A. Aircraft Div Los Angeles International Airport Los Angeles, California 90009		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS FX2326-71-01876/C093
11. CONTROLLING OFFICE NAME AND ADDRESS Deputy for Development Planning Air Force Systems Command Wright-Patterson Air Force Base, Ohio		12. REPORT DATE June 1974 13. NUMBER OF PAGES 261
14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*		15. SECURITY CLASS. *(of this report)* Unclassified 15a. DECLASSIFICATION DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

weight estimation, structural weights, integrated computer programs, preliminary weight estimation, first-order weight estimations, aircraft structure weights, aircraft structural weight optimization, flutter optimization program, structural synthesis

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

Three computer programs were written with the objective of predicting the structural weight of aircraft through analytical methods. The first program, the structural weight estimation program (SWEEP), is a completely integrated program including routines for airloads, loads spectra, skin temperatures, material properties, flutter stiffness requirements, fatigue life, structural sizing, and for weight estimation of each of the major

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

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20. ABSTRACT (CONTINUED)

aircraft structural components. The program produces first-order weight estimates and indicates trends when parameters are varied. Fighters, bombers, and cargo aircraft can be analyzed by the program. The program operates within 100,000 octal units on the Control Data Corporation 6600 computer. Two stand-alone programs operating within 100,000 octal units were also developed to provide optional data sources for SWEEP. These include (1) the flexible airloads program to assess the effects of flexibility on lifting surface airloads, and (2) the flutter optimization program to optimize the stiffness distribution required for lifting surface flutter prevention.

The final report is composed of 11 volumes. This volume (volume VI) contains the methods and program description for the wing and empennage module of SWEEP. Program listings and flow charts are included in the appendix to this volume.

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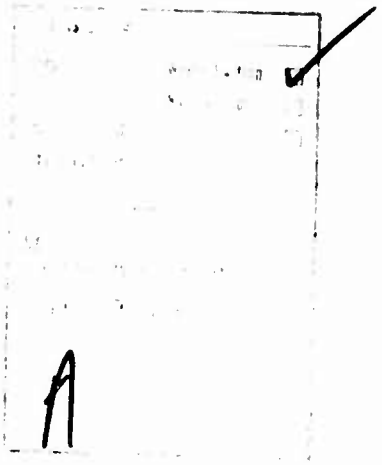

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Publication of this technical report does not constitute Air Force approval of the report's findings or conclusions. It is published only for the exchange and stimulation of ideas.

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Deputy for Development Planning

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PROGRAM LISTINGS, OVERLAYS (9,0), (10,0) AND (18,0)

TABLE F-1. APPENDIX REFERENCES FOR OVERLAY (9,0) ROUTINES

Routine	Appendix Reference Pages	
	Program Flow Charts	Program Listings
ØLAY9	1622	2424
CSECW	1680	2453
DEADW	1638	2432
DLPVT	1684	2455
DWYBA	1633	2429
PIVOT	1660	2443
PROG	1625	2424
PRTA	1693	2461
PRTH	1703	2466
TBØPT	1646	2436
TEE	1672	2450
TEL	1676	2452
VLØAD	1642	2434

TABLE F-2. APPENDIX REFERENCES FOR OVERLAY (10,0) ROUTINES

Routine	Appendix Reference Pages	
	Program Flow Charts	Program Listings
ØLAY10	1734	2470
BHDJT	1878	2537
BØT	1780	2494
BØTC	1791	2497
CG3P	1894	2544
CNSTR	1737	2470
EIGJC	1860	2524
PRTB	1902	2546
PRTBK	1911	2550
PRTC	1907	2548
RTRIB	1887	2541
SECTD	1748	2477
SFSCH	1761	2485
SKWEB	1857	2523
SRRIB	1848	2520
SS	1899	2545
STBAR	1811	2507
STRG	1817	2509
STRGØ	1833	2514
STRIB	1842	2518
STRIL	1837	2516
STWEB	1851	2521
TSCH	1795	2498
VFCAL	1865	2528
WTCAL	1871	2531
WTPIN	1890	2542

TABLE F-3. APPENDIX REFERENCES FOR OVERLAY (18,0) ROUTINES

Routine	Appendix Reference Pages	
	Program Flow Charts	Program Listings
ØLAY18	1970	2554
ACEIGJ	2096	2629
ACLØAD	1982	2561
ACMRSK	2074	2615
ACNSTR	2100	2632
ACPRØG	2000	2572
ACPRTA	2111	2642
ACSTRG	2079	2619
ACWFDH	2027	2590
ACWMS	2012	2580
ACWRBS	2044	2598
ACWSTR	2057	2606
ASTIFF	2090	2624
ATBØPT	1973	2554
AVLØAD	1996	2569
BHDJT	2128/1734	2650/2470
CKSFDH	2034	2594
CKSTAB	2006	2577
CSECW	2138/1680	2651/2453
DEADW	2136/1638	2651/2432
DLPVT	2146/1684	2652/2455
DWYBA	2134/1633	2651/2429
PIVØT	2140/1660	2651/2443
PRTB	2148/1902	2652/2546
PRTC	2150/1907	2652/2548
PRTH	2152/1703	2653/2466
RTRIB	2130/1887	2651/2541
TEE	2142/1672	2652/2450
TEL	2144/1676	2652/2452
TEMPC	1990	2566
WEIGH1	2038	2595
WEIGH2	2086	2622
WTCAL	2126/1871	2650/2531
WTPIN	2132/1890	2651/2542
XN	2123	2650

OVERLAY (9,0)

TORQUE-BOX STRUCTURAL SYNTHESIS/WEIGHT ANALYSIS
FOR METALLIC DESIGNS - No. 1

```
06/11/74        INPUT LISTING                    AUTOFLOW CHART SET - SWEEP    WING AND EMPENNAGE MODULE -

FORTRAN MODULE      (LIST,AUTOSEQ)

 CARD NO        ****                              CONTENTS                                    ****

      1         C*************************************************************************
      2         C
      3         C       *****PROGRAM OLAY9*****
      4         C   ***PROGRAM FOR SIXTH OVERLAY OF WING/EMPENNAGE MODULE***
      5         C       STRUCTURAL SYNTHESIS/WEIGHT ANALYSIS - METALLIC DESIGN NO 1
      6         C
      7         C*************************************************************************
      8         C
      9               PROGRAM OLAY9
     10         C
     11               COMMON T(7120)
     12         C
     13               COMMON /MISC/ XMISC(100)
     14         C
     15               REWIND 24
     16         C
     17               BUFFER IN(24,1)(T(1),T(7210))
     18         C
     19               IF(UNIT(24))10,10,10
     20         C
     21            10 CALL PROG
     22         C
     23               REWIND 24
     24         C
     25               BUFFER OUT(24,1)(T(1),T(7120))
     26         C
     27               IF(UNIT(24))20,20,20
     28         C
     29            20 CONTINUE
     30         C
     31               END
     32         C*************************************************  ************************
     33         C
     34         C       *****SUBROUTINE PROG*****
     35         C   ***SYNTHESIS CONTROL PROGRAM - GW AND DEADWEIGHT ITERATION***
     36         C
     37         C*************************************************************************
     38         C
     39               SUBROUTINE PROG                                                  PROG0010
     40         C                                                                      PROG0020
     41         C            **GENL CONTROL PROG FOR GW/DW PASSES***                   PROG0030
     42         C                                                                      PROG0040
     43         C                                                                      PROG0110
     44         C                                                                      PROG0130
     45               COMMON T(2060),D(2060),CD(2000),ND(100)                          PROG0140
     46               COMMON /MISC/XMISC(100)                                          PROG0141
     47         C                                                                      PROG0150
     48               DIMENSION DC(100),TSEC(300),DGW(3),TOGW(3),TSS(100),TWT(400),    PROG0160
     49              1TT(24),DHTL0(17),TDGW(15),ULTPH(1),DWV(1),DW  (1),DWT(1),        PROG0161
     50              2YBU(1),YBUD(1),YBL(1),YBLD(1),                                  PROG0162
     51              3DWH1(1),DBH1(1),DWX(1) DEFF(1),                                 PROG0163
     52              4SDWV(1),SDWH(1),SDWT(1),DCDL1(8),DCNST3(22),TCNST(8),           PROG0164
     53              5RFDGW(8),FLV1(1),FLV2(1),FLM1(1),FLM2(1),FLT1(1),FLT2(1),       PROG0165
     54              6CDLV1(1),CDLV2(1),CDLV3(1),CDLM1(1),CDLM2(1),CDLM3(1),          PROG0166
     55              7CDLT1(1),CDLT2(1),CDLT3(1),STHV(1),STHM(1),STHT(1),             PROG0167
     56              8DCBST(1),DCNOS(1),DPCDL(10),SWT(1),                             PROG0168
     57              9WPNLS(1),TPNLW(1),TBCWT(1),TDWP(1),TWWP1(1),VFWP(1)             PROG0169
     58              A,ACWFDE(1),ACWFDO(1)                                            PROG0169
     59              B,CTBW(150),TSC(420)                                             PROG0180
     60         C                                                                      PROG0170
     61               EQUIVALENCE (DC(1),D(1401)),(TSEC(1),CD(1501)),(TT(1),T(1317)),  PROG0180
     62              1(TDGW(1),D(1821)),(DGWO,D(1105)),(DGWI,T(22)),(TDGW(1),D(1801)),PROG0181
     63              2(DGWL,D(2341)),(DGWO,D(1369)),(DCNST3(1),D(1301)),(TWT(1),CD(1101)),PROG0182
     64              3(TDGW(1),T(4301)),(DGWRI,TDGW(1)),(DGWR,TDGW(2)),(TBGW,TDGW(4)),PROG0183
     65              4(RFL1,TDGW(1)),(RFL2,TDGW(12)),                                 PROG0184
     66              5(CDLK1,TDGW(13)),(CDLK2,TDGW(14)),(CDLK3,TDGW(15)),             PROG0185
     67              6(LOPS,ND(83)),(LOPC,ND(84)),(LOP1,ND(82)),(LOP1,ND(74)),        PROG0186
     68              7(ISC,ND(22)),(ICD,ND(49)),(I,ND(28)),(N,ND(27)),(K,ND(29)),     PROG0187
     69              8(IFW,ND(83)),(IFB,ND(87)),(NDCT,ND(58)),                        PROG0188
     70              9(IGW,ND(61)),(IOT,ND(57)),(NDGW,ND(56)),(NDWP,ND(25))           PROG0189
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CARD NO  ****                          CONTENTS                          ****
   71    C                                                                PROG0190
   72    C                                                                PROG0200
   73    C                                                                PROG0210
   74          EQUIVALENCE (YBUD(1),T(679)),(YBLD(1),T(690)),             PROG0220
   75         1(DOPT,D(1385)),(DOPTP,D(1393)),(TSS(1),T(1961)),           PROG0221
   76         2(DCBST(1),D(765)),(DCNOS(1),D(778)),                       PROG0222
   77         3(DWV(1),T(593)),(DWH(1),T(609)),(DWT(1),T(620)),           PROG0223
   78         4(DWH1(1),T(701)),(DBH1(1),T(712)),                         PROG0224
   79         5(DNX1(1),T(723)),(DEFF(1),T(800)),(ULTPM(1),TSEC(1)),      PROG0225
   80         6(FLV1(1),T(445)),(FLH1(1),T(456)),(FLT1(1),T(467)),        PROG0226
   81         7(FLV2(1),T(478)),(FLH2(1),T(490)),(FLT2(1),T(419)),        PROG0227
   82         8(SDWV(1),T(894)),(SDWH(1),T(895)),(SDWT(1),T(806)),        PROG0228
   83         9(YBU(1),TSEC(133)),(YBL(1),TSEC(188))                      PROG0229
   84    C                                                                PROG0230
   85          EQUIVALENCE (STHV(1),T(8)),(STHH(1),T(822)),(STHT(1),T(833)), PROG0240
   86         1(CDLV1(1),T(309)),(CDLH1(1),T(320)),(CDLT1(1),T(331)),     PROG0241
   87         2(CDLV2(1),T(342)),(CDLH2(1),T(353)),(CDLT2(1),T(364)),     PROG0242
   88         3(CDLV3(1),T(375)),(CDLH3(1),T(386)),(CDLT3(1),T(397)),     PROG0243
   89         4(SDRHO,TWT(175)),(RFDGW(1),T(522)),(DMTLB(1),T(201)),      PROG0244
   90         5(SDRHO,TWT(175)),(ERT,DMTLB(14)),(GRT,DMTLB(15)),          PROG0245
   91         6(DPCDL(1),T(220)),(SWT(1),T(734)),(TCNST(1),CD(1960)),     PROG0246
   92         7(WPNLS(1),T(695)),(TPNLW(1),T(658)),(TBCWT(1),T(789)),     PROG0247
   93         8(TBWP(1),T(745)),(TWPP(1),T(778)),(VFWP(1),T(756)),        PROG0248
   94         9(DCDL(1),D(187))                                           PROG0249
   95         A,(ACWFDE(1),CD(1938)),(ACWFDO(1),CD(1949))                 PROG0249
   96         B,(DRHOO,CD(1937)),(DGWF,CD(1936)),(DEWF,CD(1935))          PROG0251
   97         C,(CTBW(1),T(1541)),(TSC(1),T(1541))                        PROG0252
   98    C                                                                PROG0260
   99    C                                                                PROG0270
  100    C            ***CHECK XMISC(39) FOR STATUS--OLAY 17 OR OLAY 10***  PROG0280
  101    C              *0= FIRST CALL OF PROG*                           PROG0290
  102    C              *1-6=RETURN ID FROM TBOPT FOR CALL TO CNSTR-OLAY 10*  PROG0300
  103    C              *7=NORMAL RETURN FROM TBOPT*                      PROG0301
  104    C                                                                PROG0302
  105         IF (XMISC(39)) 100,100,240                                  PROG0310
  106    C                                                                PROG0320
  107    C            ***SETUP ON PASSES. MAX=5***                        PROG0330
  108     100  NOMP = IFIX(ONNO)                                          PROG0340
  109          IF (ND(5) - NOMP) 101,102,102                               PROG0350
  110     101  NOMP = ND(5)                                               PROG0360
  111    C                                                                PROG0370
  112    C                                                                PROG0440
  113    C             **SETUP OPT SEARCH ID AND TEST.**                  PROG0450
  114     102  IOPI = DOPT                                                PROG0460
  115          IF (ND(2) - IOPI) 103,103,1030                              PROG0470
  116    C               OPT SEARCH. SAVE DATA                            PROG0480
  117     103  IOPS = ISC                                                 PROG0490
  118          IOPC = ICD                                                  PROG0491
  119    C                                                                PROG0492
  120    C            ***SET RCDS 110-142, 144-149 TO 0 FOR TBOPT SEARCH***  PROG0493
  121    C             **USE CD(1-400)=0.0**                              PROG0494
  122    C              *RCD SIZE--150/RCD=110-119, 123-124, 128-129,      PROG0495
  123    C                                  133-134, 138-139*              PROG0496
  124    C                         100/RCD=120, 125, 130, 135, 140*        PROG0497
  125    C                         340/RCD=121, 126, 131, 136, 141*        PROG0498
  126    C                         400/RCD=127, 132, 137, 142*    *        PROG0499
  127     1030 DO 104 N=110,138,5                                         PROG0500
  128          IFN = N                                                     PROG0501
  129          CALL WRITMS (1,CD(1),150,IFN)                               PROG0502
  130          IFN = N + ND(1)                                             PROG0503
  131          CALL WRITMS (1,CD(1),150,IFN)                               PROG0504
  132          IFN = N + ND(2)                                             PROG0505
  133          CALL WRITMS (1,CD(1),100,IFN)                               PROG0506
  134          IFN = N + ND(3)                                             PROG0507
  135          CALL WRITMS (1,CD(1),340,IFN)                               PROG0508
  136          IFN = N + ND(4)                                             PROG0509
  137          CALL WRITMS (1,CD(1),400,IFN)                               PROG0510
  138     104  CONTINUE                                                    PROG0511
  139    C                                                                PROG0512
  140    C              *CLEAR 104-109, 100/RCD*                          PROG0513
  141          DO 105 N=1,6                                                PROG0514
```

CARD NO	**** CONTENTS ****	
142	IF4 = N + 183	PROG0515
143	CALL WRITMS (1,CD(1),100,IF4)	PROG0516
144	105 CONTINUE	PROG0517
145	C	PROG0518
146	C ***SAVE D(375,376,377,378,380,381,382)***	PROG0519
147	150 DO 151 I=1,4	PROG0520
148	TCNST(I) = D(I+374)	PROG0530
149	TCNST(I+4) = D(I+379)	PROG0540
150	151 CONTINUE	PROG0550
151	C	PROG0570
152	C	PROG0580
153	C *****SETUP FOR 3 GW. CALC. GW 3 TO 1 TO 2.*****	PROG0860
154	200 IGW = ND(3)	PROG0870
155	NODM = NDMP + ND(1)	PROG0880
156	IF (TOGW(3)) 2000,2000,2003	PROG0881
157	C	PROG0882
158	C ***TOGW(3)=0. TEST TOGW(1)***	PROG0883
159	2000 IF (TOGW(1)) 2001,2001,2002	PROG0885
160	C	PROG0888
161	C ***TOGW(3 AND 1)=0. TEST TOGW(2)***	PROG0889
162	2001 IGW = ND(2)	PROG0890
163	IF (TOGW(2)) 400,400,2003	PROG0895
164	2002 IGW = ND(1)	PROG0900
165	C	PROG0904
166	C ***FIRST TOGW. TEST FOR TYPE OF SEARCH.***	PROG0905
167	2003 IF (IOPT - ND(1)) 210,210,420	PROG0906
168	C	PROG0909
169	C ***TOGW(3) NOT ZERO. DO TOGW(1)***	PROG0910
170	201 IGW = ND(1)	PROG0920
171	IF (TOGW(1)) 202,202,203	PROG0930
172	C	PROG0940
173	C ***TOGW(3 OR 1) NOT ZERO. DO TOGW(2)***	PROG0950
174	202 IGW = ND(2)	PROG0960
175	IF (TOGW(2)) 400,400,203	PROG0970
176	203 IF (IOPT - ND(1)) 2030,2030,410	PROG0980
177	2030 NODM = NDMP	PROG0985
178	C	PROG0990
179	C ***BEGIN LOOP FOR DGW***	PROG1000
180	210 DGWI = DGW(IGW)	PROG1010
181	C	PROG1018
182	C ***SET XMISC(39)=0.0 FOR FIRST CALL TO TBOPT FOR GW(1)***	PROG1019
183	XMISC(39) = DC(3)	PROG1020
184	C	PROG1029
185	IGT = IGW	PROG1030
186	DGWR = DGWI/DGWO*DKVL	PROG1040
187	DGWRI = DGWR - D(1)	PROG1050
188	C	PROG1060
189	C **SETUP TOTAL DW LESS BOX AT DGW(1)**	PROG1070
190	211 RFL1 = RFDGW(IGW+1)	PROG1080
191	RFL2 = RFDGW(IGW+5)	PROG1090
192	COLK3 = D(1)	PROG1100
193	COLK1 = D(1) - DCOL1(IGW+1)	PROG1110
194	COLK2 = D(1) - DCOL1(IGW+5)	PROG1120
195	DO 2110 I=1,11	PROG1130
196	SDWV(I) = STWV(I) + RFL1*FLV1(I) + RFL2*FLV2(I) + COLK1*COLV1(I) +PROG1140
197	1 COLK2*COLV2(I) + COLK3*COLV3(I)	PROG1141
198	SDWM(I) = STWM(I) + RFL1*FLM1(I) + RFL2*FLM2(I) + COLK1*COLM1(I) +PROG1150
199	1 COLK2*COLM2(I) + COLK3*COLM3(I)	PROG1151
200	SDWT(I) = STWT(I) + RFL1*FLT1(I) + RFL2*FLT2(I) + COLK1*COLT1(I) +PROG1160
201	1 COLK2*COLT2(I) + COLK3*COLT3(I)	PROG1161
202	2110 CONTINUE	PROG1170
203	C	PROG1178
204	C ***DW ITERATION LOOP. ADJUST DW AND YIBAR)****	PROG1179
205	220 CALL DWYBA	PROG1180
206	C **** TEST FOR CONST. BY GW ***	PROG1190
207	222 IF (DCNST3(1)) 230,230,223	PROG1200
208	223 D(375) = DCNST3(IGW+1)	PROG1210
209	D(376) = DCNST3(IGW+4)	PROG1220
210	D(377) = DCNST3(IGW+7)	PROG1230
211	D(378) = DCNST3(IGW+10)	PROG1240
212	D(380) = DCNST3(IGW+13)	PROG1250

```
CARD NO  ****                          CONTENTS                          ****
  213          D(381) = DCNST3(IGM+18)                                   PROG1260
  214          D(382) = DCNST3(IGM+19)                                   PROG1270
  215     C                                                              PROG1280
  216     C                                                              PROG1350
  217     C            ***NET LOADS AND DESIGN DATA***                   PROG1360
  218      230 CALL VLOAD                                                PROG1370
  219     C                                                              PROG1380
  220          XMISC(39) = DC(3)                                         PROG1390
  221     C                                                              PROG1400
  222     C                                                              PROG1460
  223     C          *****START DESIGN/SYNTHESIS*****                    PROG1470
  224      240 CALL TBOPT                                                PROG1480
  225     C                                                              PROG1490
  226     C            ***TEST IF NORMAL RETURN--XMISC(39)=7.0***        PROG1500
  227          IF (XMISC(39) - D(7)) 241,250,250                         PROG1510
  228      241 RETURN                                                    PROG1520
  229     C                                                              PROG1529
  230     C            ***SAVE ASSUMED M(ULT) AND DWN DATA FOR ITERATION***  PROG1530
  231     C              *ORDER ROOT-TIP*                                PROG1540
  232      250 DO 251 I=1,11                                             PROG1550
  233          N = ND(12) - I                                            PROG1560
  234          DWMI(I) = DWM(I)                                          PROG1570
  235          DMII(I) = ULTPM(N)                                        PROG1580
  236      251 CONTINUE                                                  PROG1590
  237     C                                                              PROG1600
  238     C            ***DW(V,M) FOR %SIGNED DATA***                    PROG1610
  239     C            ***SET K=1 FOR DEADWEIGHT PRINT BY SUBR DEADW***  PROG1611
  240      260 K = ND(1)                                                 PROG1620
  241          CALL DEADW                                                PROG1625
  242     C                                                              PROG1628
  243     C            ****TEST FOR OPT SEARCH                           PROG1629
  244      261 IF (IOPT - ND(1)) 270,270,300                             PROG1630
  245     C                                                              PROG1639
  246     C            ****TEST FOR NEXT DW PASS****                     PROG1640
  247      270 NDDW = NDDW - ND(1)                                       PROG1650
  248          DOWRI = DC(2)                                             PROG1660
  249          IF (NDDW) 280,280,220                                     PROG1661
  250     C                                                              PROG1668
  251     C            ***SETUP DESIGN DATA FOR OUTPUT PROCESS***        PROG1669
  252      280 DWDD = SDWD                                               PROG1670
  253          DEWF = TWT(173)                                           PROG1671
  254          DGWF = TWT(174)                                           PROG1672
  255          DO 281 I=1,11                                             PROG1675
  256          ACWFDE(I) = DC(3)                                         PROG1676
  257          ACWFDG(I) = DC(3)                                         PROG1677
  258      281 CONTINUE                                                  PROG1678
  259     C                                                              PROG1679
  260     C                                                              PROG1682
  261     C            ***SAVE WT/DESIGN DATA FOR WDDATA/TBFWI SUBR.     PROG1683
  262     C              **CTBM ARRAY ITEMS STORED RT-TIP**              PROG1684
  263     C               *1.  11-Z(BOX WT/IN.-ST).  2. 11 BOX CHORDWISE ST. ITEMSPROG1685
  264     C               *3. 11 EI.  4. 11 GJ.  5. DESIGN E,G,RHO.       PROG1687
  265     C               *6.  10-BOX PNL WTS-ST.  7.  10-REQD BOX DIST. WTS.  PROG1688
  266     C               *8.  10-PNL DELTA COL FTG WTS.  9.  11-MISC WT/IN.  PROG1689
  267     C               *10. 11-WF WT/IN.                               PROG1690
  268     C               *11. TOTAL WT SUMMARY DATA--TWT(40-52) (SWT VARAY)*  PROG1691
  269     C                *12.  11-MATL E.  13.  11-MATL G*              PROG1692
  270     C              ***RCD 156,157,158--150 CELLS/RCD***             PROG1693
  271     C                *USE CTBM= TEMP SCRATCH LOC AT TSC(1-150)*     PROG1694
  272     C                                                              PROG1698
  273          DO 283 I=1,11                                             PROG1800
  274          CTBM(I) = TBMP1(I)                                        PROG1801
  275          CTBM(I+11) = TBCWT(I)                                     PROG1802
  276          CTBM(I+22) = CD(I+33)                                     PROG1803
  277          CTBM(I+33) = CD(I+22)                                     PROG1804
  278          CTBM(I+77) = TMAP1(I)                                     PROG1805
  279          CTBM(I+88) = WTMP1(I)                                     PROG1806
  280          CTBM(I+99) = SWT(I)                                       PROG1807
  281          CTBM(I+110) = ACWFDE(I)                                   PROG1808
  282          CTBM(I+121) = ACWFDG(I)                                   PROG1809
  283          IF (I - ND(10)) 282,282,283                               PROG1890
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CARD NO	**** CONTENTS ****	
284	282 CTBH(I+47) = NPNLS(I)	PROG1681
285	CTBH(I+57) = TPNLW(I)	PROG1682
286	CTBH(I+67) = DPCOL(I)	PROG1683
287	283 CONTINUE	PROG1684
288	CTBH(145) = DEVF	PROG1685
289	CTBH(146) = DGVF	PROG1686
290	CTBH(147) = DPHOO	PROG1687
291	C	PROG1688
292	IF8 = IGH + 155	PROG1689
293	CALL WRITMS (1,CTBH(1),150,IF8)	PROG1700
294	C	PROG1707
295	C ***TEST FOR NEXT OH***	PROG1708
296	C	PROG1709
297	IF (ND(2) - IGH) 201,400,202	PROG1710
298	C	PROG1719
299	C **OPT SEARCH. TEST LOOP ND=NOOH.**	PROG1720
300	C	PROG1729
301	300 IF (NOOH - ND(3)) 323,310,320	PROG1730
302	C ***3=OPT SEARCH COMPLETED. SET UP TO ITERATE AT OPT.***	PROG1740
303	C **DESIGN DATA ON RCD 1,2,3 OF BLOCK IOPT**	PROG1750
304	C *SETUP RECD DATA FOR ITERATION LOOP NOOH+2.	PROG1760
305	C	PROG1769
306	C **RCD NO 118,123,128,133 OR 138**	PROG1770
307	310 IF4 = IOPT*ND(5) + 1.3	PROG1775
308	CALL READMS (1,TSC(1),150,IF4)	PROG1780
309	D(375) = TSC(1)	PROG1790
310	D(378) = TSC(2)	PROG1800
311	D(380) = TSC(3)	PROG1810
312	D(381) = TSC(4)	PROG1820
313	D(382) = TSC(5)	PROG1830
314	DO 311 I=1,11	PROG1840
315	TBWP(I) = TSC(I+15)	PROG1850
316	TWWP(I) = TSC(I+26)	PROG1860
317	VFWP(I) = TSC(I+37)	PROG1870
318	NPNLS(I) = TSC(I+48)	PROG1880
319	TPNLW(I) = TSC(I+59)	PROG1890
320	TBCWT(I) = TSC(I+70)	PROG1900
321	DEFF(I) = TSC(I+81)	PROG1910
322	YBUD(I) = TSC(I+92)	PROG1920
323	YBLD(I) = TSC(I+103)	PROG1930
324	DCBST(I) = TSC(I+114)	PROG1940
325	DCNOS(I) = TSC(I+125)	PROG1950
326	DNX(I,I) = TSC(I+136)	PROG1960
327	311 CONTINUE	PROG1985
328	GO TO 323	PROG1970
329	C	PROG1980
330	C ***=BASIC OPT PASS COMPLETED. DO DISCRETE POINT SEARCH.*	PROG1990
331	C **SAVE DESIGN DATA FOR NEXT GA DESIGN**	PROG2000
332	C *RCD NO 143*	PROG2010
333	C *PROCESS DATA INTO TSC(1-200) FOR MOVE*	PROG2020
334	320 DO 321 I=1,11	PROG2030
335	TSC(I) = DCBST(I)	PROG2040
336	TSC(I+11) = DCNOS(I)	PROG2050
337	TSC(I+22) = DHMI(I)	PROG2060
338	TSC(I+33) = DBMI(I)	PROG2070
339	TSC(I+44) = DHV(I)	PROG2080
340	TSC(I+55) = DHM(I)	PROG2090
341	TSC(I+66) = YBUI(I)	PROG2100
342	TSC(I+77) = YBLI(I)	PROG2110
343	TSC(I+88) = DNX(I,I)	PROG2120
344	TSC(I+99) = TBWP(I)	PROG2130
345	TSC(I+110) = TWWP(I)	PROG2140
346	TSC(I+121) = VFWP(I)	PROG2150
347	TSC(I+132) = NPNLS(I)	PROG2160
348	TSC(I+143) = TPNLW(I)	PROG2170
349	TSC(I+154) = TBCWT(I)	PROG2180
350	TSC(I+165) = DEFF(I)	PROG2190
351	TSC(I+176) = YBUD(I)	PROG2200
352	TSC(I+187) = YBLD(I)	PROG2210
353	321 CONTINUE	PROG2220
354	C	PROG2230

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CARD NO  ****                          CONTENTS                          ****
     355        CALL MRITMS (1,TSC(1),200,143)                          PROG2240
     356   C                                                            PROG2250
     357   C                                                            PROG2260
     358   C          ****INCREMENT NODH AND TEST****                   PROG2270
     359    323  NODH = NODH - ND(1)                                     PROG2280
     360         DOWRI = DC(3)                                           PROG2290
     361         IF (NODH) 280,280,324                                   PROG2300
     362    324  CALL DMYBA                                              PROG2310
     363         GO TO 230                                               PROG2320
     364   C                                                            PROG2330
     365   C                                                            PROG2600
     366   C          ***DATA SETUP FOR NEXT CH FOR OPT SEARCH***       PROG2610
     367   C            *READ DATA FROM RCD 143 INTO TSC ARRAY AND PROCES** PROG2620
     368    410  CALL READMS (1,TSC(1),200,143)                          PROG2630
     369         DO 411 I=1,11                                           PROG2640
     370         DCBST(I) = TSC(I)                                       PROG2650
     371         DCNOS(I) = TSC(I+11)                                    PROG2660
     372         DWMI1(I) = TSC(I+22)                                    PROG2670
     373         DBMI1(I) = TSC(I+33)                                    PROG2680
     374         DWV(I) = TSC(I+44)                                      PROG2690
     375         DWH(I) = TSC(I+55)                                      PROG2700
     376         YBUI(I) = TSC(I+66)                                     PROG2710
     377         YBLI(I) = TSC(I+77)                                     PROG2720
     378         DWX1(I) = TSC(I+88)                                     PROG2730
     379         TBWPI(I) = TSC(I+99)                                    PROG2740
     380         THWPI(I) = TSC(I+110)                                   PROG2750
     381         VFWPI(I) = TSC(I+121)                                   PROG2760
     382         WPNLS(I) = TSC(I+132)                                   PROG2770
     383         TPNLW(I) = TSC(I+143)                                   PROG2780
     384         TBCNT(I) = TSC(I+154)                                   PROG2790
     385         DEFF1(I) = TSC(I+165)                                   PROG2800
     386         YBUD(I) = TSC(I+176)                                    PROG2810
     387         YBLD(I) = TSC(I+187)                                    PROG2820
     388    411  CONTINUE                                                PROG2825
     389   C                                                            PROG2830
     390   C          **SETUP DV DATA FOR BASIC OPT PASS**              PROG2840
     391    420  ISC = IOPS                                              PROG2850
     392         ICD = IOPC                                              PROG2860
     393         NODH = ND(4)                                            PROG2870
     394         D(375) = TCNST(1)                                       PROG2880
     395         D(376) = TCNST(2)                                       PROG2890
     396         D(380) = TCNST(5)                                       PROG2900
     397         D(381) = TCNST(6)                                       PROG2910
     398         D(382) = TCNST(7)                                       PROG2920
     399         GO TO 210                                               PROG2930
     400   C                                                            PROG2940
     401   C                                                            PROG3000
     402   C          **END OF CALC. RESET DATA AND EXIT**              PROG3010
     403    400  DO 401 I=1,4                                           PROG3020
     404         D(I+374) = TCNST(I)                                     PROG3030
     405         D(I+379) = TCNST(I+4)                                   PROG3040
     406    401  CONTINUE                                               PROG3050
     407   C                                                            PROG3080
     408   C          ***SET XMISC(3)=1 FOR NORMAL RETURN--CONTINUE TO OLAY 17**PROG3910
     409         XMISC(3) = D(1)                                         PROG3920
     410   C                                                            PROG3930
     411   C                                                            PROG3980
     412         RETURN                                                  PROG3988
     413         END                                                     PROG3998
     414   C*********************.  -  ********************************************
     415   C
     416   C       *****SUBROUTINE DMYBA*****
     417   C   ***DEADWEIGHT AND COUPLE ARM ADJUSTMENT FOR PASS (1)***
     418   C
     419   C*************************************************************************
     420   C
     421         SUBROUTINE DMYBA                                        DMYB0010
     422   C                                                            DMYB0011
     423   C     ***ADJUSTMENT SUBR FOR ASSUME DH AND Y(BAR) FOR DM/GH PASS***  DMYB0020
     424   C              11-15-71 (4A-814-X4 BASIC AND X4 O/LAY          DMYB0030
     425   C            **YBUI, YBLI = F(ADJ. NX/ASSUMED NX).667  D(114)  DMYB0040
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CARD NO  ****                          CONTENTS                          ****
   426   C              **WDM=F(ADJ. WT/IN) + F(ADJ. NX/ASSUMED NX).725  (D(113) DMYB0050
   427   C                                                                DMYB0060
   428         COMMON T(6220)                                             DMYB0070
   429         COMMON /IPRINT/ IP(80)                                     DMYB0071
   430   C                                                                DMYB0080
   431         DIMENSION D(2060),CD(2000),ND(100),DC(100),TSEC(300),      DMYB0090
   432        1YBUD(11),YBLD(11),YBU(11),YBL(11),                         DMYB0091
   433        2DMN1(11),DBM1(11),DNX1(11),ALPH(11),DMH(11),               DMYB0092
   434        3DEFF(11),TB-P1(11),TDP1(11),TBD(11),                       DMYB0093
   435        STBCNT(11),VFWP1(11),                                       DMYB0095
   436        BRLOS(132),                                                 DMYB0098
   437        9TT(24),TR(17) TOGW(11)                                     DMYB0099
   438   C                                                                DMYB0100
   439         EQUIVALENCE (D(1),T(2081)),(CD(1),T(1121)),(ND(1),T(6121)),DMYB0110
   440        1(DC(1),D(1401)),(TSEC(1),CD(1501)),(TT(1),T(1317)),        DMYB0111
   441        2(TR(1),T(1300)),(TDGW(1),T(1430)),(DGWR1,TDGW(11)),        DMYB0112
   442        3(DKDW3,D(113)),(DKYBI,D(114)),(ULTLF,D(122)),(UPNZ,D(205)),DMYB0113
   443        4(ALPH(1),T(565)),(DMM1(1),T(701)),(DBM1(1),T(712)),        DMYB0114
   444        5(DNX1(1),T(723)),(DEFF1(1),T(800)),(TB-P1(1),T(745)),      DMYB0115
   445        6(TDP1(1),T(767)),(TBD(1),T(530)),(DMH(1),T(609)),          DMYB0116
   446        7(YBUD(1),T(679)),(YBLD(1),T(690)),(DGWI,T(22)),            DMYB0117
   447        8(YBU(1),TSEC(133)),(YBL(1),TSEC(188)),(NPAGE,ND(85)),(IGW,ND(61)DMYB0118
   448        9),(J,ND(26)),(L,ND(27)),(M,ND(28)),(NDDW,ND(56)),(NCASE,ND(60))  DMYB0119
   449        B,(DMISC,T(191)),(TBCWT(1),T(789)),(VFWP(1),T(756)),(DLTBX,T(188))DMYB0121
   450        C,(K,ND(29))                                                DMYB0122
   451        D,(RLOS(1),CD(400))                                         DMYB0123
   452   C                                                                DMYB0129
   453   C                                                                DMYB0140
   454   C            ***SET K=2 FOR DEADWEIGHT PRINT HEAD 6\ SUBR DEADM***  DMYB0150
   455    100  K = ND(2)                                                  DMYB0160
   456   C                                                                DMYB0170
   457   C            ***SETUP FOR 3-PASS ITERATION FOR DW/YBAR EFFECTS ON ID=J*DMYB0180
   458   C              *TEST BKPRT THEN INITIALIZE YBAR ASSUMED=YBAR DESIGN*  DMYB0190
   459    101  J = ND(1)                                                  DMYB0200
   460   C                                                                DMYB0202
   461   C            ***CHECK FOR BK PRINT--ID=IP(24,25)***              DMYB0202
   462   C              *IP 25 = PRINT AT NDDW=1 ONLY*                    DMYB0202
   463   C              *IP 24 = PRINT FOR ALL NDDW GREATER THAN 1*       DMYB0202
   464   C                                                                DMYB0202
   465         IF(NDDW - ND(1))1201,1201,1205                             DMYB0202
   466   C                                                                DMYB0202
   467    1201 IF(IP(25))1202,1202,110                                    DMYB0202
   468    1202 WRITE(6,1203)                                              DMYB0202
   469    1203 FORMAT(1H1,89X,20H** DMYBA - IP(25) **)                    DMYB0202
   470         GO TO 200                                                  DMYB0202
   471   C                                                                DMYB0202
   472    1205 IF(IP(24))1206,1206,110                                    DMYB0202
   473    1206 WRITE(6,1207)                                              DMYB0202
   474    1207 FORMAT(1H1,89X,20H** DMYBA - IP(24) **)                    DMYB0202
   475   C                                                                DMYB0202
   476     200 WRITE (6,201)NCASE,       IGW,NDDW,DGWI,DGWR1              DMYB0209
   477   C                                                                DMYB0210
   478    201  FORMAT (10H     CASE!- ,I4X,9HH-**-DEADWEIGHT AND Y-BAR ADJUSTMENTDMYB0211
   479        1 DATA-**-/1H0,17X,                          8H IGW=I1,7H  NDDW=DMY*0212
   480        211,8H DGW=F9.1,8H  DGWR1=F8.5,/8GH0 STA  DEFF(A)  YBU(A)  YBU(D) DMYB0213
   481        3 YBL(A)  YBL(D)  TB-W/IN    TB-M(A)    TB-M(D)   NX(D) )       DMYB0214
   482   C                                                                DMYB0219
   483    202  FORMAT (1H 2X,I2,F9.4,4F8.4,F8.4,2F11.1,F8.1)              DMYB0220
   484   C                                                                DMYB0221
   485         DO 203 L=1,11                                              DMYB0222
   486         M = ND(12) - L                                             DMYB0223
   487         WRITE 16,202)L,DEFF(L),YBU(M),YBUD(M),YBL(M),YBLD(M),TB-P(L),DDMYB0224
   488        1MM1(L ,DMM(L),DNX1(L)                                      DMYB0225
   489    203  CONTINUE                                                   DMYB0226
   490   C                                                                DMYB0229
   491   C           *****START LOOP. COMPUTE NEW D(PRIME) AND DELTA MDM*****  DMYB0230
   492   C              *MOVE YBUD,YBLD*                                  DMYB0231
   493    110  DO 1100 L=1,11                                            DMYB0235
   494         YBU(L) = YBUD(L)                                           DMYB0236
   495         YBL(L) = YBLD(L)                                           DMYB0237
   496    1100 CONTINUE                                                   DMYB0238
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CARD NO.  ****                          CONTENTS                          ****
  497     C                                                                 DMYB0239
  498           DO 119 M=1,11                                               DMYB0240
  499           L = ND(12) - M                                              DMYB0250
  500           TR(1) = TBD(M) - YBU(L) - YBL(L)                            DMYB0260
  501           IF (TR(1) - D(1)) 111,111,112                               DMYB0270
  502    111    TR(1) = DEFF(M)                                             DMYB0280
  503           IF (DEFF(M)) 1110,1110,112                                  DMYB0281
  504    1110   TR(1) = D(1)                                                DMYB0282
  505           DEFF(M) = D(1)                                              DMYB0283
  506    112    TR(2) = ULTLF*DGAR1*ALPH(M)*RLDS(M+11) + UPNZ*(DMII(M) - DBM(M))*DMYB0290
  507          1RLDS(M+77)                                                  DMYB0291
  508     C                                                                 DMYB0300
  509     C              **COMPUTE MX RATIOS**                              DMYB0310
  510           TR(5) = D(1)                                                DMYB0311
  511           IF (DBMII(M)) 1120,116,1121                                 DMYB0312
  512    1120   DBMII(M) = ABS(DBMII(M))                                    DMYB0315
  513    1121   TR(3) = TR(2)/ABS(DBMII(M))                                DMYB0320
  514           IF (TR(3) + 0.90) 1122,1123,1123                            DMYB0321
  515    1122   TR(3) = -0.90                                              DMYB0322
  516    1123   TR(4) = D(1) - TR(1)/DEFF(M)                               DMYB0330
  517     C                                                                 DMYB0340
  518     C                 K(YBAR)0                                        DMYB0350
  519     C
  520           VAR = D(1) + TR(3) + TR(4)
  521     C
  522           IF(VAR)301,302,302
  523      301  YBU(L) = YBUD(L)
  524           YBL(L) = YBLD(L)
  525     C
  526      304  TBMPI(M) = 0.0
  527           GO TO 119
  528     C
  529      302  TR(5) = VAR**DKYB1
  530           TR(1) = TBD(M) - TR(5)*(YBUD(L) +YBLD(L))                   DMYB0370
  531           IF (TR(1) - D(1)) 113,113,114                               DMYB0380
  532    113    TR(1) = DEFF(1)                                             DMYB0390
  533    114    TR(4) = D(1) - TR(1)/DEFF(M)                                DMYB0400
  534     C
  535           VAR = D(1) + TR(3) + TR(4)
  536     C
  537           IF(VAR)301,303,303
  538     C
  539      303  TR(5) = VAR**DKYB1
  540    116    YBU(L) = YBUD(L)*TR(5)                                      DMYB0420
  541           YBL(L) = YBLD(L)*TR(5)                                      DMYB0430
  542     C                                                                 DMYB0440
  543     C              **CORRECT BOX WT/IN AND DM(MOM)**                  DMYB0450
  544     C               *INCLUDE ADJ. FOR WF AND MISC WT/IN DUE TO DELTA TB(ST)*DMYB0451
  545     C               *DELTA(WFWPI) = SMALLER OF .9 WFWPI OR .4 TOWPI/DEL(TB)*DMYB0452
  546     C               *DELTA(MISC) = DMISC*(TOWPI - DELTA(WFWPI)*         DMYB0453
  547     C               *FINAL DELTA WT/IN= TOWPI - DELTA(WFWPI) + DELTA(MISC)* DMYB0454
  548     C                                                                 DMYB0455
  549     C               *ADJUST CONC WTS FOR TB(ST) CHANGE*                DMYB0456
  550     C               *K(CONC)= SQRT(K(WT/IN)+ 1)*                       DMYB0457
  551     C                                                                 DMYB0458
  552     C               *K(WT/IN) MUST BE GREATER THAN (-1.0)--MIN=(-.90)** DMYB0459
  553     C               *TEST FOR MIN K*                                  DMYB0460
  554     C
  555           VAR = D(1) + TR(3) + TR(4)
  556     C
  557           IF(VAR)304,305,305
  558     C
  559      305  TR(6) = VAR**DKDWB - D(1)
  560           IF (TR(6) + 0.90) 118,1180,1180                             DMYB0465
  561    118    TR(6) = -0.90                                               DMYB0466
  562    1180   TOWPI(M) = TR(6)*TBMPI(M)                                   DMYB0470
  563           TR(7) = 0.4*TOWPI(M)/DLTBX                                  DMYB0471
  564           TR(8) = 0.9*WFWPI(M)                                        DMYB0472
  565           IF (TOWPI(M)) 1181,119,1182                                 DMYB0475
  566    1181   TR(8) = -TR(8)                                              DMYB0476
  567    1182   IF (ABS(TR(7)) - ABS(TR(8))) 1183,1184,1184                 DMYB0480
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CARD NO      ****                          CONTENTS                          ****
  968         1103 TR(8) = TR(7)                                              DMYB0481
  969         1104 TR(9) = DMISC*(TDMPI(M) - TR(8))                           DMYB0482
  970              TDMPI(M) = TDMPI(M) - TR(8) + TR(9)                        DMYB0485
  971         C                                                               DMYB0488
  972         C              *SCALE CONC MTS*                                 DMYB0489
  973              TR(10) = SQRT(TR(6) + D(1))                                DMYB0490
  974              TBCWT(M) = TR(10)*TBCWT(M)                                 DMYB0495
  975         110  CONTINUE                                                   DMYB0498
  976         C                                                               DMYB0499
  977         C              **COMPUTE DWT(V,M)**                             DMYB0500
  978         120  CALL DEADW                                                 DMYB0510
  979         C                                                               DMYB0520
  980         C              **TEST FOR LOOP**                                DMYB0530
  981         130  J = J + ND(1)                                              DMYB0540
  982              IF (ND(4) - J) 210,210,110                                 DMYB0550
  983         C                                                               DMYB0560
  984         C                                                               DMYB1130
  985         C              *PRINT ON IP 24 OR 25*                           DMYB1135
  986          210 IF(NOOM - ND(1))1220,1220,1225
  987         1220 IF(IP(25))1221,1221,199
  988         1221 WRITE(6,1203)
  989              GO TO 2102
  990         1225 IF(IP(24))1226,1226,199
  991         1226 WRITE(6,1207)
  992         2102 WRITE (6,211)                                              DMYB1151
  993          211  FORMAT (42H- STA  YBU(N)  ,BL(N)  DL-M/IN    TB-M(N))    DMYB1160
  994          212  FORMAT (1H 2X,I2,2F8.4,F9.4,F13.1)                        DMYB1170
  995              DO 213 L=1,11                                              DMYB1180
  996              M = ND(12) - L                                             DMYB1190
  997              WRITE (6,212)L,YBUI(M),YBLI(M),TDMPI(L),DWM(L)             DMYB1200
  998          213  CONTINUE                                                  DMYB1210
  999         C                                                               DMYB1230
 1000         C              EXIT                                             DMYB9000
 1001          199  RETURN                                                    DMYB9990
 1002              END                                                        DMYB9999
 1003         C**********************************************************************
 1004         C
 1005         C       *****SUBROUTINE DEADW*****
 1006         C   ***TORQUE-BOX INERTIA LOAD EVALUATION***
 1007         C
 1008         C**********************************************************************
 1009         C
 1010              SUBROUTINE DEADW                                           DEAD0010
 1011         C                                                               DEAD0011
 1012         C     DW MOM,V AND CP CALC SUBR -- 1-03-86---                   DEAD0020
 1013         C                                                               DEAD0030
 1014         C                                                               DEAD0050
 1015         C                                                               DEAD0070
 1016              COMMON T(2060) D(2060),CD(2000),ND(100)                    DEAD0080
 1017              COMMON /IPRINT/ IP(80)                                     DEAD0081
 1018         C                                                               DEAD0090
 1019              DIMENSION  DC(100),TT(24),TSEC(300),                       DEAD0100
 1020             1DWM(1),DWM(1),DWT(1),                                      DEAD0101
 1021             2DCDLV(1),DCDLM(1),DCDLT(1),                                DEAD0102
 1022             3WPNLS(1),TPNLM(1),TBCWT(1),                                DEAD0103
 1023             4TBMPI(1),VFWPI(1),TWMPI(1),                                DEAD0104
 1024             5YSTRC(1),TDMPI(1)                                          DEAD0109
 1025         C                                                               DEAD0110
 1026              EQUIVALENCE (DC(1),D(140)),(TSEC(1),CD(150)),(TT(1),T(1317)),  DEAD0120
 1027             1(YSTRC(1),TSEC(186)),(TANDX,T(87)),(CCLDX,T(88)),          DEAD0121
 1028             2(DWM(1),T(598)),(DWM(1),T(600)),(DWT(1),T(620)),           DEAD0122
 1029             3(DCLWO,T(187)),                                            DEAD0123
 1030             4(DCDLV(1),T(230)),(DCDLM(1),T(241)),(DCDLT(1),T(252)),     DEAD0124
 1031             5(WPNLS(1),T(845)),(TPNLM(1),T(858)),(TBCWT(1),T(789)),     DEAD0125
 1032             6(TBMPI(1),T(745)),(VFWPI(1),T(758)),(TWMPI(1),T(778)),     DEAD0126
 1033             7(TDMPI(1),T(787)),                                         DEAD0127
 1034             8(DSWI,T(22)),(NPAGE,ND(85)),(NCASE,ND(86)),                DEAD0128
 1035             9(NOOM,ND(56)),(IOW,ND(61)),(N,ND(31)),(I,ND(30)),(K,ND(29))  DEAD0129
 1036         C                                                               DEAD0130
 1037         C                                                               DEAD0200
 1038         C              **STA(1)**                                       DEAD0210
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CARD NO  ****                          CONTENTS                          ****
  638      100  TT(1) = DELWG*TBCWT(II)                                  DEAD0220
  648           DWV(II) = TT(1)                                          DEAD0230
  641           DWM(II) = DC(3)                                          DEAD0240
  642           DWT(II) = TT(1)*(YSTRC(I)*TANDX + CCLDX)                 DEAD0250
  643      C                                                             DEAD0260
  644      C            **PNL WTS/CG FOR BOX AND WING MISC WTS.  10 PNLS* DEAD0270
  645      C             *SCALE TB WT/IN(ST) TO TOTAL DIST. WTS*         DEAD0280
  646      110  DO 119 I=1,10                                            DEAD0290
  647           N = ND(I) - 1                                            DEAD0300
  648           TT(2) = YSTRC(I) - YSTRC(I+1)                            DEAD0310
  649           TT(3) = TPNLW(N)/WPNLS(N)                                DEAD0320
  650           TT(4) = TT(3)*TBWPI(N)                                   DEAD0330
  651           TT(5) = TT(3)*TBWPI(N+1)                                 DEAD0340
  652      C                                                             DEAD0350
  653      C            **SUM WT/IN.  CALC CP.  CHECK FOR ZERO AND LIMITS** DEAD0360
  654           TT(6) = TT(4) + WFWPI(N) + TBWPI(N) + TDWPI(N)           DEAD0370
  655           TT(7) = TT(5) + WFWPI(N+1) + TBWPI(N+1) + TDWPI(N+1)     DEAD0380
  656           TT(8) = 0.6667                                           DEAD0390
  657           IF (TT(6)) 113,113,111                                   DEAD0400
  658      111  TT(8) = TT(7)/TT(6)                                      DEAD0410
  659           TT(9) = 0.3334                                           DEAD0420
  660           IF (TT(8)) 113,113,112                                   DEAD0430
  661      112  TT(9) = (D(1) + D(2)*TT(8))/(D(3) + D(3)*TT(8))         DEAD0440
  662      113  TT(10) = TT(9)*TT(2)                                     DEAD0450
  663      C                                                             DEAD0460
  664      C            *PNL WT FOR FINAL DIST. WTS. INCL DELTA TB WT CHANGE* DEAD0470
  665           TT(11) = DELWG*TT(2)/D(2)*(TT(6) + TT(7))                DEAD0480
  666           TT(12) = DELWG*TBCWT(N)                                  DEAD0490
  667      C                                                             DEAD0500
  668      C            *V,M,T DUE TO ALL WT ITEMS*                      DEAD0510
  669           DWV(N) = DWV(N+1) + TT(11) + TT(12)                      DEAD0520
  670           DWM(N) = DWM(N+1) + TT(2)*DWV(N+1) + TT(11)*TT(10)       DEAD0530
  671           DWT(N) = DWT(N+1) + TT(11)*((YSTRC(I+1) + TT(10))*TANDX + CCLDX) +DEAD0540
  672          1TT(12)*(YSTRC(I+1)*TANDX + CCLDX)                        DEAD0550
  673      119  CONTINUE                                                 DEAD0560
  674      C                                                             DEAD0570
  675      C                                                             DEAD0578
  676      C            ***ADD V, M, T DUE TO DELTA COL WTS***           DEAD0579
  677           DO 1190 I=1,11                                           DEAD0580
  678           DWV(I) = DWV(I) + DCOLV(I)                               DEAD0581
  679           DWM(I) = DWM(I) + DCOLM(I)                               DEAD0582
  680           DWT(I) = DWT(I) + DCOLT(I)                               DEAD0583
  681      1190 CONTINUE                                                 DEAD0585
  682      C                                                             DEAD0589
  683      C            ***CHECK BK PRINT--ID=IP(24,25)***               DEAD0590
  684      C             *IP 25 FOR NODM 1 ONLY*                         DEAD0600
  685      C             *IP 24 FOR NODM GREATER THAN 1*                 DEAD0609
  686           IF(NODM - ND(1))1201,1201,1205
  687      1201 IF(IP(25))1202,1202,199
  688      1202 WRITE(6,1203)
  689      1203 FORMAT(1H1,89X,20H** DEADM - IP(25) **)
  690           GO TO 122
  691      C
  692      1205 IF(IP(24))1206,1206,199
  693      1206 WRITE(6,1207)
  694      1207 FORMAT(1H1,89X,20H** DEADM - IP(24) **)
  695      C                                                             DEAD0850
  696      C            ***TEST FOR TYPE OF HEADING. K=1=PROG, K=2=DMYBA*** DEAD0859
  697      122  IF IK - ND(1) 1220,1220,1221                             DEAD0860
  698      1220 WRITE (6,123)NCASE                                       DEAD0870
  699           GO TO 1222                                               DEAD0875
  700      C                                                             DEAD0879
  701      1221 WRITE (6,1230)                                           DEAD0880
  702      1222 WRITE (6,1231)  IGW,NODM,DGW                             DEAD0890
  703      C                                                             DEAD0700
  704      123  FORMAT (1H0     CASE IN,12X,62H-**-DEADWEIGHT SUMMARY DATA--TORQUEDEAD0710
  705          1-BOX SYNTHESIS RESULTS-**- /)                            DEAD0711
  706      1230 FORMAT (52H                -**-DEADWEIGHT ADJUSTMENT RESULTS-**-/) DEAD0720
  707      1231 FORMAT (1H ,13X,      7H  IGW=I1,8H   NODM=I1,7H  DGW=F9.1,/108HDEAD0730
  708          1H  STA     TB(V)       TB(H)     TB(T)     TBWPI     WFWPI    TWPIDEAD0731
  709          2   TDWPI     TBCWT     M-DIST   TM-DIST )                 DEAD0732
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06/11/74     INPUT LISTING                    AUTOFLOW CHART SET - SHEEP   MING AND EISENBERG MODULE -

CARD NO      ****                          CONTENTS                                          ****

  710        C                                                                               DEAD0739
  711        C                                                                               DEAD0740
  712         124  FORMAT (1H 3X,I2,F10.1,F12.1,F11.1,F10.4,3(F9.4,F10.2))                  DEAD0750
  713         125  FORMAT (1H 3X,I2,F10.1,F12.1,F11.1,F10.4,3(F9.4,F10.2))                  DEAD0760
  714        C                                                                               DEAD0770
  715             DO 126 N=1,10                                                            DEAD0780
  716             WRITE (6,124)N,DW(N),D(N),D(N),D(N),TE(N),W(N),U(N),T(N),TOSS DEAD0790
  717             1P(N),TDGN(N),PRESS(N),TVEL(N)                                           DEAD0800
  718         126 CONTINUE                                                                 DEAD0810
  719             WRITE (6,125)ND(I),D(I),D(I),D(I),D(I),TE(I),W(I),T(I),TMDEAD0820
  720             1NP(I),TDMP(I),TDGN(I)                                                   DEAD0830
  721        C                                                                               DEAD0840
  722        C                                                                               DEAD0850
  723        C                                                                               DEAD9900
  724         199  RETURN                                                                  DEAD9990
  725             END                                                                      DEAD9999
  726        C*****************************************************************************
  727        C
  728        C        *****SUBROUTINE VLOAD*****
  729        C   ***NET ULTIMATE DESIGN LOADS EVALUATION***
  730        C
  731        C*****************************************************************************
  732        C
  733             SUBROUTINE VLOAD                                                         VL000010
  734        C                                                                             VL000001
  735        C***************BASIC VERSION OF SUBROUTINE VLOAD (OVERLAY(3,0))*******VL000011
  736        C          ******SAME AS SUBR VLOAD IN OVERLAY(6,0)******                     VL000012
  737        C                                                                             VL000019
  738        C                                                                             VL000020
  739        C            ***NET ULT DESIGN LOADS CALC SUBR***                             VL000030
  740        C                                                                             VL000040
  741        C            ***LID = TYPE OF LOAD SET ID***                                  VL000050
  742        C              *1 = GROSS, CALC*                                              VL000060
  743        C              *2 = GROSS, INPUT*                                             VL000070
  744        C              *3 = INPUT, NET*                                               VL000080
  745        C                                                                             VL000090
  746        C                                                                             VL000100
  747        C                                                                             VL000150
  748             COMMON T(20000),D(20000),CD(20000),ND(10)                                VL000160
  749             COMMON /IPRINT/ IP(10)                                                   VL000161
  750             COMMON /MISC/ XMISC(100)
  751        C                                                                             VL000170
  752             DIMENSION DC(100),TT(24),TSEC(300),                                      VL000180
  753            1ALPV(1),ALPH(1),ALPT(1),ALNV(1),ALNH(1),ALNT(1),                         VL000190
  754            2TDGH(16),ULTPT(1),ULTNT(1),                                              VL000192
  755            3DWV(1),D(1),DWT(1),SDWV(1),SDWH(1),SDWT(1),                              VL000193
  756            4UWFS(1),UWBS(1),DWFS(1),DWBS(1),                                         VL000194
  757            5LDWV(1),TDW(1),TDWT(1),                                                  VL000195
  758            6GUST0(1),DWFSR(1),                                                       VL000196
  759            8RLDS(132),                                                               VL000198
  760            9ULTPV(1),ULTPH(1),ULTNV(1),ULTNH(1)                                      VL000199
  761        C                                                                             VL000210
  762             EQUIVALENCE (DC(1),D(1),D(),D(),(D(),D(),(D(),D(),                       VL000220
  763            1(ULTLF,D(122)),(TT(1),T(1317)),(TSEC(1),CD(150)),                        VL000221
  764            2(ALPV(1),T(159)),(ALPH(1),T(1595)),(ALPT(1),T(1677)),(ALNV(1),T(1676)VL000222
  765            3),(ALNH(1),T(1687)),(ALNT(1),T(1858)),(TDGH(1),T(1930)),                 VL000223
  766            4(DWV(1),T(1993)),(DWH(1),T(2003)),(DWT(1),T(2071),                       VL000224
  767            5(ULTPH(1),TSEC(1)),(ULTPV(1),TSEC(12)),(ULTNV(1),TSEC(1)),(ULTNHVL000225
  768            6(1),TSEC(122)),(GUST0(1),T(1503)),(DGW,T(122)),                          VL000226
  769            7(DGWR,TDGH(2)),(DDGK,TDGH(3)),(TDXK,TDXK(4)),                            VL000227
  770            8(INCASE,ND(60)),(NOON,ND(5)),(IGW,ND(61)),(IOP1,ND(82)),                 VL000228
  771            9(NPAGE,ND(85)),(LID,ND(9)),(N,ND(3)),(K,ND(3)))                          VL000229
  772        C                                                                             VL000230
  773             EQUIVALENCE (UWFS(1),TSEC(23)),(UWBS(1),TSEC(34)),                       VL000240
  774            1(ULTPT(1),TSEC(144)),(ULTNT(1),TSEC(155)),                               VL000241
  775            2(SDWV(1),T(1894)),(SDWH(1),T(1955)),(SDWT(1),T(1966)),                   VL000242
  776            3(RLDS(1),CD(100)),                                                       VL000243
  777            8(TDWV(1),CD(1958)),(TDWH(1),CD(1979)),(TDWT(1),CD(1990)),                VL000248
  778            9(DWFSRS(1),CD(1924)),(DWFS(1),D(842)),(DWBS(1),D(853))                   VL000249
  779             DIMENSION STHV(1),STHH(1),STHT(1)
  780             EQUIVALENCE (STHV(1),T(811)),(STHH(1),T(822)),(STHT(1),T(833))
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CARD NO  ****                          CONTENTS                          ****
  781    C                                                                VLO00250
  782    C  ** REVERSE THE LOAD FACTORS IF THE H. T. LOADS HAVE BEEN REVERSED **
  783    C
  784          IF(D(209))15,16,14
  785       15 IF(XMISC(42))16,16,8
  786        8 SAVE = UNNZ
  787          UNNZ = UPNZ
  788          UPNZ = SAVE
  789          GO TO 16
  790       14 UNNZ = UPNZ
  791    C
  792    C            ***CHECK OK PRINT***                                 VLO00251
  793    C             *IP 25 FOR NOOM = 1 ONLY*                           VLO00252
  794    C              *IP 24 FOR NOOM GREATER THAN 1*
  795    C             *SET TT(3) TO 0 FOR NO PRINT, 1 FOR PRINT*           VLO00254
  796       16 TT(3) = DC(3)                                                VLO00260
  797          IF(NOOM - NO(1))1201,1201,1205
  798     1201 IF(IP(25))1202,1202,1009
  799     1202 WRITE(6,1203)
  800     1203 FORMAT(1HI,8X,20H** VLOAD - IP(25) **)
  801          GO TO 1003
  802    C
  803     1205 IF(IP(24))1206,1206,1009
  804     1206 WRITE(6,1207)
  805     1207 FORMAT(1HI,09X,20H** VLOAD - IP(24) **)
  806    C
  807     1003 TT(3) = D(1)                                                VLO00275
  808          WRITE (6,1004)NCASE,        IGW,NOOM,IOP1,DGWI             VLO00280
  809          WRITE (6,1005)                                             VLO00285
  810    C                                                                VLO00289
  811     1004 FORMAT (10H      CASE 1*,16X,47H-**-DESIGN LOADS/1000 AND REDO GJ/1VLO00290
       1,000,000-**-/1H0,17X,6H  IGW=,11,7H  NOOM=,11,
       2       7H  IOP1=11,6H  DGW=F9.1)                                 VLO00292
  814    C                                                                VLO00299
  815     1005 FORMAT (108H0  STA   =V(ULT)    =M(ULT)   =T(ULT)  -V(ULT)   -MIULVLO00300
       1)   -T(ULT)  VON(1G)   MOM(1G)   TOM(1G)   GJ/REQD)  )           VLO00301
  817    C                                                                VLO00302
  818     104  FORMAT (1H 3X,12,F10.3,F11.2,F10.2,F9.3,F10.2,F10.2,F9.3,F10.2,F10VLO00303
       1.2,F12.3)                                                        VLO00304
  820    C                                                                VLO00309
  821     1009 DO 107 N=1,11                                              VLO00310
  822          K = NO(12) - N                                             VLO00315
  823          TT(1) = DC(3)                                              VLO00320
  824          TT(7) = DC(3)                                              VLO00325
  825          TT(2) = DC(3)                                              VLO00330
  826          TT1 = 0.0
  827          TT2 = 0.0
  828          TT7 = 0.0
  829          IF (KLID - NO(2)) 101,101,102                              VLO00340
  830    C                                                                VLO00350
  831    C               *PRINT ON TT(3)=1.0*                             VLO00351
  832    C              **SETUP INERTIA DATA**                            VLO00360
  833       101 TT(1) = SDMV(N) - STMV(N)
  834           TT1 = (DMV(N) + STMV(N)) * DDNK * TBXX
  835           TT(2) = SDMM(N) - STMM(N)
  836           TT2 = (DMM(N) + STMM(N)) * DDNK * TBXX
  837           TT(7) = SDMT(N) - STMT(N)
  838           TT7 = (DMT(N) + STMT(N)) * DDNK * TBXX
  839           ALPNZ = ABS(UPNZ)
  840           ALNNZ = ABS(UNNZ)
  841    C                                                                VLO00389
  842       102 ULTPV(K) = ABS(ULTLF * ALPV(N) * DGWR -
       *ALPNZ * (TT(1) * RLDS(N+66 ) + TT1 * RLDS(N    )))
  844    C                                                                VLO00399
  845           ULTNV(K) = ABS(ULTLF * ALNV(N) * DGWR *
       *ALNNZ * (TT(1) * RLDS(N+99 ) + TT1 * RLDS(N+33)))
  847    C                                                                VLO00409
  848           ULTPM(K) = ABS(ULTLF * ALPM(N) * DGWR -
       *ALPNZ * (TT(2) * RLDS(N+77 ) + TT2 * RLDS(N+11)))
  850    C                                                                VLO00419
  851           ULTNM(K) = ABS(ULTLF * ALNM(N) * DGWR *
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CARD NO  ****                          CONTENTS                          ****
  852          *ALMNZ * (TT(2) * RLDS(N+110) + TT2 / RLDS(N+44)))
  853     C                                                                VL000419
  854          ULTPT(K) = ABS(ULTLF * ALPT(N) * DGAR -
  855          *ALPNZ * (TT(7) * RLDS(N+88 ) + TT7 * RLDS(N+55)))
  856     C                                                                VL000429
  857          ULTNT(K) = ABS(ULTLF * ALNT(N) * DGAR *
  858          *ALNNZ * (TT(7) * RLDS(N+121) + TT7 * RLDS(N+55)))
  859     C                                                                VL000429
  860     C                    FS/RS LOADS                                 VL000430
  861          UVFS(K) = ULTPV(K)*DVFS(N)*DVFSRS(N)                        VL000440
  862          UVRS(K) = ULTPV(K)*DVRS(N)*(D(1) - DVFSRS(N))               VL000450
  863          IF (TT(3)) 109,109,103                                      VL000451
  864      103 TT(8) = ULTPV(K)/1000.0                                     VL000452
  865          TT(9) = ULTPH(K)/1000.0                                     VL000453
  866          TT(10)= ULTPT(K)/1000.0                                     VL000454
  867          TT(11)= ULTNV(K)/1000.0                                     VL000455
  868          TT(12)= ULTNH(K)/1000.0                                     VL000456
  869          TT(13)= ULTNT(K)/1000.0                                     VL000457
  870          TT(14)= (TT1 + TT(1))/ 1000.0
  871          TT(15)= (TT2 + TT(2))/ 1000.0
  872          TT(16)= (TT7 + TT(7))/ 1000.0
  873          TT(17) = GJRQD(N)/1000000.0                                 VL000461
  874          WRITE (6,104)N,(TT(I+7),I=1,10)                             VL000465
  875     C                                                                VL000470
  876     C                                                                VL000472
  877          TDMV(K) = TT(1) + TT1
  878          TDMH(K) = TT(2) + TT2
  879          TDMT(K) = TT(7) + TT7
  880     C                                                                VL000479
  881      109 CONTINUE                                                    VL000480
  882     C                                                                VL000490
  883          IF(D(289))10,199,199
  884       10 IF(XMISC(42))199,199,11
  885       11 SAVE = UNNZ
  886          UNNZ = UPNZ
  887          UPNZ = SAVE
  888     C                                                                VL001990
  889     C              ***EXIT***                                        VL001990
  890      199 RETURN                                                      VL001998
  891          END                                                         VL001999
  892     C*************************************************************************
  893     C
  894     C        *****SUBROUTINE TBOPT*****
  895     C   ***TOTAL TORQUE-BOX WEIGHT OPTIMIZATION CONTROL ***
  896     C
  897     C*************************************************************************
  898     C
  899          SUBROUTINE TBOPT                                            CNSR0020
  900     C                                                                CNSR0021
  901     C              **TORQUE-BOX OPTIMIZATION CONTROL ROUTINE-11-18-71**  CNSR0022
  902                                                                      CNSR0029
  903     C                                                                CNSR0100
  904     C      SETUP CONTROLS FOR I-SECTION/TUBE/ ... DESIGN             CNSR0110
  905     C                                                                CNSR0120
  906     C                                                                CNSR0140
  907          COMMON T(2060),D(2050),CD(2000),ND(100),TW(900)             CNSR0150
  908          COMMON /IPRINT/ IP(80)                                      CNSR0151
  909          COMMON /MISC/ XMISC(100)                                    CNSR0152
  910     C                                                                CNSR0160
  911          DIMENSION DC(100),TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),  CNSR0170
  912         1YSTRC(11),TC(400),TT(24),TD(40),                            CNSR0171
  913         2        DLCS(24),SWT(11),                                   CNSR0172
  914         3YBUD(11),YBLD(11),                                          CNSR0173
  915         4TBM(11),                                                    CNSR0174
  916         5WPNLS(11),TPNLW(11),TDCWT(11),                              CNSR0175
  917         6TBMP(11),TMMP(11),VFMP(11),                                 CNSR0176
  918         7DEFF(11),DMX1(11),                                          CNSR0177
  919         8DCOST(11),DCNOS(11),                                        CNSR0178
  920         9DOP2(3),DOP3(3),DOP4(9),DOP5(9),IOPD(5)                     CNSR0179
  921     C                                                                CNSR0180
  922     C                                                                CNSR0190
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CARD NO  ****                          CONTENTS                          ****
  923    C                                                                CNSR0200
  924          EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1134)),(TSC(1),T(1194)),  CNSR0210
  925         1(TSS(1),T(1981)),(TWT(1),CD(1)),(TSEC(1),CD(150)),          CNSR0211
  926         2(TC(1),T(1901)),(TO(1),T(1920)),(TT(1),T(1317)),            CNSR0212
  927         3(YSTAC(1),TSEC(186)),                                       CNSR0213
  928         4                  (QLCS(1),D(1402)),(DCLMO,T(1187)),        CNSR0214
  929         5(CNSID,D(1461)),(MMVID,T(57)),(TBW(1),T(1542)),(DTPVT,D(200)),  CNSR0215
  930         6(I,ND(29)),(K,ND(32)),(N,ND(31)),(ICD,ND(49)),(ISC,ND(22)),  CNSR0216
  931         7(IOPT,ND(73)),(IOPI,ND(74)),(IOPD(1),ND(75)),(IOPJ,ND(80)),  CNSR0217
  932         8(IOPP,ND(81)),(IOP1,ND(82)),(IOPS,ND(83)),(IOPC,ND(C4)),    CNSR0218
  933         9(ISEC,ND(55)),(NDDM,ND(56)),(IFW,ND(93)),(IGM,ND(61)),(IGT,ND(57))CNSR0219
  934    C                                                                CNSR0220
  935          EQUIVALENCE (SWT(1),T(734)),(YBUD(1),T(1679)),(YBLD(1),T(1690)),  CNSR0230
  936         1(DELTA(1),T(1800)),(DMX(1(1),T(723)),                       CNSR0231
  937         2(DCBST(1),D(765)),  (DCMOS(1),D(776)),                      CNSR0232
  938         3(WPNLS(1),T(1645)),(TPYLW(1),T(1656)),(TBCWT(1),T(709)),    CNSR0233
  939         4(TBWP(1),T(745)),(TWSP(1),T(778)),(WTSP(1),T(756)),         CNSR0234
  940         7(IPA,ND(23)),(IPB,ND(24)),                                  CNSR0237
  941         8(DOP2(1),D(1367)),(DOP3(1),D(1371)),(DOP4(1),D(1375)),      CNSR0238
  942         9(DOP5(1),D(1387)),(DOPTJ,D(1366))                           CNSR0239
  943    C                                                                CNSR0299
  944    C                                                                CNSR0320
  945    C            ***CHECK XMISC(39) FOR FIRST GW(I) CALL FROM PROG=0***  CNSR0330
  946          IF (XMISC(39)) 2000,2000,1000                              CNSR0340
  947    C                                                                CNSR0350
  948    C            ***XMISC(39)=I-6.  RETURN ID FROM SUBR CNSTR--OLAY 10***  CNSR0360
  949     1000 IF (XMISC(39) - D(2)) 4600,4100,1001                       CNSR0370
  950     1001 IF (XMISC(39) - D(4)) 4200,4520,1002                       CNSR0380
  951     1002 IF (XMISC(39) - D(6)) 4540,4570,4570                       CNSR0390
  952    C                                                                CNSR0400
  953    C     WT. CALC. ID=IC I= AREA, 2=AREA AND PANEL WT.              CNSR0410
  954     2000 IGM=IGT                                                    CNSR0420
  955    C                                                                CNSR0430
  956    C                                                                CNSR0440
  957    C            ****SETUP PRINT ID FOR PRTA, PR.   PRTC, PRTH****   CNSR0450
  958    C             ***IPA = ND(23) = ID FOR PRTA, PRTH.  1.0=PRINT***  CNSR0460
  959    C             ***IPB = ND(24) = ID FOR PRTB, PRTC.  1.0=PRINT***  CNSR0470
  960    C                                                                CNSR0480
  961          IPA = DC(3)
  962          IPB = DC(3)                                                CNSR0660
  963    C
  964          IF(ND(1) - NDDM)300,305,305
  965    C
  966    C            **IPA FOR NDDM GREATER THAN 1**
  967    C
  968      300 IF(IGM-2)301,304,301
  969      301 IF(IP(28))302,302,400
  970      302 IPA = ND(1)
  971          GO TO 400
  972      304 IF(IP(27))305,305,400
  973      305 IPA = ND(1)
  974          GO TO 400
  975    C
  976    C              **IPA FOR NDDM=1**
  977    C
  978      306 IF(IGM - 2)307,308,307
  979    C
  980      307 IF(IP(30))309,309,310
  981      309 IPA = ND(1)
  982          GO TO 310
  983    C
  984      308 IF(IP(29))311,3..,310
  985      311 IPA = ND(1)
  986    C
  987    C            ** IPB (NDDM=1 ONLY)**
  988    C
  989      310 IF(IGM-2)312,316,312
  990      312 IF(IP(32))314,314,400
  991      314 IPB = ND(1)
  992          GO TO 400
  993    C
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CARD NO  ****                          CONTENTS                          ****
  994      316 IF(IP(31))318,318,400
  995      318 IPB = ND(1)
  996    C                                                                CNSR0900
  997    C            ***TEST FOR OPT SEARCH, TYPE AND LOOP STATUS ***    CNSR0910
  998    C           **SETUP STA J ID***                                  CNSR0911
  999     400  IOPJ = ND(5)                                              CNSR0912
 1000          IF (DOPTJ) 4001,4001,4000                                 CNSR0913
 1001     4000 IOPJ = DOPTJ                                             CNSR0915
 1002     4001 IF (ND(2) - IOPJ) 401,401,410                            CNSR0920
 1003      401  IF (ND(3) - NODH) 402,430,404                           CNSR0930
 1004    C                                                               CNSR0940
 1005    C               BASIC OPT CASE                                  CNSR0950
 1006    C           ***CALL 1 TO CNSTR--DLAY ID--RETURN ID=1***         CNSR0951
 1007      402  XMISC(39) = D(1)                                         CNSR0960
 1008           RETURN                                                   CNSR0965
 1009    C                                                               CNSR0969
 1010     4020 GO TO 790                                                CNSR0970
 1011    C                                                               CNSR0980
 1012    C                                                               CNSR0990
 1013    C               TEST FOR 1 OR 2                                 CNSR1000
 1014      404  IF (NODH - ND(1)) 410,410,420                            CNSR1010
 1015    C                                                               CNSR1020
 1016    C            ****BASIC CASE PLUS LAST PASS FOR OPT****          CNSR1030
 1017    C            ***CALL 2 TO CNSTR--DLAY ID--RETURN ID=2***        CNSR1031
 1018      410  XMISC(39) = D(2)                                         CNSR1040
 1019           RETURN                                                   CNSR1045
  020    C                                                               CNSR1049
 1021     4180 IF (ND(2) - NODH) 790,790,700                            CNSR1050
 1022    C                                                               CNSR1060
 1023    C            ***NODH=2, IOPI=2,3,4,5. OPT PASS                  CNSR1070
 1024      420  IOPI = ND(6)                                            CNSR1080
 1025    C                                                               CNSR1088
 1026    C            ***CALL 3 TO CNSTR  DLAY ID--RETURN ID  * *        CNSR1089
 1027           XMISC(39) = D(3)                                         CNSR1090
 1028           RETURN                                                   CNSR1095
 1029    C                                                               CNSR1099
 1030     4200 GO TO 790                                                CNSR1100
 1031    C                                                               CNSR1110
 1032    C            ***NODH=3, IOPI=2,3,4,5. DISCRETE POINT SEARCH FOR OPT.***CNSR1120
 1033      430  IOPD(1) = ND(2)                                          CNSR1130
 1034           IOPD(2) = ND(3)                                          CNSR1140
 1035           IOPD(3) = ND(4)                                          CNSR1150
 1036           IOPD(4) = ND(5)                                          CNSR1151
 1037           IOPD(5) = ND(1)                                          CNSR1152
 1038           IOPP = ND(10)                                            CNSR1153
 1039      431  DO 432 I=1,11                                           CNSR1160
 1040           DCPST(I) = DC(3)                                         CNSR1170
 1041           DCNDS(I) = DC(3)                                         CNSR1180
 1042      432  CONTINUE                                                 CNSR1190
 1043    C           ***SETUP STA I-J AND J+1 - II DATA***               CNSR1250
 1044      434  N = ND(2) - IOPJ                                         CNSR1260
 1045           TD(4) = YSTRC(N) - YSTRC(1)                              CNSR1270
 1046           TD(5) = YSTRC(10) - YSTRC(N-1)                           CNSR1280
 1047    C                                                               CNSR1290
 1048    C            ****TEST FOR TYPE OF OPT SEARCH****                CNSR1300
 1049      440  IF (ND(3) - IOPI) 441,445,446                            CNSR1310
 1050    C                                                               CNSR1320
 1051    C     ***VARI. NOS C  DSTR.  NOT COMPLETED. USE CONST NOS OR DSTR LOGIC.CNSR1330
 1052      441  IF (IOPI - ND(4)) 442,442,443                            CNSR1340
 1053    C                                                               CNSR1348
 1054      442  IOPI = ND(2)                                             CNSR1349
 1055           GO TO 446                                                CNSR1350
 1056      443  IOPI = ND(3)                                             CNSR1359
 1057           GO TO 445                                                CNSR1360
 1058    C                                                               CNSR1370
 1059    C              *ID=3 CONST DSTR*                                CNSR1380
 1060      445  ISC = ND(3)                                              CNSR1390
 1061           TT(I) = D(I)/D(10)                                       CNSR1400
 1062           D(38I) = D(I)                                            CNSR1410
 1063           TD(8) = DOP3(2)                                          CNSR1420
 1064           TD(9) = DOP3(1)                                          CNSR1430
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CARD NO	**** CONTENTS ****	
1065	TO(10) = DOP3(3)	CNSR1440
1066	TO(11) = DOP3(4)	CNSR1450
1067	C	CNSR1460
1068	GO TO 4460	CNSR1465
1069	C *ID=2, CONST NOS*	CNSR1470
1070	446 ISC = ND(2)	CNSR1480
1071	D(380) = TBH(2) + TBH(3)	CNSR1490
1072	D(381) = D(380)	CNSR1500
1073	TT(1) = D(380)	CNSR1510
1074	TO(8) = DOP2(2)	CNSR1520
1075	TO(9) = DOP2(1)	CNSR1530
1076	TO(10)= DOP2(3)	CNSR1540
1077	TO(11)= DOP2(4)	CNSR1550
1078	4460 IF (TO(11)) 447,447,450	CNSR1560
1079	447 TO(11) = TO(10)/D(2)	CNSR1570
1080	C	CNSR1580
1081	C **SET ICD=0, TEST CONST.**	CNSR1590
1082	450 ICD = DC(3)	CNSR1600
1083	IF (CNSID) 451,452,451	CNSR1610
1084	451 D(375) = TT(1)	CNSR1620
1085	D(376) = TT(1)	CNSR1630
1086	C	CNSR1640
1087	C ***START SEARCH AT POINT 1= MAX VALUE***	CNSR1650
1088	452 TO(22) = D(1)	CNSR1660
1089	IOPI = IOPD(5)	CNSR1670
1090	TO(6) = TO(8)	CNSR1675
1091	IOPT = ND(1)	CNSR1676
1092	C	CNSR1678
1093	C ***CALL 4 TO CNSTR- OLAY 10--RETURN ID=4***	CNSR1679
1094	XMISC(39) = D(4)	CNSR1680
1095	RETURN	CNSR1685
1096	C	CNSR1686
1097	C	CNSR1687
1098	C ***TEST FOR INTERM. PT PRINT. DOPIP=2.0 AND IPA=1**	
1099	4520 IF (IPA)4523,4523,4522	
114	C	CNSR1691
1101	C ***TYPE A PRINT--DESIGN AND WT SUMMARY PAGES***	CNSR1692
1102	4522 CALL PRTA	CNSR1693
1103	C	CNSR1694
1104	4523 TO (21) = TO(6)	CNSR1695
1105	TO(18) = TO(1)	CNSR1696
1106	IOPD(4) = IOPD(5)	CNSR1697
1107	453 TO(24) = TO(21)	CNSR1700
1108	TO(21) = TO(6)	CNSR1701
1109	TO(23) = TO(18)	CNSR1705
1110	TO(18) = TO(1)	CNSR1710
1111	TO(19) = TO(2)	CNSR1720
1112	TO(20) = TO(3)	CNSR1730
1113	IOPI = IOPD(1)	CNSR1740
1114	IOPD(1) = IOPD(2)	CNSR1750
1115	IOPD(2) = IOPD(3)	CNSR1760
1116	IOPD(3) = IOPD(4)	CNSR1770
1117	IOPD(4) = IOPD(5)	CNSR1780
1118	IOPD(5) = IOPI	CNSR1790
1119	TO(8) = TO(6) - TO(18)	CNSR1800
1120	TO(22) = TO(22) + D(1)	CNSR1805
1121	C *POINT 1*	CNSR1810
1122	C	CNSR1813
1123	C ***CALL 5 TO CNSTR--OLAY 10--RETURN ID =5**	CNSR1814
1124	454 XMISC(39) = D(5)	CNSR1815
1125	RETURN	CNSR1820
1126	C	CNSR1821
1127	C ***TEST FOR INTERM. PT PRINT***	CNSR1822
1128	4540 IF (IPA)4543,4543,4542	
1129	4542 CALL PRTA	CNSR1825
1130	C	CNSR1829
1131	4543 IF (TO(18) - TO(1)) 455,456,460	CNSR1830
1132	C	CNSR1839
1133	455 IOPT = ND(2)	CNSR1840
1134	C **INTERM. POINT. OPT=1 OR 1-1**	CNSR1850
1135	456 TO(24) = TO(21)	CNSR1860

CARD NO	****	CONTENTS	****
1136		TO(21) = TO(6)	CNSR1865
1137		TO(6) = TO(6) + TO(11)	CNSR1870
1138	457	TO(23) = TO(18)	CNSR1875
1139		TO(23) = TO(18)	CNSR1876
1140		TO(18) = TO(5)	CNSR1880
1141		TO(19) = TO(2)	CNSR1890
1142		TO(20) = TO(3)	CNSR1900
1143		IOPI = IOPD(1)	CNSR1910
1144		IOPD(1) = IOPD(2)	CNSR1920
1145		IOPD(2) = IOPD(3)	CNSR1930
1146		IOPD(3) = IOPD(4)	CNSR1940
1147		IOPD(4) = IOPD(5)	CNSR1950
1148		IOPD(5) = IOPI	CNSR1960
1149		TO(22) = TO(22) + D(1)	CNSR1965
1150	C		CNSR1968
1151	C	***CALL 6 TO CNSIR--OLAY 10--RETURN ID 6***	CNSR1969
1152		XMISC(39) = D(6)	CNSR1970
1153		RETURN	CNSR1975
1154	C		CNSR1976
1155	C	***TEST FOR INTERM PT PRINT***	CNSR1977
1156	4570	IF (IPA)4573,4573,4572	
1157	4572	CALL PRTA	CNSR1980
1158	C		CNSR1981
1159	C	***TEST OPT CONDITION IOPT 1= END PT 2= INTERM PT.***	CNSR1982
1160	4573	IF (IOPT - ND(1)) 458,458,463	CNSR1985
1161	458	IF (TO(18) - TO(1)) 459,480,480	CNSR1930
1162	459	IOPI = IOPD(4)	CNSR2000
1163		TO(22) = TO(22) - D(1)	CNSR2005
1164		TO(6) = TO(21)	CNSR2006
1165		GO TO 482	CNSR2010
1166	C		CNSR2020
1167	C	**PT I LESS THAN I-1**	CNSR2030
1168	460	IF (TO(6) - TO(11) - TO(9)) 480,461,462	CNSR2040
1169	C		CNSR2050
1170	C	**LAST VALID POINT**	CNSR2060
1171	461	TO(24) = TO(21)	CNSR2080
1172		TO(21) = TO(6)	CNSR2081
1173		TO(6) = TO(6) - TO(11)	CNSR2082
1174		GO TO 457	CNSR2090
1175	C		CNSR2100
1176	C	**TEST WITH DELTA 1**	CNSR2110
1177	462	IF (TO(6) - TO(10) - TO(9)) 461,453,453	CNSR2120
1178	C		CNSR2130
1179	C	**OPT AT PT(I) OR (I-2)**	CNSR2131
1180	463	IF (TO(23) - TO(1)) 464,480,480	CNSR2140
1181	464	IOPI = IOPD(3)	CNSR2150
1182		TO(22) = TO(22) - D(2)	CNSR2160
1183		TO(6) = TO(24)	CNSR2161
1184		GO TO 482	CNSR2165
1185	C		CNSR2169
1186	C		CNSR2160
1187	C	**EXIT FROM SEARCH. TEST FOR TYPE OF PRINT**	CNSR2170
1188	C	EXIT FROM LAST CALC POINT=OPT. RCD LOC IN IOPI	CNSR2180
1189	480	IF (IPA)799,799,487	
1190	482	IF(IPA)799,799,487	
1191	485	IFN = N	CNSR2295
1192	C		CNSR2300
1193	C	**COMMON READ AND PRINT**	CNSR2310
1194	C	***RCD 1 OF BLOCK = MISC DATA. READ INTO TSC(1-150)***	CNSR2311
1195	C	*RCD 2 OF BLOCK = TWT(1-150)*	CNSR2312
1196	C	*RCD 3 OF BLOCK = TSS(1-100)*	CNSR2313
1197	C	*RCD 4 OF BLOCK = TC(1-340)*	CNSR2314
1198	C	*RCD 5 OF BLOCK = CD(1-400)*	CNSR2315
1199	C		CNSR2319
1200		CALL READMS (1,TSC(1),150,IFN)	CNSR2320
1201		IFN = N + ND(1)	CNSR2324
1202		CALL READMS (1,TWT(1),150,IFN)	CNSR2325
1203		IFN = N + ND(2)	CNSR2329
1204		CALL READMS (1,TSS(1),100,IFN)	CNSR2330
1205		IFN = N + ND(3)	CNSR2334
1206		CALL READMS (1,TC(1),340,IFN)	CNSR2335

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CARD NO  ****                          CONTENTS                          ****
1207            IFN = N + ND(4)                                          CNSR2339
1208            CALL ADUMS (1,CD(1),400,IFN)                             CNSR2340
1209      C                                                              CNSR2344
1210      C          **PROCESS MISC DATA IN TSC(1-150)**                 CNSR2345
1211            DO 486 I=1,5                                             CNSR2346
1212            TD(I) = TSC(I)                                           CNSR2347
1213            TD(I+17) = TSC(I+5)                                      CNSR2348
1214       486  CONTINUE                                                 CNSR2350
1215            D(375) = TSC(11)                                         CNSR2360
1216            D(376) = TSC(12)                                         CNSR2361
1217            D(380) = TSC(13)                                         CNSR2362
1218            D(381) = TSC(14)                                         CNSR2363
1219            D(382) = TSC(15)                                         CNSR2364
1220      C                                                              CNSR2369
1221            DO 4860 I=1,11                                           CNSR2370
1222            TBWP1(I) = TSC(I+15)                                     CNSR2380
1223            TWWP1(I) = TSC(I+26)                                     CNSR2390
1224            WFWP1(I) = TSC(I+37)                                     CNSR2392
1225            WPNLS(I) = TSC(I+48)                                     CNSR2394
1226            TPNLW(I) = TSC(I+59)                                     CNSR2396
1227            TBCWT(I) = TSC(I+70)                                     CNSR2398
1228            DEFF1(I) = TSC(I+81)                                     CNSR2400
1229            YBUD(I) = TSC(I+92)                                      CNSR2402
1230            YBLD(I) = TSC(I+103)                                     CNSR2404
1231            DCBST(I) = TSC(I+114)                                    CNSR2406
1232            DCNOS(I) = TSC(I+125)                                    CNSR2408
1233            DNX1(I) = TSC(I+136)                                     CNSR2410
1234       4860 CONTINUE                                                 CNSR2415
1235      C                                                              CNSR2418
1236      C                                                              CNSR2419
1237      C          **TEST RETURN IOPT=2,3**                            CNSR2420
1238            IF (IOPT - ND(2)) 701,791,4890                           CNSR2430
1239      C                                                              CNSR2440
1240      C          ***PRINT BLOCK IOPD DATA AND OPT. OPT=IOPT+2.***    CNSR2450
1241      C          **PRINT 1,2,3,4 AND OPT=5. IOPT=5**                 CNSR2460
1242      C                                                              CNSR2470
1243      C          **PRINT 1,2,3,5 AND OPT=4. IOPT=4**                 CNSR2480
1244       487  IOPP = ND(1)                                            CNSR2490
1245       488  IOPT = ND(3)                                            CNSR2500
1246       489  N = IOPD(IOPP)+ND(5) + 113                              CNSR2510
1247            GO TO 485                                                CNSR2520
1248      C          RETURN FOR MOVE                                     CNSR2530
1249      C                                                              CNSR2538
1250      C          ***TEST TWT(I) FOR WT--IF 0.0, SKIP PRTA PRINT***   CNSR2539
1251       4890 IF (TWT(1)) 4896,4896,4895                               CNSR2540
1252       4895 CALL PRTA                                                CNSR2545
1253       4896 IOPP = IOPP + ND(1)                                      CNSR2550
1254            IF (ND(4)-IOPP) 4891,4893,488                            CNSR2560
1255       4891 IOPT = ND(2)                                             CNSR2570
1256            IF (IOPT - ND(4)) 4892,4892,489                          CNSR2580
1257       4892 IOPP = ND(4)                                             CNSR2590
1258            GO TO 489                                                CNSR2600
1259       4893 IF (IOPT - ND(4)) 4894,4894,488                          CNSR2610
1260       4894 IOPP = ND(5)                                             CNSR2620
1261            GO TO 488                                                CNSR2630
1262      C                                                              CNSR2640
1263      C                                                              CNSR3310
1264      C          ****TEST FOR PIVOT CALC****                         CNSR3310
1265      C            *IF PIVOT CALC, SAVE TC(1-340) IN TSC(1-340) AND CLEAR* CNSR3311
1266       700  IF (DYPVT) 701,701,7000                                  CNSR3320
1267       7000 DO 7001 I=1,340                                          CNSR3330
1268            TSC(I) = TC(I)                                           CNSR3340
1269            TC(I) = DC(3)                                            CNSR3350
1270       7001 CONTINUE                                                 CNSR3360
1271      C                                                              CNSR3370
1272            CALL PIVOT                                               CNSR3380
1273      C                                                              CNSR3390
1274      C                                                              CNSR3400
1275      C          ***TOTAL WEIGHTS/AV. FOR WING, HORI, VERT***        CNSR3410
1276      C            *(WT)/AV=(WT)/SIDE*2/K*                           CNSR3411
1277      C            *K=1 FOR WING AND HORI.  K=1 OR 2 FOR VERT=FIND OF PNLS* CNSR3412
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CARD NO  ****                          CONTENTS                          ****
 1278    C              *          K=2 FOR 1 PNL, 1 FOR 2 PNLS*                CNSR3N13
 1279    C                                                                     CNSR3N19
 1280     701  DO 7010 I=1,149                                                CNSR3N20
 1281          TWT(I) = TWT(I)*D(2)/WMYID                                     CNSR3N30
 1282     7010 CONTINUE                                                       CNSR3N35
 1283    C                                                                    CNSR3N38
 1284    C            ****SAVE TWT(1-100) IN TEMP LOC TW(701-800)*****        CNSR3N39
 1285          DO 702 I=1,100                                                 CNSR3N40
 1286          TW(I+700) = TWT(I)                                             CNSR3N41
 1287     702  CONTINUE                                                       CNSR3N42
 1288    C                                                                    CNSR3N45
 1289    C                                                                    CNSR3N50
 1290    C       TEST FOR C-SEC WT CALC -- ID IN D(480)<C-SEC WIDTH AT C.L.   CNSR3N60
 1291    C       INTERIM C-SEC SUBR -- 10-14-65 --WIC-SEC)*DELC* WT/IN AT SEC.1CNSR3N70
 1292    C                                                                    CNSR3N80
 1293    C       DO C-SEC.  TEST FOR CALC IN SUBR                             CNSR3N90
 1294     710  CALL CSECW                                                     CNSR3500
 1295    C                                                                    CNSR3510
 1296    C       APPLY DEL(CU, CL, FS, RS) TO C-SEC ELEMENTS WTS              CNSR3520
 1297          DO 711 I=1,2                                                   CNSR3530
 1298          TSS(I+8) = DLCS(1)*TSS(I+8)                                    CNSR3540
 1299          TSS(I+11)=DLCS(4)*TSS(I+11)                                    CNSR3550
 1300          TSS(I+14)=DLCS(3)*TSS(I+14)                                    CNSR3560
 1301          TSS(I+16)=DLCS(7)*TSS(I+16)                                    CNSR3570
 1302     711  CONTINUE                                                       CNSR3580
 1303          TSS(11) = DLCS(1)*TSS(11)                                      CNSR3590
 1304          TSS(14) = DLCS(4)*TSS(14)                                      CNSR3600
 1305    C                                                                    CNSR3610
 1306          IF (TSS(11) 712,714,712                                        CNSR3620
 1307    C                                                                    CNSR3630
 1308    C            ***CSEC WT. DATA PRINT--SAME ID AS PRTA ID***           CNSR3638
 1309    C              *SET N=1 FOR OUTPUT BY PRTH*                          CNSR3639
 1310     712  IF (IPA) 714,714,713                                           CNSR3640
 1311     713  N = ND(1)                                                      CNSR3650
 1312          CALL PRTH                                                      CNSR3660
 1313    C                                                                    CNSR3670
 1314    C            ***TOTAL WING DATA--OPNL + CSEC***                      CNSR3680
 1315    C       W(CSEC) = W(STRU) + W(MISC)                                  CNSR3690
 1316     71*  TWT(43) = TSS(1) + TSS(2)                                      CNSR3700
 1317          TWT(40) = TWT(40) + DELWC*TWT(43)                              CNSR3705
 1318          CD(141) = TWT(43)*WMYID/D(2)                                   CNSR3710
 1319          CD(134) = CD(134) + CD(141)*DELWG                              CNSR3720
 1320    C                                                                    CNSR3727
 1321    C            ***SAVE WT SUMMARIES SWT ARRAY FOR WDATA SUBR***        CNSR3728
 1322    C              *TWT(40-43),(48-52)=11*                               CNSR3729
 1323     720  SWT(1) = TWT(40)                                               CNSR3730
 1324          SWT(2) = TWT(41)                                               CNSR3735
 1325          SWT(3) = DC(3)                                                 CNSR3740
 1326          SWT(4) = TWT(43)                                               CNSR3745
 1327          DO 721 I=1,7                                                   CNSR3750
 1328          SWT(I+4) = TWT(I+45)                                           CNSR3755
 1329     721  CONTINUE                                                       CNSR3760
 1330    C                                                                    CNSR3769
 1331    C       SAVE TOTAL WEIGHT DATA FOR SUMMARY TABLE PRINT -- TYPE D     CNSR3770
 1332    C            **FOR BASIC OPNL, SAVE TWT(1-30),(35-43),(45-53),(67,70)*CNSR3771
 1333    C                                                                    CNSR3780
 1334    C       FOR PIVOT CASE, COMPUTE DELTA WTS AND SETUP FINAL WT TABLE   CNSR3790
 1335    C       PIVOT WTS IN TSS(26-50) DELTA OPNL TWT(1-50) C-SEC TSS(1-25) CNSR3800
 1336    C                                                                    CNSR3810
 1337    C            ***SAVE BASIC WTS ON RCDS 184, 185, 186 FOR GM(1,2,3)SS CNSR3820
 1338    C              *FINAL LOC FOR SUBR PRTD WILL BE CD(400-699)*         CNSR3830
 1339    C                                                                    CNSR3840
 1340     750  DO 753 I=1,50                                                  CNSR3850
 1341          TSS(I+50) = TSS(I)                                             CNSR3855
 1342          IF (I - 30) 751,751,753                                        CNSR3860
 1343     751  TSS(I) = TWT(I)                                                CNSR3870
 1344          IF (I - ND(8)) 752,752,753                                     CNSR3880
 1345     752  TSS(I+30) = TWT(I+34)                                          CNSR3890
 1346          TSS(I+30) = TWT(I+44)                                          CNSR3895
 1347     753  CONTINUE                                                       CNSR3900
 1348          TSS(49) = TWT(67)                                              CNSR3910
```

CARD NO	**** CONTENTS ****	
1349	TSS(58) = TWT(70)	CNSR3915
1350	IFN = IGN + 183	CNSR3916
1351	CALL WRITMS (1,TSS(1),100,IFN)	CNSR3917
1352	C	CNSR3919
1353	C CHECK FOR DELTA PIVOT CALC CLEAR TSS,TWT (1-50)	CNSR3920
1354	754 DO 755 I=1,50	CNSR3930
1355	TWT(I) = DC(3)	CNSR3940
1356	TSS(I) = DC(3)	CNSR3950
1357	755 CONTINUE	CNSR3960
1358	C	CNSR3969
1359	IF (DYPVT) 770,770,760	CNSR3970
1360	C	CNSR3980
1361	C DO DELTA WTS	CNSR3990
1362	760 CALL DLPVT	CNSR4000
1363	SWT(3) = TSS(26)	CNSR4005
1364	C	CNSR4010
1365	C RESET TC REGION	CNSR4020
1366	DO 761 I=1,340	CNSR4030
1367	TC(I) = TSC(I)	CNSR4040
1368	761 CONTINUE	CNSR4050
1369	C	CNSR4060
1370	C MOVE DELTA WT SUMMARIES	CNSR4070
1371	C *SAVE ON RCDS 187, 188, 189*	CNSR4080
1372	C *FINAL LOC FOR SUBR PRTD WILL BE CD(000-1099)*	CNSR4090
1373	770 DO 771 I=1,50	CNSR4100
1374	TSS(I+50) = TSS(I)	CNSR4110
1375	TSS(I) = TWT(I)	CNSR4120
1376	771 CONTINUE	CNSR4130
1377	IFN = IGN + 186	CNSR4140
1378	CALL WRITMS (1,TSS(1),100,IFN)	CNSR4150
1379	C	CNSR4159
1380	C ***PIVOT WT, DELTA WT PRINT--SAME ID AS PRTA ID***	CNSR4160
1381	C SET N=2 FOR DATA	CNSR4170
1382	C SET N=2 FOR PRTH PRINT--TEMP---	CNSR4180
1383	780 N = ND(2)	CNSR4190
1384	IF (DYPVT) 783,783,781	CNSR4200
1385	781 IF (IPA) 783,783,782	CNSR4210
1386	782 CALL PRTH	CNSR4220
1387	C	CNSR4230
1388	C **SETUP NODM=1 EXIT. TEST FOR TYPE A PRINT**	CNSR4240
1389	C ***RESET TWT(1-100), TSS(1-100) FROM TW(701-900)***	CNSR4250
1390	783 DO 784 I=1,100	CNSR4260
1391	TWT(I) = TW(I+700)	CNSR4270
1392	TSS(I) = TW(I+800)	CNSR4280
1393	784 CONTINUE	CNSR4290
1394	C	CNSR4299
1395	C **NODM 2-5 EXIT WITH TEST ON BKPRT**	CNSR4300
1396	C *SECT(J) WT DATA IN TSS(1-59) HAS BEE RESET BY CNSTR*	CNSR4310
1397	790 IF (IPA) 799,799,791	CNSR4320
1398	791 CALL PRTA	CNSR4330
1399	C	CNSR4340
1400	C	CNSR9900
1401	C ***EXIT***	CNSR9910
1402	C	CNSR9920
1403	C ***SET RETURN ID TO 7 FOR NORMAL RETURN TO PROG***	CNSR9930
1404	799 XHISC(39) = D(7)	CNSR9940
1405	C	CNSR9950
1406	RETURN	CNSR9990
1407	END	CNSR9999
1408	C**********	
1409	C	
1410	C *****SUBROUTINE PIVOT*****	
1411	C ***PIVOT STRUCTURE SYNTHESIS AND WEIGHT EVALUATION***	
1412	C	
1413	C**********	
1414	C	
1415	C SUBROUTINE PIVOT	00000000
1416	C	00000010
1417	C REVISION---01-21-66 -- CONVERT TO 9A-6I4 FORMAT (STR)	00000012
1418	C 29SEPT65 ORIGINAL	00000014
1419	C	00000018

CARD NO	**** CONTENTS ****	
1420	C CONVERT TO FORT IV MARCH 1972	00000030
1421	SUBROUTINE PLOT	0000040
1422	C	
1423	COMMON TCOM(6220),TW(900)	00000010
1424	COMMON /IPRINT/ IP(80)	
1425	C	00000060
1426	DIMENSION T(2060), D(2060), CD(2000), S(200), PT(100)	00000070
1427	1, ANS(5), TSEC(200), ULTPM(11), ULTPV(11), YSTRC(11)	00000080
1428	7,TOGW(3),DGW(3),ND(100)	PIV00081
1429	8,DMILP(19) , TA40(9),SIND(6), COSD(6)	00000082
1430	C	00000090
1431	EQUIVALENCE (TCOM(1), T(1))	00000100
1432	1, (T(12),B02), (T(38),TANAC), (T(70),FIPTR	00000110
1433	3, (T(77),FIMTR), (T(78),FIMTRS), (T(81),BLEA)	00000130
1434	A, (T(45),CPVT), (T(91),YSTRP), (T(52),CR	00000131
1435	B, (T(140),SIND(1)), (SIND(3),SINEA)	00000132
1436	C, (T(146),COSD(1)), (COSD(3),COSEA)	00000133
1437	4, (T(122),TAND(1))	00000140
1438	6, (T(900),YPVT), (T(901),PT(1)), (T(1001),S(1))	00000160
1439	EQUIVALENCE (DMILP(1),CD(1905))	00000162
1440	1, (DMILP(2),DNU), (DMILP(5),EC), (DMILP(10),FTS)	00000163
1441	2, (DMILP(11),RHO), (DMILP(12),FTU)	00000164
1442	3,(D(190),RATFSU), (D(191),RHOPIN), (DMILP(16),FSU)	
1443	C	00000170
1444	EQUIVALENCE (PT(9),PVTM), (PT(10),PVTD)	00000190
1445	A, (PT(8),PVTV), (PT(100),SPAN	00000191
1446	B, (DXPVT,PT(5)), (PT(2),CKEC), (PT(3),ARM)	00000192
1447	2 , (PT(38),DTH), (PT(39),SINDTH)	00000200
1448	3, (PT(40),COSDTH), (PT(54),E00), (PT(55),DDT)	00000210
1449	4, (PT(56) SOD), (PT(66), OD), (PT(69),EDIST)	00000220
1450	5, (IGH,ND(57)), (NCASE,ND(60)), (NPAGE,ND(85))	PIV00221
1451	6, (TOGW(1),D(80)), (DGW(1),D(1021)), (DPHZ,T(20))	PIV00222
1452	7, (DNNZ,T(21)), (BKPRT,D(1474)), (ND(1),TCOM(6121))	PIV00223
1453	C	00000221
1454	EQUIVALENCE (TCOM(4121),CD(1)), (CD(1501),TSEC(1))	00000222
1455	1, (TSEC(1),ULTPM(1)), (TSEC(12),ULTPV(1)), (TSEC(166),YSTRC(1))	00000223
1456	C	00000224
1457	C MOMENT = ULTPM, SHEER = ULTPV AT STATIONS YSTRC	00000225
1458	C DEPTHS AT TSEC(55 THRU 66)	00000226
1459	C	00000227
1460	C	00000230
1461	EQUIVALENCE (S(95), ANS(1))	00000240
1462	C	00000250
1463	EQUIVALENCE (TCOM(2061),D(1))	00000260
1464	1, (D(124),AC), (D(125),FSLOC), (D(126),KS.OC)	00000270
1465	2, (D(127),EALOC), (D(195),FBR)	00000280
1466	3, (D(198),DDPVT), (D(199),DN), (D(200),DYPVT)	00000290
1467	4, (D(201), XPVT), (D(202),THPTHD), (D(203),THPAFT)	00000300
1468	5, (D(240),WAREA), (D(241),WAR), (D(242),WSHP)	00000310
1469	6, (D(243),WTOC), (D(244),WTR), (D(245),WSIG)	00000320
1470	7, (D(192),CKA), (D(193),CKB), (D(194),CKC)	00000330
1471	8, (D(156),DP1), (D(157),DP2), (D(189),PERTU)	00000340
1472	9, (D(186),DEPTH)	PIV00341
1473	C	00000350
1474	EQUIVALENCE (D(1),D1), (D(2),D2), (D(3),D3), (D(4),D4)	00000360
1475	1, (D(5),D5), (D(6),D6), (D(7),D7), (D(8),D8), (D(9),D9)	00000370
1476	2, (D(10),D10), (D(11),D11), (D(12),D12), (D(15),P1)	00000380
1477	C CLEAR ANSWER LOCATIONS	00001000
1478	9 DO 10 I=1,5	00001010
1479	10 ANS(I)=0.0	00001020
1480	C TEST IF PIVOT CALC. REQUIRED	00001030
1481	IF(DYPVT) 999, 999, 20	00001040
1482	C	00001041
1483	20 IF(DYPVT-D1) 21,22,22	00001050
1484	21 YPVT = DYPVT + B02	00001060
1485	GO TO 25	00001070
1486	22 YPVT = DYPVT	00001080
1487	25 SPAN = D2+B02	00001090
1488	C	00001111
1489	C	00001114
1490	C • • • INITALIZE • • •	00001140

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CARD NO  ****                        CONTENTS                          ****

                S(55) = 0.0                                            00001150
                PT(70)= 0.0                                            00001160
         C               EVIDENTLY WAS THE DISTANCE THE PIVOT INBOARD STRUCTURE 00001161
         C                             WAS OUT FROM THE CENTER LINE.   00001162
                S(127)= 0.0                                            00001170
               PT(81)=TAND(1)                                          00001180
         C              SWEEP OF THE LEADING EDGE                      00001190
                PT(88) = THPFWD*D(16)                                  00001202
         C              = THETA FORWARD IN RADIANS                     00001203
                PT(89) = THPAFT*D(16)                                  00001204
         C              = THETA AFT IN RADIANS                         00001205
                  DTH  = PT(89) - PT(88)                               00001206
         C              = DELTA THETA IN RADIANS                       00001207
                S(49)  = 0.0                                           00001210
                S(50)  = 0.0                                           00001220
                S(140) = 0.0                                           00001230
                S(141) = 0.0                                           00001240
                PT(76) = 0.0                                           00001250
                PT(77) = 0.0                                           00001260
                PT(1) =  ( B02  - YPVT) /COSEA                         00001300
         C            =DISTANCE ALONG ELASTIC AXIS FROM PIVOT TO TIP   00001310
               DXPVT = XPVT                                            00001346
               IF ( XPVT .GT. D1)   DXPVT = DXPVT / CPVT               00001347
               PT(4  BLEA-YSTRP                                        00001350
         C     TIP TO PIVOT CENTER ON E.A.                             00001360
         C                           DETERMINE PROPER MOMENT           00001370
                I=11                                                   00001380
            30       IF(YSTRC(I) - YSTRP)       31, 33, 35             00001390
            31           I=I-1                                         00001400
                     GO TO 30                                          00001410
            33  PVTM = ULTPM(I)                                        00001420
                PVTV = ULTPV(I)                                        00001421
                                             GO TO 37                  00001430
         C                                                             00001440
            35  PVTM = ULTPM(I) + ULTPV(I)*(YSTRC(I)-YSTRP)            00001490
         C          = MOMENT AT POINT WHERE PERPENDICULAR FROM PVT CROSSES E.A. 00001500
                   IF(I .EQ. 11)        I=10                           00001501
                PVTV = ULTPV(I)-(ULTPV(I)-ULTPV(I-1))*((YSTRC(I)-YSTRP)/ 00001502
             1                               (YSTRC(I)-YSTRC(I-1)))    00001503
         C          = SHEER AT PIVOT POINT ON E.A. INTERPOLATED OR EXTRAPOLATED 00001504
            37  PVTD = CR*AC*HTOC * ( PT(4)/BLEA * FIMIRS + HTR*WSIG ) 00001510
         C          = PIVOT DEPTH                                      00001515
              DSAVE = PVTD                                             PIVO1516
              IF (DEPTH - D(1)) 39,39,38                               PIVO1517
            38 PVTD = DEPTH                                            PIVO1518
            39 CONTINUE                                                PIVO1519
         C                                                             00001520
         C        CALCULATE GEOMETRY FOR ROTATION                      00001530
         C                                                             00001540
              PT(30)=TAND(4)                                           00001550
         C            =  TANGENT OF SWEEP OF REAR SPAR                 00001560
               PT(31) = (RSLOC-DXPVT)*CPVT  - YPVT*PT(30)              00001570
               PT(42) = PT(31) + PT(70)*PT(30)                         00001580
               PT(32) = SQRT((YPVT-PT(70))**2 + PT(42)**2)             00001590
               PT(33) = (YPVT-PT(70)) / PT(32)                         00001600
               PT(34) = PT(42)/PT(32)                                  00001610
              PT(35)=COSD(4)                                           00001620
         C            = COSINE OF SWEEP OF REAR SPAR                   00001630
              PT(36)=SIND(4)                                           00001640
         C            = SINE OF SWEEP OF REAR SPAR                     00001650
               PT(37) = PT(36)*PT(33) + PT(35)*PT(34)                  00001660
               SINDTH = SIN(DTH)                                       00001690
               COSDTH = COS(DTH)                                       00001700
               PT(43) = PT(32)                                         00001710
               PT(45) = PT(32)                                         00001720
         C                                                             00001730
         C       CALCULATE RMAX                                        00001740
         C                                                             00001750
            50 PT(46) = (YPVT-PT(70)) / PT(45)                         00001800
               PT(47) = SQRT(D(1)-PT(46)**2)                           00001810
               PT(48) = PT(47)*PT(33) - PT(46)*PT(34)                  00001820
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CARD NO    ****                    CONTENTS                              ****

           PT(49) = PT(46)*PT(33) + PT(47)*PT(34)                        00001830
           PT(50) = SINDTH*PT(49) + COSDTH*PT(48)                        00001840
           PT(51) = COSDTH*PT(49) - SINDTH*PT(48)                        00001850
           PT(52) = (PT(50)/PT(37))**2                                   00001860
           PT(45) = PT(32)*(PT(51) SORT(PT(52)-PT(50)**2))/(D(1) PT(52)) 00001870
           PT(53) = PT(45)/PT(32)                                        00001880
     C                                                                   00001890
           IF(PT(53).LE D(1))            GO TO 60                        00001900
        55 IF( (PT(45)-PT(43)) LE  .00001 ) GO TO 60                     00001910
        57 PT(43) = PT(45)                                               00001920
                                         GO TO 50                        00001930
     C                                                                   00001940
        60     DO 61 I=1,4                                               00001950
        61        PT(59+I)=D(I)                                          00001960
               EOD = DP1                                                 00001970
               DOT = DP2                                                 00001980
           PT(67) = PCFG TU*FTU                                          00001990
     C                                                                   00002000
        70 IF (DEPIB ) 71,71,72                                          PIV02010
        71 ARM = PVTD -PT(60) PT(61) D(19)*(PT(62)+PT(63))               PIV02011
           GO TO 73                                                      PIV02012
        72 ARM = PVTD  D(19)*(PT(62)+PT(63))                             PIV02013
        73 PT(64) = PVTH / ARM                                           PIV02014
     C     ** CHECKING SHEAR TEAROUT OF LUGS BASED ON ASSUMED D/T AND E/D 00002015
           DD = SQRT (PT(64)/FSU*DOT/ (D(2)*EOD D(1)) )                  00002016
     C                                                                   00002030
           IF( DDPVT.GT  0.0)            GO TO 74                        00002040
           PT(65) = FBR                                                  00002050
     C     ** CHECKING THE REQUIRED BEARING STRESS                       00002055
              SDD = SQRT(DOT*PT(64)/ PT(65))                             00002060
           IF ( DD.LT. SDD )  DD SDD                                     00002070
                                         GO TO 80                        00002080
        74 IF ( DD .LT. DDPVT) DD DDPVT                                  00002090
           PT(65) = DOT/DD*PT(64)/DD                                     00002100
     C     ** CHECKING PIN SHEAR AND GETTING ID OF PIN                   00002009
        80 S(12) = [illegible] D(4)/D(15)*PT(64) )/(RATFSU*FSU)          00002010
     C                                                                   00002120
           IF(S(12) .LT. 0.0 )  S(12) = 0.0                              00002130
           PT(68) = SQRT(S(12))                                          00002140
           EDIST  = EOD * DD                                             00002150
     C
           IF(PT(53) D(1) )              88, 88, 86                      00002160
        86 PT(70) = YPVT - PT(45)*PT(46)                                 00002170
                                         GO TO 90                        00002180
        88 PT(70) = YPVT   PT(45)*PT(33)                                 00002190
     C                                                                   00002200
        90 IF ( (YPVT  EDIST   PT(70)) .LT. 0.0 ) PT(70) YPVT EDIST D(19) 00002210
       100 PT(71)   [illegible] DIST PT(70))/COSEA                       00002220
     C                                                                   00002230
     C                    MOMENT AT RIB (NET)*                           00002240
     C                                                                   00002250
           PT(75) = PVTM + PVTV*(PT(71)   PT(51))                        00002260
     C           = MOMENT AT PT(71)     INBOARD EDGE OF LUG              00002265
           PT(78) = AC* CR*HLOC*( PT(71))/BLEA*FIMIRS + WIR*WSIG)        00002270
          PT(78) = P  78)+PVTD/D AM                                      PIV02271
     C           = LRIB                                                  00002280
           PT(79) = PT(78)   PT(76)  PT(77)                              00002290
     C           = RHO A RIB                                             00002300
           PT(80) = (RSLOC FSLOC)* CR*(PT(71))/BLEA*FIMIR + WIR)         00002310
     C           = WRIB                                                  00002320
           PT(82) = (D1/((D4*PT(81)/PI)**2+D1))*COS(D2/D3 * PT(81))      00002350
           PT(83) = 0.0                                                  00002360
           PT(84) = 0.0                                                  00002370
           PT(85) = DTH/DN                                               00002380
           PT(93) = PT(83)/PT(79)                                        00002390
           PT(94) = CKA/(PT(93)+CKB)**2 + CKC                            00002400
     C           = KRIB                                                  00002410
       104 PT(86) = (D1/((D4*PT(84)/PI)**2+D1))*COS(D2/D3 * PT(84))      00002420
           PT(87) = PT(75)/PT(82)*PT(86)                                 00002430
           PT(92) = SIN(PT(88)*PT(84))                                   00002440
           CREC = PT(87)/ EC*PT(92)/PT(94)*PT(79)/PT(83)                 00002445
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CARD NO  ****                                CONTENTS                                ****
  1633          IF (CKEC) 105,105,300
  1634        105 WRITE (6,106)
  1635        106 FORMAT ( 43H1 ERROR IN PIVOT, RIB THICKNESS IS NEGATIVE  //
  1636           *  9H   T DUMP  // )
  1637          GO TO 705
  1638        300 PT(96)=CKEC**D(21)                                              00002450
  1639          C            PT(96) IS RIB THICKNESS                              00002451
  1640          C                                                                 00002460
  1641          IF ( PT(96) .GT. PT(83) )  PT(83) = PT(96)                        00002470
  1642          C                                                                 00002480
  1643          PT(84) = PT(84)+PT(85)                                            00002490
  1644          C                                                                 00002500
  1645          IF((PT(88)+PT(84)) .LE. PT(89))  GO TO 104                        00002510
  1646          C                                                                 00002520
  1647        110 PT(98) = YPVT - PT(70)                                          00002530
  1648          PT(99) = (RSLOC - D(2)*YPVT)* CR                                  00002540
  1649           S(1)  = PT(99)*((SPAN- D(2)*YPVT)/SPAN*(TMTR* WTR)               00002550
  1650          S(1) = S(1)-PT(93)*PT(33)                                         00002560
  1651          S(2) = CR *((SPAN-D(2)*PT(70))/SPAN*(TMTR*WTR)-S(1)               00002570
  1652          S(2) = (S(2)+S(1))*(RSLOC-FSLOC)-S(1)                             00002580
  1653          S(3) = SQRT(S(1)**2 + PT(93)**2)                                  00002590
  1654          S(4) = SQRT(S(2)**2 + PT(98)**2)                                  00002600
  1655          S(5) = SQRT(S(3)**2 - EDIST**2 )                                  00002610
  1656          S(6) = SQRT(S(4)**2 - EDIST**2 )                                  00002620
  1657          S(7) = PT(38)*S(6) + S(2)*EDIST                                   00002630
  1658          S(8) = PT(90)*EDIST - S(6)*S(2)                                   00002640
  1659          S(9) = S(7)/S(8)                                                  00002650
  1660          S(123) = ATAN2(S(7),S(8))                                         00002660
  1661          S(10) = EDIST*S(1) + PT(98)*S(5)                                  00002670
  1662          C
  1663          IF(S(10))800,800,810
  1664        800 WRITE(6,805)
  1665        805 FORMAT(1H1, 78H S(10)=0.0 AT LINE 2670 IN SUBROUTINE PIVOT WHICH W
  1666           *ILL GIVE /0.0 AT LINE 2760. /  38H CHANGE THE INPUT DATA IN LOCATI
  1667           *ON 201//////)
  1668          GO TO 705
  1669        810 CONTINUE
  1670          C
  1671          S(11) = PT(98)*EDIST - S(1)*S(5)                                  00002680
  1672          S(12) = S(10)/S(11)                                               00002690
  1673          S(124) = ATAN2(S(10),S(11))                                       00002700
  1674          S(14) = D(2)*D(15)-S(123)-S(124)                                  00002710
  1675          S(15) = EDIST*(S(5)+S(6)+S(14)*EDIST)                             00002720
  1676          S(16) = D(19)*((S(1)+S(2))*PT(90)+S(15))-D(15)/D(4)*OD**2         00002730
  1677          C              S(16)IS INBOARD AREA                               00002735
  1678          S(17) = S(2) - OD/D(2) + PT(98)/S(9)                              00002740
  1679          C
  1680          IF(S(17) .LT. 0.0)  S(17)= EDIST-OD/D(2)                          00002750
  1681          S(18) = S(1)-OD/D(2)+PT(98)/S(12)                                 00002760
  1682          C
  1683          IF(S(18) .LT. 0.0)  S(18)= EDIST-OD/D(2)                          00002770
  1684          S(19) = S(17) + S(18)                                             00002780
  1685          C
  1686          IF(S(17) - S(18))              130,130,132                        00002790
  1687        130 S(20) = S(17)                                                   00002800
  1688                                         GO TO 134                          00002810
  1689        132 S(20) = S(18)                                                   00002820
  1690        134 S(21) = PT(98)                                                  00002830
  1691           S(22)= (PT(60)+PT(61))/D(2)                                      PIVO2840
  1692           IF ( DEPTH .GE. D(1)) GO TO 135                                  PIVO2841
  1693           S(22)= -S(22)                                                    PIVO2842
  1694        135 S(22)= PVTD + S(22)                                             PIVO2843
  1695          S(23) = PVTM                                                      00002850
  1696          C              S(19) THRU S(23) INPUT FOR TEE AND TEL             00002860
  1697          CALL TEE( PT(60), S(142))                                         00002870
  1698          CALL TEL( PT(61), S(143))                                         00002880
  1699          C                                                                 00002890
  1700          S(20) = S(1)+S(2)                                                 00002900
  1701          S(19) = S(21)                                                     00002910
  1702          S(22)= (PT(76)+PT(77))/D(2)                                       PIVO2920
  1703          IF (DEPTH .GE. D(1))  GO TO 140                                   PIVO2921
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CARD NO  ****                          CONTENTS                          ****
1704            S(22) = -S(22)                                          PIV02922
1705          140 S(22) = PT(78)*S(22)                                  PIVOL 23
1706            S(23) = PT(75)                                          00002930
1707      C                                                             00002940
1708            CALL TEEC( PT(76), S(144))                              00002950
1709            CALL TELC( PT(77), S(145))                              00002960
1710      C                                          OUT HERE SECOND TIME 00002970
1711            IF (S(140) .GT. 0.0)              GO TO 200             00002980
1712      C                                                             00002990
1713            S(24) = SQRT(PT(45)**2+PT(32)**2-D(2)*(P   (5)*PT(32)+PT(15)) )  00003000
1714            S(25) = S(24)*PT(35)                                    00003010
1715      C                                                             00003020
1716            IF( (S(25)-YPVT-EDIST) .GE. 0.0) GO TO 200              00003030
1717      C                                                             00003040
1718            S(28) = (RSLOC DXPVT)*CR*(D(1) - D(2)*YPVT/SPAN*FLMTR )  00003050
1719            S(29) = S(28) + EDIST*PT(30)                            00003060
1720            S(122)= SQRT(S(29)**2 + EDIST**2 )                      00003070
1721            S(129)= ATAN2(S(29), EDIST)                             00003080
1722            S(130)= ATAN(PT(31),YPVT)                               00003090
1723            S(131)= D(2)*D(1) - DTH - S(129) - S(130)               00003100
1724            S(132)= SIN(S(131))                                     00003110
1725            S(133)= COS(S(131))                                     00003120
1726            S(134)= PT(34)*S(133) + PT(33)*S(132)                   00003130
1727            S(135)= PT(33)*S(133) - PT(34)*S(132)                   00003140
1728            S(136)= PT(36)*S(135) + PT(35)*S(134)                   00003150
1729            S(137)= (SINDIH/S(136))**2                              00003160
1730            S(138)= S(122)*(COSDTH SQRT(COSDTH**2-(D(1)-S(137))))   00003170
1731      C                                                             00003180
1732            IF(S(138)   S(122))               160, 164, 164         00003190
1733      C                                                             00003200
1734          160 S(139) = S(138)                                       00003210
1735                                            GO TO 170               00003220
1736          164 S(139) = S(122)                                       00003230
1737          170 PT(98) = S(139)*S(135)                                00003240
1738      C                                                             00003250
1739            IF(PT(98) .LT. EDIST )    PT(98) = EDIST                00003260
1740                                                                    00003270
1741            PT(70) = YPVT   PT(98)                                  00003280
1742            S(140) = D(1)                                           00003290
1743            S(25)  = EDIST + YPVT                                   00003300
1744                                            GO TO 100               00003310
1745      C                                                             00003320
1746      C                                                             00003330
1747          200 S(140) = 0.0                                          00003340
1748            S(28)  = (RSLOC   FSLOC)* CR                            00003350
1749            S(29)  = S(28) + (D(1)   D(2)*S(135)/SPAN) * FLMTR * WTR )  00003360
1750            S(28)  = (RSLOC DXPVT)*CR * (D(1) D(2)*YPVT/SPAN * FLMTR )  00003370
1751            S(29)  = S(28) + (S(135)-YPVT)*PT(30)                   00003380
1752            S(30)  = S(27)   S(29)                                  00003390
1753            S(31)  = S(25)   YPVT                                   00003400
1754            S(33)  = SQRT(S(   **2 + S(35)**2)                      00003410
1755            S(122) = SQR(S(29)**2 + S(35)**2)                       00003420
1756            S(32)  = SQRT( S(30)**2   EDIST**2)                     00003430
1757            S(34)  = SQR (S(122)**2   EDIST**2)                     00003440
1758            S(34)  = S(34)*S(32) + S(30)*EDIST                      00003450
1759            S(36)  = EDIST*S(35)   S(32)*S(30)                      00003460
1760            S(37)  = S(34)/S(36)                                    00003470
1761            S(1251 = ATAN2(S(34),S(36))                             00003480
1762            S(38)  = EDIST*S(29) +S(33)*S(35)                       00003490
1763            S(39)  = EDIST*S(35) -S(33)*S(29)                       00003500
1764            S(40)  = S(38)/S(39)                                    00003510
1765            S(126) = ATAN2(S(38),S(39))                             00003520
1766            S(42)  = D(2)*D(15) - S(125) - S(126)                   00003530
1767            S(43)  = EDIST*(S(33) + S(32) + S(42)*EDIST )           00003540
1768            S(44)  = (S(35)*S(27)+S(43))/D(2) -DE       )**2       00003550
1769      C               S(44)IS OUTBOARD AREA                         00003555
1770            S(45)  = S(30) - OO/D(2) + S(35)/S(37)                  00003560
1771      C                                                             00003570
1772            IF(S(45) .LT. 0.0)          S(45)= EDIST-OO/D(2)        00003580
1773      C                                                             00003590
1774            S(46)  = S(29) - OO/D(2) + S(35)/S(40)                  00003600
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CARD NO  ****                                CONTENTS                                  ****
 1775    C                                                                              00003610
 1776          IF(S(46) .LT. 0.0)             S(48) = EDIST-OD/D(2)                    00003620
 1777    C                                                                              00003630
 1778           S(19) = S(45) + S(46)                                                   00003640
 1779    C                                                                              00003650
 1780           F(S(45) - S(46))              220, 220, 222                            00003660
 1781      220  S(20) = S(45)                                                          00003670
 1782                                        GO TO 224                                00003680
 1783      222  S(20) = S(46)                                                          00003690
 1784      224  S(21) = S(35)                                                          00003700
 1785           S(22) =(PT(62)+PT(63))/D(2)                                           PIVO3710
 1786           IF (DEPTH .GE. D(1)) GO TO 226                                        PIVO3711
 1787           S(22) = S(22) +PT(60)+PT(61)                                          PIVO3712
 1788      226 S(22) = PVTD -S(22)                                                    PIVO3713
 1789           S(23) = PVTH                                                          00003720
 1790    C                                                                              00003730
 1791          CALL TEE( PT(62),  S(46))                                              00003740
 1792          CALL TEL( PT(63),  S(47))                                              00003750
 1793    C                                                                              00003760
 1794           S(20) = S(29)+S(30)                                                   00003770
 1795           S(47) = AC*CR*WTOC*(D(1) - D(2)*S(25)/SPAN*FIMTRS)                    00003780
 1796           S(48) = S(47) - (S(49)+S(50))/D(2)                                    00003790
 1797           S(22) = S(48)                                                         00003800
 1798           S(19) = S(20)                                                         00003810
 1799           S(51) = BLEA - S(25)/COSEA                                            00003820
 1800           S(23) = PVTH + PVIV*(S(51) - PT(4))                                   00003830
 1801    C            + MOMENT AT  S(51) --- OUTBOARD EDGE OF LUG                     00003840
 1802    C                                                                              00003850
 1803          CALL TEE( S(49), S(48) )                                               00003860
 1804          CALL TEL( S(50), S(49) )                                               00003870
 1805    C                                                                              00003880
 1806          IF(ODPVT)                      240,240, 250                            00003890
 1807      240 S(54) = ABS(OD - S(55))                                                00003900
 1808    C
 1809    C      COMPAIR WITH PREVIOUS TIME AROUND                                       00003910
 1810          IF(S(54)-.001)                 500,500, 246                            00003920
 1811    C                                                                              00003930
 1812      246 S(55) = OD                                                             00003940
 1813                                        GO TO 70                                 00003950
 1814      250 S(120) = ABS(PT(65) - S(127))                                          00003960
 1815    C                                                                              00003970
 1816          IF(S(128) - 100.)              500,500, 252                            00003980
 1817    C                                                                              00003990
 1818      252 S(127) = PT(65)                                                        00004000
 1819                                        GO TO 70                                 00004010
 1820    C     ************************************************************           00004020
 1821      500 S(95) = S(16)*RHO*(PT(60)+PT(61)+PT(76)+PT(77))                        00004030
 1822    C              S(95) IS INBOARD STRUCT WT.                                   00004040
 1823          S(96) = S(44)*RHO*(PT(62)+PT(63)+S(49)+S(50))                         00004050
 1824    C              S(96) IS OUTBOARD STRUCT WT                                   00004060
 1825         S(97) = RHO*D(15)/D(2)*(OD**2-PT(68)**2) *PVID*RHOPIN                  00004070
 1826    C              S(97) IS PIN WT.                                              00004080
 1827          S(98) = D(2)*PT(83)*PT(80)*(PT(78)-PT(76)-PT(77))*RHO                 00004090
 1828    C              S(98) IS BIB WT.                                              00004100
 1829          S(99) = S(51)                                                         00004110
 1830    C            + DISTANCE FROM OUTBOARD EDGE OF PIVOT TO TIP E.A.            00004115
 1831    C                                                                              00004120
 1832          IF(IP(26))5001,5001,5002
 1833     5001 NK= IGN                                                               PIVO4121
 1834          WRITE (6,570) NCASE, TOGW(NK),DGW(NK),DPNZ,DNNZ                       PIVO4123
 1835      570 FORMAT(1H1,89X,20H** PIVOT - IP(26) **/
 1836         1        1H ,9H CASE, I4,5X, 9HTOGW=, F9.1,2X, 9HDGW=, F9.1,          PIVO4124
 1837         2X, 4HNZ=, F8.3,2X, 4HNZ=, F8.3)                                      PIVO4126
 1838          WING =S( 1)+S( 2)                                                     PIVO4128
 1839          WOUT = S(29) + S(30)                                                  PIVO4130
 1840          WRITE (6,580) S(25),YPVT, S(49), PT(62), S(50), PT(63), WOUT,         PIVO4135
 1841         1S(44), YPVT, PT(70), PT(60), PT(76), PT(61), PT(77), WING, S(16)      PIVO4140
 1842      580 FORMAT (1H0,15X , 8HOUTBD BP, 3X,7HINBD BP,3X,8HTU OUTBD,3X,          PIVO4141
 1843         1 7HTU INBD,3X,8HTL OUTBD,3X, 7HTL INBD, 3X, 12HSPLICE CHORD,6X,      PIVO4142
 1844          8HAREA//13H    OUTER LUG, 1X, 2F10.2,F11.4,F10.4,F11.4,F10.4,        PIVO4143
 1845          3F12.2,F10.0/13H     INBD LUG,1X,2F10.2,F11.4,F10.4,F11.4,F10.4,     PIVO4144
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CARD NO  ****                          CONTENTS                                ****

1846          %F12.2,F10.0)                                                    PIVON145
1847           WRITE (6,590) PT(80), PT(76), PT(83), PT(70),EDIST, EOD, OD, DOT, PIVON150
1848          1PT(68), PVID, APM, PVTM, PVTV, S(23), PT(75), DXPVT             PIVON151
1849         590 FORMAT (1HO,9X,12H RIB WIDTH =,F10.2, 12H RIB DEPTH =,F10.2,  PIVON152
1850           112H    RIB T =, F10.4, 12H  RIB B.P. =, F10.2//1H     EDGE DIS(PIVON153
1851           2. =, F10.2,3X, %AE/D =, F10.2, 3X, 10HPIN O.D. =,F6.2 ,3X      PIVON154
1852           3 SHO/T =, F6.2, 3X,10HPIN I.D. =,F10.2//1H    PIVOT            PIVON155
1853           %F10.2,3X,12HCOUPLE ARM =, F10.2,3X,10HPIVOT RX =,E13.5,3X,      PIVON156
1854           510HPIVOT SZ =,E13.5 //1H  ,9X,10HRX OUTER =, E13.5 , 3X,        PIVON157
1855           6 9HRX INBD = , E13.5 / 5X, 7HDXPVT =, E13.5 )                   PIVON158
1856      C
1857         505 WRITE (6,704)                                                  PIVON160
1858          704  FORMAT (1H1, 5X, 19H  AT END PIVOT ///)
1859      C
1860         705  DO 710 I=681,1200,5
1861              IF(ABS(T(I)) + ABS(T(I+1)) + ABS(T(I+2)) + ABS(T(I+3))
1862             *    + ABS(T(I+4)))710,710,708
1863         708 WRITE(6,709)I,T(I),T(I+1),T(I+2),T(I+3),T(I+4)
1864          709  FORMAT ( I17, 5E18.7 )
1865          710 CONTINUE
1866         5002 CONTINUE
1867      C
1868          999  CONTINUE
1869              RETURN
1870              END                                                          00000140
1871      C**************************************************************************
1872      C
1873      C        *****SUBROUTINE TEE*****
1874      C   ***PIVOT DESIGN/SYNTHESIS DATA EVALUATION***
1875      C
1876      C**************************************************************************
1877      C
1878      C                              SUBROUTINE  TEE                          5000
1879      C                              USED BY PIVOT                            5010
1880      C                                                                       5020
1881      C      ORIGINAL 4 OCT 65                                                5030
1882      C      REVISED --01-21 6 -- CONVERT TO  %A6IN FORMAT--STR -             5040
1883      C      CHANGED FOR  360 FORTRAN IV    MARCH 72                          5060
1884      C                                                                       5070
1885      C      USE  COMMON AND EQUIVALENCE FROM PIVOT 3.72                      5080
1886      C                                                                       5090
1887      C                                                                       5100
1888              SUBROUTINE TEE(T1I,T1X)                                         5110
1889      C                                                                       5120
1890             COMMON    TCOM(6320),IW(900)                                   00000050
1891      C                                                                      00000060
1892             DIMENSION  T(2060),   D(2060),   CD(2060),  S(200)   PT(100)   00000070
1893            1,  AK(5),   TSEC(200),  UTPM(11),  ULTPV(11),   YSTRC(11)     00000080
1894            7,TOGH(3),DGH(3),ND(100),PD(12)                                 PIV00081
1895            8, DMTLP(17),  TAND(9),SIND(6),  COSO(6)                        00000082
1896      C                                                                      00000090
1897             EQUIVALENCE          (TCOM(1), T(1))                           00000100
1898            1, (T(12),B02),          (T(38),TANAC),      (T(70),FIPTR)      00000110
1899            3, (T(77),FIMTR),        (T(78),FIMTRS),     (T(81),BLEA)       00000130
1900            A, (T(45),CPVT),         (T(49),YSTRP),      (T(52),CR)         00000131
1901            B, (T(140),SIND(1)),   (SIND(3),SINEA)                          00000132
1902            C, (T(146),COSO(1)),   (COSO(3),COSEA)                          00000133
1903            9, (T(122),TAND(1))                                             00000140
1904            6, (T(900),YPVT),      (T(901),PT(1)),      (T(1001),S(1))     00000160
1905             EQUIVALENCE  ( DMTLP(1),CD(1905)),                             00000162
1906            1  (DMTLP(2),DMU),      (DMTLP(5),EC),       (DMTLP(10),FTS)   00000163
1907            2, (DMTLP(11),RHO),     (DMTLP(12),FTU)                       00000164
1908      C                                                                      00000170
1909             EQUIVALENCE          (PT( 9),PVTM),      (PT(10),PVID)         00000190
1910            A, PT(8),PVTV),          (PT(100),SPAN)                        00000191
1911            B,    (DXPVT,PT(5))                                             00000192
1912            2                .       (PT(38),DTH),       (PT(39),SINDTH)   00000200
1913            3,   (PT(40),COSDTH),    (PT(59),EOD),       (PT(55),DOT)      00000210
1914            4,   (PT(56),SOD),       (PT(66), OD),       (PT(69),EDIST)    00000220
1915            5,   (IGM,ND(57)),     (NCASE,ND(60)),    (NPADE,ND(85))       PIV00221
1916            6,   (TOGM(1),D(80)), (DGM(1),D(102)),   (DPN2,T(20))          PIV00222
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CARD NO   ****                         CONTENTS                                     ****
          7.   (DNN2,T(2)),    (BXPRT,D(474)),  (ND(1),TCOM(612))                  PIV00223
          7.   (PDATE(1),D(2055))                                                  PIV00224
     C                                                                             00000221
           EQUIVALENCE        (TCOM(412),CD(1)),   (CD(1501),TSEC(1))              00000222
          1. (TSEC(1),ULTPM(1)),  (TSEC(12),ULTPV(1)),  (TSEC(166),YSTRC(1))       00000223
     C                                                                             00000224
     C MOMENT = ULTPM,  SHEER = ULTPV  AT STATIONS YSTRC                           00000225
     C  DEPTHS AT TSEC(55 THRU 66)                                                 00000226
     C                                                                             00000227
     C                                                                             00000230
           EQUIVALENCE  (S(95), ANS(1))                                            00000240
     C                                                                             00000250
           EQUIVALENCE        (TCOM(2061),D(1))                                    00000260
          1.   (D(124),AC),      (D(125),FSLOC),     (D(126),RALOC)                00000270
          2.   (D(127),EALOC),                       (D(195),FBR)                  00000280
          3.   (D(198),OOPVT),   (D(199),ORI),       (D(200),DYPVT)                00000290
          4.   (D(201), XPVT),   (D(202),THPTKO),    (D(203),THPAF))               00000300
          5.   (D(240),HAREA),   (D(241),HAR),       (D(242),HSWP)                 00000310
          6.   (D(243),HTOC),    (D(244),HTR),       (D(245),H..IO)                00000320
          7.   (D(192),CKA),    (D(193),CKB),        (D(194),CKC)                  00000330
          8.   (D(156),DP1),     (D(157),DP2),      (D(109),HOFSTU)                00000340
          9.   (D(.06),DEPTH)                                                      PIV00341
     C                                                                             00000350
     C                                                                             00000340
            S(56) = CKA/(S(21)/S(20)+CKB)**2 + CKC                                     5500
            S(57) = 0.0                                                                5510
            S(58) = 0.0                                                                5520
            S(60) = (PT(89)-PT(88)) / DN                                               5530
     C                                                                                 5540
        88  S(61) = (D(1)/((D(4)*S(58)/D(15))**2+D(1))*C(..(D(2)*..(4)+D(3))           5560
          1          *S(23)/PT(02)                                                     5570
            S(62) = PT(88)+S(58)                                                       5580
            S(64) = SIN(S(62))                                                         5590
            S(65) = COS(S(62))                                                         5600
            S(66) = S(61)*S(64)/S(22)                                                  5610
            S(67) = S(61)*ABS(S(65))/S(22)                                             5620
            S(68) = S(66)/S(56)*S(20 / EC                                              5630
            S(69) = S(68)*SQRT(S(68))                                                  5640
           S(70)=D(12)/EC*(1.0-OMU*OMU)/S(19)*S(67)*(S(21)/D(15))**2               00005650
     C                                                                                 5660
     C                        FIRST APPROXIMATION                                      5670
     C                                                                                 5680
            S(73) = S(70)                                                              5690
            S(13) = 0.0                                                                5700
        69  S(71) = SQRT(S(73))                                                        5710
            S(72) = S(71)*(S(73)-S(70)) - S(69)                                        5720
            S(155)= (D(3)*S(73)-S(70))/(D(2)*S(71))                                    5730
            S(156)= (D(3)+S(70)/S(73))/(D(4)*S(71))                                    5740
            S(157)= S(72)/(S(155)-S(72)/D(2)*S(156)/S(155))                            5750
            S(73) = S(73)-S(157)                                                       5760
            S(13) = S(13) + D(1)                                                       5770
     C                                                                                 5780
           IF(S(13)-D(10))                  70,70,71                                   5790
     C                                                                                 5800
        70 IF(ABS(S(157))-.00001)           71,71,69                                   5810
     C                                                                                 5820
        71  S(74) = S(73)**D(2)                                                        5830
     C                                                                                 5840
            IF(S(74)-S(57))                 73,73,72                                   5850
     C                                                                                 5860
        72  S(57) = S(74)                                                              5870
            TTX   = (PT(88)+S(58))/D(16)                                               5880
        73  S(58) = S(58)+S(60)                                                        5890
            S(75) = S(58)+PT(88)                                                       5900
     C                                                                                 5910
           IF(PT(88)-S(75))                 75,68,68                                   5920
     C                                                                                 5930
        75  TTT   = S(57)                                                              5940
        99  RETURN                                                                     5950
            END                                                                        5960
     C**********************************************************************
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CARD NO  ****                          CONTENTS                          ****
1988     C
1989     C        *****SUBROUTINE TEL*****
1990     C   ***PIVOT DESIGN SYNTHESIS DATA EVALUATION***
1991     C
1992     C**************************************************************************
1993     C
1994     C                              SUBROUTINE TEL                              6000
1995     C                              USED BY PIVOT                           00006005
1996     C                                                                          6010
1997     C   ORIGINAL      50CT65                                                  6020
1998     C   REVISION      1-21-66     CONVERT FOR NA-614  STR.                    6030
1999     C   REVISION       MARCH72    CHANGE  TO FORTRAN IV                       6040
2000     C
2001           SUBROUTINE  TEL(TE TX)                                             6050
2002     C
2003           COMMON    TCOM(220),TH(900)                                     00000050
2004     C                                                                      00000060
2005           DIMENSION  T(2060),   D(2060),  CD(2000),  S(200),  PT(100)     00000070
2006          1,  ANS(5),  TSEC(200), ULTPH(11), ULTPV(11),  YSTRC(11)         00000080
2007          7,TOGW(3),DGW(3),ND(100),FDATE(2)                                PIV00081
2008          8 ,DMTLP(17), TAND(9),SIND(6), COSO(6)                           00000082
2009     C                                                                      00000090
2010           EQUIVALENCE           (TCOM(1), T(1))                           00000100
2011          1, (T(12),B02),         (T(38),TANAC),      (T(70),FIPTR)        00000110
2012          3, (T(77),FIMTR),       (T(78),FIMTRS),     (T(81),BLEA)         00000130
2013          A, (T(45),CPVT),        (T(41),YSTRP),      (T(52),CR)           00000131
2014          B, (T(140),SINO(1)),    (SINO(3),SINCA)                          00000132
2015          C, (T(146),COSO(1)),    (COSO(3),COSCA)                          00000133
2016          4, (T(122),TAND(1))                                              00000140
2017          6, (T(900),YPVT),       (T(901),PT(1)),     (T(1001),S(1))       00000160
2018           EQUIVALENCE  ( DMTLP(1),CD(1905)),                              00000162
2019          1  (DMTLP(2),DMU),      (DMTLP(5),EC),      (DMTLP(10),FTS)      00000163
2020          2, (DMTLP(11),RHO),     (DMTLP(12),FTU)                          00000164
2021     C                                                                      00000170
2022           EQUIVALENCE           (PT( 9),PVTH),      (PT(10),VTD)         00000190
2023          A, (PT(8),PVTV),        (PT(100),SPAN)                           00000191
2024          B,    (DKPVT,PT(5))                                              00000192
2025          2                .     (PT(38),DTH),       (PT(39),SINDTH)      00000200
2026          3,   (PT(40),COSDTH),   (PT(54),EOD),       (PT(55),DOT)         00000210
2027          4,   (PT(56),SOD),      (PT(66), OD),       (PT(69),EDIST)       00000220
2028          5,   (IGW,ND(57)),     (NCASE,ND(60)),    (NPAGE,ND(85))         PIV00221
2029          6,   (TOG(1),D(80)), (DGW(1),D(102)),   (DPN2,T(20))             PIV00222
2030          7,   (DPN2,T(21)),     (BKPRT,D(474)),  (ND(1),TCOM(6121))       PIV00223
2031          7,   (FDATE(1),D(2055))                                          PIV00224
2032     C                                                                      00000221
2033           EQUIVALENCE            (TCOM(121),CD(1)),  (CD(1501),TSEC(1))   00000222
2034          1, (TSEC(1) ULTPH(1)),  (TSEC(12),ULTPV(1)), (TSEC(166),YS RC(1)) 00000223
2035     C                                                                      00000224
2036     C  MOMENT = ULTPH,  SHEER = ULTPV  AT STATIONS YSTRC                   00000225
2037     C  DEPTHS AT TSEC(55 THRU 66)                                          0000.226
2038     C                                                                      00000227
2039     C                                                                      00000230
2040           EQUIVALENCE  (S(95), ANS(1))                                     0000024
2041     C                                                                      00000250
2042           EQUIVALENCE           (TCOM(2061),D(1))                          00000260
2043          1,   (D(124),AC),       (D(125),FSLOC),     (D(126),RSLOC)       00000270
2044          2,   (D(127),EALOC),                        (D(195),FBR)         00000280
2045          3,   (D(198),COPVT),    (D(199),DN),        (D(200),DYPVT)       00000290
2046          4,   (D(201), XPV1),    (D(202),THPFWD),    (D(203),THPAFT)      00000300
2047          5,   (D(240),WAREA),    (D(241),WAR),       (D(242),WSMP)        00000310
2048          6,   (D(243),MTOC),     (D(244),MTR),       (D(245),WSIG)        00000320
2049          7,   (D(192),CKA),     (D(193),CKB),        (D(194),CKC)         00000330
2050          8,   (D(156),DP1),      (D(157),DP2),      (D(189),PERFTU)       0000034O
2051          9,   (D(188),DEPTH)                                              PIV00341
205      C                                                                      00000350
2053           EQUIVALENCE   (D(1),D1), (D(2),D2), (D(3),D3), (D(4),D4)        00000360
2054          1, (D(5),D5), (D(6),D6), (D(7),D7), (D(8),D8), (D(9),D9)         00000370
2055          2, (D(10),D10), (D(11),D11), (D(12),D12), (D(15),P1)             00000380
2056     C                                                                      0000034O
2057     C                                                                      0000034O
2058     C          * K                                                           0520
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CARD NO  ****                          CONTENTS                          ****
2059              S(76) = CKA/(S(21)/S(20) + CKD)**2 + CKC                  0510
2060              S(77) = 0.0                                               0530
2061              S(78) = 0.0                                               0540
2062              S(80) = PI(88)                                            0550
2063         C          = THETA FWD 1ST TIME  = INCREMENT WHEN LOOP BACK    0555
2064            78  S(79) = (D(1)/(CD(1)*S(78)/D(15)**2+D(1)))*COS(D(21*S(78))/D(3))  0560
2065              S(79) = S(79) + S(23)/PT(82)                              0570
2066              S(82) = SIN( S(80))                                       0600
2067              S(83) = COS( S(80))                                       0610
2068              S(84) = S(79)*S(0.1/S(22)                                 0620
2069         C          = P TOR   = TORSION                                0630
2070              S(85) = S(79)*ATG(S(83))/S(22)                            0640
2071         C          = C T = TENSION                                    0650
2072             S(88)= (S(84)/S(76)*S(20)/EC)**2                           00006660
2073         C          = A                                                0670
2074             S(89)= (S(85)/(S(19)*PERF(U*FTU) )**2                      00006670
2075         C          = B                                                0690
2076              S(90) = S(89)                                             0700
2077         C          = X1 = B FOR 1ST. TIME                             0710
2078            79  S(91) = ( S(88) + S(89)*S(90)**2)**D(21)               0720
2079         C          = X2 = CODE ROOT ( A + B(X))SQ )                   0730
2080              S(92) = ABS( S(91) - S(90))                               0740
2081         C                                                             0750
2082             IF(S(92)- 0000001)              81,81, 80                 0760
2083         C                                                             0770
2084            80  S(90) = S(91)                                          0780
2085         C              X1 = X2,GO BACK FOR ANOTHER X2                 0790
2086                                            GO TO 79                   0800
2087            81  S(93) = SQRT(S(91))                                    0810
2088         C                                                             0820
2089             IF( S(93) - S(77) )            83,83, 82                  0830
2090         C                                        ALWAYS SAVE GREATEST 0840
2091            82  S(77) = S(93)                                          0850
2092                TX    = THFWD + S(78)/D(16)                           0860
2093            83  S(78) = S(78) + S(30)                                  0870
2094                S(80) = S(78) + PI(88)                                 0880
2095                IF(PI(89) - S(80))          85, 78,78                  0890
2096         C                                                             0900
2097            85  TL    = S(77)                                         0910
2098                RETURN                                                0920
2099                END                                                   0930
2100         C**************************************************************
2101         C
2102         C       *****SUBROUTINE CSECW*****
2103         C   ***CENTER-SECTION WEIGHT EVALUATION***
2104         C
2105         C**************************************************************
2106         C
2107              SUBROUTINE CSECW                                         CSEC0010
2108         C                                                             CSEC0011
2109         C              CENTER-SECTION WEIGHT/ WT/IN CALC. SUBR        CSEC0020
2110         C                                                             CSEC0030
2111         C                                                             CSEC0040
2112         C     USE WT/IN DATA IN TH REGION -01-25-66 -- NO V.F. --     CSEC0080
2113         C     C-SEC WTS = LB/A.V                                      CSEC0090
2114         C                                                             CSEC0100
2115         C                                                             CSEC0120
2116              COMMON TCOM(7120)                                        CSEC0130
2117         C                                                             CSEC0140
2118              DIMENSION T(2060),D(2060),CD(2000),ND(100),DC(100),      CSEC0150
2119             1TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),TWT9001,   CSEC0151
2120             2YSTRC(11),                                              CSEC0152
2121             3DELCS(20),DLCLR(4),                                     CSEC0153
2122             4DELTB(30)                                               CSEC0160
2123         C                                                             CSEC0170
2124              EQUIVALENCE (T(1),TCOM(1)),(D(1),TCOM(2061)),(CD(1),TCOM(4121)),  CSEC0180
2125             1(ND(1),TCOM(6121)),(TWT(1),TCOM(6221)),                 CSEC0181
2126             2(DC(1),D(1401)),(TDC(1),T(1341)),(TSC(1),T(1541)),      CSEC0182
2127             3(TSS(1),T(1961)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),  CSEC0183
2128             4(YSTRC(1),TSEC(166)),                                   CSEC0184
2129             5(SDRAD,TWT(1751),(DMISC,T(191)),                        CSEC0185
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CARD NO	****	CONTENTS	****
2130		6(CSAD,DI(80)),(CSSPN,DI(24)),(WESEC,TI)),	CSEC0185
2131		7(CSDEL,DI(81)),(DELCS(1),DI(82)),(DLCLR(1),DI(82)),	CSEC0187
2132		8(DELTB(1),TWT(25)),(DLRRC,DELTB(2)),(DLR*?,DELTB(3)),	CSEC0188
2133		9(L,ND(28)),(K,ND(29)),(J,ND(30)),(I,ND(31))	CSEC0189
2134	C		CSEC0190
2135	C		CSEC0200
2136	C		CSEC0210
2137	C		CSEC0260
2138	C	---TEMP--- USE OPNL COEFF * CSDEL AND DELMISC WING -01-24-66	CSEC0270
2139	C	WT/IN AT ROOT IN TWT(501) TO TWT(550)	CSEC0280
2140	C	SAVE WT/IN DATA IN 551-601 FOR PIVOT DELTA WT.	CSEC0290
2141	C	CLEAR TSS REGION	CSEC0300
2142		%00 DO %01 I=1,50	CSEC0310
2143		TSS(I)=DC(3)	CSEC0320
2144		TWT(I+330)=DC(3)	CSEC0330
2145		TWT(I+550)= DC(3)	CSEC0340
2146		%01 CONTINUE	CSEC0350
2147	C		CSEC0359
2148	C	TEST FOR CALC	CSEC0360
2149		IF (CSAD+CSSPN+CSDEL) %10,%99,%10	CSEC0370
2150	C		CSEC0379
2151	C	SETUP DATA	CSEC0380
2152		%10 TSS(26) = WESEC	CSEC0390
2153		TSS(27) = WESEC	CSEC0400
2154		TSS(28)= CSSPN*DI(9)	CSEC0410
2155		TSS(29)= IDC(78)	CSEC0420
2156		TSS(30)= T(52)*IDC(78)/T(100)	CSEC0430
2157		TSS(31)= SQRND*TSS(28)	CSEC0440
2158		TSS(32)= SQRT (TSS(27)/IDC(77))	CSEC0450
2159		TSS(33)= TSS(32)*SQRT (TSS(29)/TSS(30))	CSEC0460
2160		TSS(34)= (DI(1)* TSS(33))/DI(2)	CSEC0470
2161		TSS(35)= (DI(1)* TSS(33))/DI(2)	CSEC0480
2162		TSS(39)= SQRT (DI(1)/TSS(33)/TSS(33))	CSEC0490
2163		TSS(40)= SQRT (DI(1)* TSS(33)*TSS(33))	CSEC0500
2164	C		CSEC0510
2165	C	C-L RIB. =F(RT,RIB, AICL,RT),W(CL,RT))	CSEC0520
2166		%11 TSS(36) = TWT(36)*TSS(32)/DLRRC	CSEC0530
2167		TWT(379)= DLCLR(2)*TSS(36)	CSEC0540
2168		TSS(37) = TWT(37)*TSS(33)/DLT3R	CSEC0550
2169		TWT(380)= DLCLR(3)*TSS(37)	CSEC0560
2170		TSS(19)= TSS(36) + TSS(37)	CSEC0570
2171		TSS(38)= TSS(19)*DI(24) - TSS(19)	CSEC0580
2172		TWT(356)= DLCLR(4)*TSS(38)	CSEC0590
2173		TWT(355)=DLCLR(1)*(TWT(379)+TWT(380))	CSEC0600
2174	C		CSEC0610
2175	C	DO BOX IN LOOP J=1,2 K=1,4 L=1,5	CSEC0620
2176		%20 DO %29 J=1,2	CSEC0630
2177		K=J*ND(3)-ND(2)	CSEC0640
2178		L=J*ND(4)-ND(3)	CSEC0650
2179	C		CSEC0660
2180	C	COVER WT/IN RT AND C-L.	CSEC0670
2181		TWT(K+338)= TWT(J+509)*DELCS(K+1)/DELTB(K+1)	CSEC0680
2182		TWT(K+362)=TWT(K+338)*TSS(34)	CSEC0690
2183		TWT(K+339)= TWT(J+503)*DELCS(K+2)/DELTB(K+2)	CSEC0700
2184		TWT(K+363)= TWT(K+339)*TSS(34)	CSEC0710
2185		TWT(K+340)=(DELCS(7)*(TWT(J+505)+TWT(J+522)))/DELTB(7)	CSEC0720
2186		TWT(K+364)=DELCS(7)*(TWT(J+505)*TSS(34) +TWT(J+522)*TSS(39))/DELTB(7	CSEC0730
2187		))	CSEC0740
2188	C		CSEC0749
2189	C	SUM COVERS	CSEC0750
2190		%21 TWT(J+332)= DELCS(J)*(TWT(K+338)+TWT(K+339)+TWT(K+340))	CSEC0760
2191		TWT(J+356)= DELCS(J)*(TWT(K+362)+TWT(K+363)+TWT(K+364))	CSEC0770
2192	C		CSEC0779
2193	C	FS/RS	CSEC0780
2194		%22 TWT(J+344)=DELCS(L+13)*TWT(J+515)/DELTB(L+13)	CSEC0790
2195		TWT(J+368)=TWT(J+344)*TSS(39)	CSEC0800
2196		TWT(J+345)=DELCS(L+14)*TWT(J+513)/DELTB(L+14)	CSEC0810
2197		TWT(J+370)=TWT(J+346)*TSS(40)	CSEC0820
2198		TWT(338)= TWT(J+524)*DELCS(L+15)/DELTB(L+15)	CSEC0830
2199		TWT(362)= TWT(338)*TSS(39)	CSEC0840
2200		TWT(J+335)= DELCS(L+12)*(TWT(J+344)+TWT(J+346))	CSEC0850

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CARD NO  ****                          CONTENTS                          ****
2201            TWT(J+359)= DELCS(L+12)*(TWT(J+368)+TWT(J+370))          CSEC0860
2202      C                                                              CSEC0869
2203      C      LOOP J,K,L                                              CSEC0870
2204       429  CONTINUE                                                 CSEC0880
2205      C                                                              CSEC0890
2206      C       RIBS                                                   CSEC0900
2207       430  TWT(335)=DELCS(9)*DELCS(10)/DELTB(8)*TW(503)/DELTB(10)   CSEC0910
2208            TWT(359)= TWT(335)*TSS(35)                               CSEC0920
2209      C                                                              CSEC0930
2210      C       MISC ATT.                                              CSEC0940
2211       431  TWT(400)=TW(509)*DELCS(8)/DELTB(8)                       CSEC0950
2212            TWT(399) =TW(527)*DELCS(11)/DELTB(8)                     CSEC0960
2213            TWT(338)= TWT(338)+TWT(400)+TWT(399)                     CSEC0970
2214            TWT(362)= TWT(362) + TWT(400)*TSS(34) + TWT(399)*TSS(35) CSEC0980
2215      C                                                              CSEC0990
2216      C       J,S(UPR,LWR,ATT)                                       CSEC1000
2217       432  TWT(352)=TW(545)*DELCS(7)/DELTB(7)                       CSEC1010
2218            TWT(353)=TW(546)*DELCS(7)/DELTB(7)                       CSEC1020
2219            TWT(354)=TW(547)*DELCS(8)/DELTB(8)                       CSEC1030
2220            DO 433 I=1,3                                             CSEC1040
2221            TWT(I+375)= TWT(I+351)*TSS(34)/D(19)                     CSEC1050
2222       433  CONTINUE                                                 CSEC1060
2223      C                                                              CSEC1070
2224      C       C-SEC WT=(B1/2)*(WT/IN(RT+CL))                         CSEC1080
2225       440  DO 441 I=1,16                                            CSEC1090
2226            TSS(I+2)= TSS(20)*(TWT(I+332)+TWT(I+356))                CSEC1100
2227      C                                                              CSEC1119
2228       441  CONTINUE                                                 CSEC1110
2229      C       RESET FS(N), RS(C)                                     CSEC1120
2230            TSS(2)=TSS(16)                                           CSEC1130
2231            TSS(16)=TSS(17)                                          CSEC1140
2232            TSS(17)=TSS(2)                                           CSEC1150
2233      C                                                              CSEC1160
2234      C     MOVE CHORDWISE ITEMS AND ADD --USK,LSK MISC, ATT, CL RIB CSEC1170
2235       442  TSS(11)= TSS(11)+ TWT(352)+TWT(376)                      CSEC1180
2236            TSS(14)= TSS(14)+ TWT(353)+TWT(377)                      CSEC1190
2237            TSS(3) =(TSS(11)+TSS(10)+ TSS(9))*DELCS(1)               CSEC1200
2238            TSS(4)=(TSS(14)+TSS(13)+TSS(12))*DELCS(4)                CSEC1210
2239            TSS(8)= TSS(8)+TWT(354)+TWT(356)+TWT(378)                CSEC1220
2240            TSS(19)= TWT(355)                                        CSEC1230
2241            TSS(1)= TSS(19)                                          CSEC1240
2242      C                                                              CSEC1250
2243      C       SUM WT/IN (RT,CL)*DELCS, TOTAL C-S WT.                 CSEC1260
2244       450  DO 451 I=1,8                                            CSEC1270
2245            TWT(331)=TWT(331)+TWT(I+342)                             CSEC1280
2246            TWT(332)=TWT(332)+TWT(I+356)                             CSEC1290
2247            TSS(1)= TSS(1)+ TSS(I+2)                                 CSEC1300
2248       451  CONTINUE                                                 CSEC1310
2249      C                                                              CSEC1320
2250      C      APPLY COEFF.(C-SEC) AND COMPUTE MISC.                   CSEC1330
2251            TWT(331)=CSDEL*TWT(331)                                  CSEC1340
2252            TSS(1)= CSDEL*TSS(1)                                     CSEC1350
2253            TSS(2) = TSS(1)*DMISC                                    CSEC1370
2254      C                                                              CSEC1380
2255      C       SETUP FOR EXIT-- MOVE WT/IN DATA TO TH REGION          CSEC1390
2256       490  DO 491 I=1,50                                           CSEC1400
2257            TW(I+550)= TWT(I+330)                                    CSEC1410
2258       491  CONTINUE                                                 CSEC1420
2259      C                                                              CSEC1430
2260       499  RETURN                                                   CSEC1450
2261            END                                                      CSEC1460
2262      C*************************************************************************
2263      C
2264      C       *****SUBROUTINE DLPVT*****
2265      C   ***EVALUATION OF T-BOX STRUCTURE REPLACED BY PIVOT***
2266      C
2267      C*************************************************************************
2268      C
2269            SUBROUTINE DLPVT                                         DLPV0010
2270      C                                                              DLPV0011
2271      C               DELTA TBOX WT. CALC. SUBR. FOR PIVOT           21065020
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CARD NO  ****                          CONTENTS                          ****
 2272    C                                                                21065030
 2273    C                                                                21065060
 2274    C     SAVE WT SUMMARY IN TSS(21-48)                              21065070
 2275    C                                                                21065080
 2276          COMMON TCOM(6220),TW(900)                                  21065110
 2277          COMMON /IPRINT/ IP(80)
 2278    C                                                                21065120
 2279          DIMENSION   T(2060),   D(2060),   CD(2000),   ND(100)      21065130
 2280         1,DC(100),   TDC(200),  TSC(420),  TSS(100),  TWT(400)      21065140
 2281         2,TSEC(300), PT(100),   S(200),    YSTRC(11), DEL(30)       21065150
 2282         3,DELPV(7),  DLCS(28)                                       21065160
 2283    C                                                                21065170
 2284          EQUIVALENCE           (TCOM(1),T(1)),      (TCOM(2061),D(1)) 21065180
 2285         1,(TCOM(4121),CD(1)),  (TCOM(6121),ND(1))                   21065190
 2286    C                                                                21065200
 2287          EQUIVALENCE           (T(15), B102),       (T(16),B1502)     21065210
 2288         1,(T(76),COSEA),       (T(1001),S(1)),      (T(1341),TDC(1))  21065220
 2289         2,(T(1541),TSC(1)),    (T(1961),TSS(1)),    (T(1901),PT(1))   21065230
 2290    C                                                                21065240
 2291    C                                                                21065247
 2292          EQUIVALENCE           (D(480),CSHD),       (D(481),CSDEL)    21065250
 2293         1,(D(482),DLCS(1)),    (D(530),DELPV(1)),   (D(1401),DC(1))   21065260
 2294         2,(DC(3),ZERO),        (D(1),D1),           (D(2),D2)         21065270
 2295         3,(WCSEC,T(5))                                                21065271
 2296    C                                                                21065280
 2297          EQUIVALENCE           (CD(1101),TWT(1)),   (DLT8X,T(188))    21065290
 2298         1,(TWT(251),DEL(1)),   (CD(1501),TSEC(1)),  (TSEC(166),YSTRC(1)) 21065300
 2299    C                                                                21065310
 2300          EQUIVALENCE           (ND(1),ND1),         (ND(2),ND2)       21065320
 2301         1,(ND(3),ND3),         (ND(4),ND4),         (ND(5),ND5)       21065330
 2302         2,(ND(6),ND6),         (ND(7),ND7),         (ND(8),ND8)       21065340
 2303         3,(ND(9),ND9),         (ND(10),ND10),       (ND(11),ND11)     21065350
 2304         4,(ND(12),ND12),       (ND(28),M),          (ND(29),K)        21065360
 2305         5,(ND(30),J),          (ND(31),N),          (ND(47),IC)       21065370
 2306         6,(ND(55),ISEC),       (ND(56),NODW),       (ND(57),IGW)      21065380
 2307    C                                                                21065390
 2308    C
 2309    C
 2310          IF(IP(26))5001,5001,5002
 2311     5001 CONTINUE
 2312          WRITE(6,800)
 2313      800 FORMAT(1H1,30X,16H*** TW ARRAY ***,43X,20H** DLPVT - IP(26) **//)
 2314          DO 801 N=1,869,5
 2315          L1 = N
 2316          L2 = N + 4
 2317          IF(TW(N) + TW(N+1) + TW(N+2) + TW(N+3) + TW(N+4))801,801,802
 2318      802 WRITE(6,803)N,(TW(K),K=L1,L2)
 2319      803 FORMAT(I6,5E18.8)
 2320      801 CONTINUE
 2321     5002 CONTINUE
 2322    C
 2323    C
 2324    C                              CLEAR TWT(321 THRU 400)             21065400
 2325          DO 10 I=ND1,70                                               21065410
 2326             TWT(I+330) = ZERO                                         21065420
 2327       10 CONTINUE                                                    21065430
 2328    C                                                                21065439
 2329    C                              SETUP RT. RIB DATA                  21065440
 2330          I=IGW*ND10+ND10                                              21065450
 2331         TWT(328) = CD(I+334)                                          21065460
 2332         TWT(329) = CD(I+335)                                          21065470
 2333         TWT(330) = CD(I+336)                                          21065480
 2334    C                                                                21065490
 2335          TWT(388) = PT(70)                                           21065500
 2336          TWT(386) = PT(70)/COSEA                                     21065510
 2337    C                                                                21065518
 2338    C              = INBOARD EDGE PIVOT STRUC. IN STRUCTURAL SYSTEM   21065519
 2339         TWT(398) = S(25)                                             21065520
 2340         TWT(397) = S(25)/COSEA                                       21065530
 2341    C              = OUTBOARD EDGE PIVOT STRUC.                      21065535
 2342    C                 COMPUTE WIDTHS, SETUP OUTPUT DATA---GEOMETRY---------21065540
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CARD NO  ****                          CONTENTS                          ****
2343      C                  TSEC(55) = WIDTH AT MOST INBOARD STATION,YSTRC(1)21065550
2344      C                  TSEC(47)=WIDTH AT 3RD PT. IN FROM TIP          21065560
2345      C                                                                 21065569
2346            TWT(381) = (TSEC(47)-TSEC(55))/(YSTRC( 3)-YSTRC(1))        21065570
2347      C                                                                 21065579
2348      C            = TANGENT OF WING BOX (ASSUME STRAIGHT STRUCTURE)    21065575
2349           TWT(400) = (TSEC(55) - WCSEC)/B102                           21065580
2350            TSS(50)  = S(25)                                            21065590
2351            TSS(49)  = PT(70)                                           21065600
2352           TSS(48) = WCSEC                                              21065610
2353                 IC = ND1                                               21065620
2354      C                                                                 21065629
2355      C     SET IC=1 FOR WT CALC.   IC=2 EXIT -  NO CSEC.               21065630
2356      C                                                                 21065640
2357            IF(TWT(399)- B102)              110, 140, 130               21065650
2358      C                                                                 21065660
2359        110 TSS(48) = TSEC(55)                                          21065670
2360        120 TSS(47) = WCSEC + TWT(400)*TWT(398)                         21065680
2361                                            GO TO 160                   21065690
2362        130 TSS(48) = TSEC(55) + (TWT(397) - YSTRC(1)) * TWT(381)       21065700
2363      C                                                                 21065710
2364        140 IF( B102 - TWT(398))            150, 120,120                21065720
2365      C                                                                 21065730
2366        150 TSS(47) = TSEC(55) + (TWT(396) - YSTRC(1)) * TWT(381)       21065740
2367      C                     TEST FOR LOCATION OF PIVOT                  21065750
2368        160 IF ( B102 - S(25))              170, 600,600                21065760
2369      C * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *21065765
2370      C PIVOT OUTBOARD OF B1/2                                          21065770
2371      C          SETUP PANEL WT CALC.   10 PANELS.                      21065780
2372        170 I=ND1                                                       21065790
2373        200 TWT(383) = YSTRC(I)                                         21065800
2374            TWT(382) = YSTRC(I+1)                                       21065810
2375            TWT(395) = TWT(383)                                         21065820
2376      C   TEST  YS OB  WITH Y(I+1)                                      21065830
2377      C                                                                 21065840
2378            IF(TWT(382)-TWT(397))           210, 440,440                21065850
2379      C                                                                 21065860
2380        210 IF(TWT(397).LT.TWT(395))  TWT(395)=TWT(397)                 21065870
2381      C                                                                 21065880
2382            TWT(394) = TWT(382)                                         21065890
2383      C   TEST INBOARD Y                                                21065900
2384            IF(TWT(394)-TWT(396))           240,240, 250                21065910
2385      C                                                                 21065920
2386      C       SET IC=2 FOR EXIT ON PANEL(2) CALC.   NO C-SEC. WT.       21065930
2387      C          PANEL WTS=WTS/SIDE                                     21065940
2388        240 IC = ND2                                                    21065950
2389            TWT(394) = TWT(396)                                         21065960
2390        250 TWT(393) = YSTRC(I)-YSTRC(I+1)                              21065970
2391            TWT(392) = TWT(395)-TWT(382)                                21065980
2392            TWT(391) = TWT(394)-TWT(382)                                21065990
2393            TWT(390) = TWT(392)/TWT(393)                                21066000
2394            TWT(389) = TWT(391)/TWT(393)                                21066010
2395            TWT(384) = (TWT(395)-TWT(394))/D2                           21066020
2396      C                                                                 21066030
2397      C   SETUP  INTERPOLATION.                                         21066040
2398      C          DO BOX ONLY  (27)                                      21066050
2399      C                                                                 21066060
2400        260 K=(I-ND1)*50+ND1                                            21066070
2401            DO  270  J=ND1,27                                           21066080
2402                     N = K+J-ND1                                        21066090
2403                TWT(388) = TW(N+50)                                     21066100
2404                TWT(387) = TW(N)-TW(N+50)                               21066110
2405                TWT(386) = TWT(388)+TWT(387)*TWT(390)                   21066120
2406                TWT(385) = TWT(388)+TWT(387)*TWT(393)                   21066130
2407                TWT(J+330)=(TWT(385)+TWT(386))*TWT(384) + TWT(J+330)    21066140
2408        270 CONTINUE                                                    21066150
2409      C                                                                 21066160
2410      C                  CALC.  JTS, BLND, DELTA RIBS -- INBD/OUTBD     21066170
2411      C                     IF YP(I,0)=YS(I,0), ASSUME NO CHANGE.       21066180
2412      C                                                                 21066190
2413        280 TWT(400) = ZERO                                             21066200
```

CARD NO	**** CONTENTS ****	
2414	IF(TWT(383) - TWT(397)) 290, 300, 320	21066210
2415	C	21066220
2416	C YP(0) OUTBOARD OF YS(0(1))	21066230
2417	290 TWT(400) = DI	21066240
2418	300 TWT(381) = DI	21066250
2419	M=K	21066260
2420	310 TWT(358) = TWT(358) + TW(M+44)*TWT(381)	21066270
2421	TWT(359) = TWT(359) + TW(M+45)*TWT(381)	21066280
2422	TWT(360) = TWT(360) + TW(M+46)*TWT(400)	21066290
2423	TWT(361) = TWT(361) + TW(M+47)*TWT(400)	21066300
2424	TWT(362) = TWT(362) - TW(M+48)*TWT(400)	21066310
2425	GO TO 360	21066320
2426	C	21066330
2427	C YP(0) INBD OF YS(0(1))...ADD JOINT WT. TEST INBD AND OUTBD.	21066340
2428	C COMPUTE WIDTH OF YP(0)	21066350
2429	320 M=K+50	21066360
2430	TWT(380) = TSEC(I+45)	21066370
2431	C	21066380
2432	IF(TW(M+46)) 330,330, 340	21066390
2433	330 M=K	21066400
2434	TWT(380) = TSEC(I+44)	21066410
2435	340 TWT(301) = DI - (SQRT(TSS(48)/TWT(380) + DI))	21066420
2436	TWT(400) = TWT(381)	21066430
2437	C	21066440
2438	IF(TW(M+46)) 350,350, 310	21066450
2439	C	21066460
2440	C NO BLHD, INBD OR OUTBD ... USE INBD DATA	21066470
2441	350 TWT(381) = DI - (SQRT(TSS(48)/TSEC(I+45) + DI))	21066480
2442	TWT(358) = TWT(358) + (D(57)*TW(391)*(TW(K+50)+TW(K+53)/D2))	21066490
2443	TWT(359) = TWT(359) + (D(57)*TWT(381)*(TW(K+51)+TW(K+54)/D2))	21066500
2444	TWT(360) = TWT(360) + (D(57)*TWT(381)* TW(K+57))	21066510
2445	C	21066518
2446	C *T-BAR(LWR)*	21066519
2447	M=I*10-ND1	21066520
2448	TWT(400) = TW(K+52)*CD(M+213)	21066530
2449	TWT(362) = TWT(362) - TWT(400)	21066540
2450	TWT(381) = TWT(301) + D(57)*TWT(381)*TWT(400)	21066550
2451	C	21066560
2452	C DO INBD RIB ONLY WHEN IC=2	21066570
2453	360 IF(IC .EQ. ND2) GO TO 380	21066580
2454	C GO TO LOOP BACK	21066610
2455	GO TO 440	21066620
2456	C IC=2	21066630
2457	380 TWT(400) = ZERO	21066640
2458	TWT(3/1) = ZERO	21066650
2459	IF(B102 - TWT(398)) 390, 520, 510	21066660
2460	390 TWT(381) = SQRT(TSS(47)/TSEC(I+45) + DI) - DI	21066670
2461	C	21066680
2462	C TEST PANEL NO.	21066690
2463	IF(ND9-1) 400, 430,430	21066700
2464	C	21066710
2465	C TEST INBD JT/BLHD	21066720
2466	400 IF(TW(K+96)) 410,410, 5??	21066730
2467	C	21066740
2468	410 M=K-50	21066750
2469	TWT(381) = DI - SQRT(TSS(47)/TSEC(I+44) + DI)	21066760
2470	C	21066770
2471	IF(TW(K+46)) 420,420, 525	21066780
2472	C	21066790
2473	420 M=ND9*50+1	21066800
2474	TWT(381) = DI - SQRT(TSS(47)/TSEC(55) + DI)	21066810
2475	TWT(361) = TWT(361)+TWT(381)*TWT(320)	21066820
2476	GO TO 540	21066830
2477	C	21066840
2478	C INBD PANEL	21066850
2479	430 TWT(361) = TWT(361) + TW(K+97)	21066860
2480	M=K	21066870
2481	GO TO 530	21066880
2482	440 I=I+ND1	21066890
2483	IF(I.LE.ND10) GO TO 200	21066900
2484	C	21066910

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CARD NO  ****                        CONTENTS                               ***

      500  I=ND10                                                      21066920
C                 EXIT LOOP,   DELETE INBD JT,BLHD,RIB,MISC. AND RT RIBS  21066930
C                 DO C-SEC. IC=1                                       21066940
      510  THT(400) = D1                                               21066950
           THT(381) = D1                                               21066960
      520  M=K                                                         21066970
      525  THT(361) = THT(361) + TH(M+97)*THT(381)                     21066980
      530  THT(363) = THT(328)*THT(400)                                21066990
           THT(364) = THT(329)*THT(400)                                21067000
           THT(365) = THT(330)*THT(400)                                21067010
      540  THT(358) = THT(358) + TH(M+94)*THT(381)                     21067020
           THT(359) = THT(359) + TH(M+95)*THT(381)                     21067030
           THT(360) = THT(360) + TH(M+96)*THT(381)                     21067040
           THT(362) = THT(362) - TH(M+98)*THT(381)                     21067050
C                                                                      21067060
C          COMPUTE TOTAL DELTA WTS FOR OPNL.    IC=1 OR 2              21067070
C          INCL. DELTA VF  IN ALL COMPONENT WTS.  WTS.=LBS/A.V. FOR SUM  21067080
C          OPNL WTS ARE LBS/A.V.   ...     USE THT(1-50) FOR OPNL      21067090
C                                                                      21067100
C          SETUP COEFF FOR I=1        FS   I=1,2  J=1,4  K=1,3         21067110
           THT(400) = DEL(13)                                          21067120
           DO  560  I=ND1,ND2                                          21067130
                J=I*ND3-ND2                                            21067140
                K=I*ND2-ND1                                            21067150
          THT(J+18) = THT(I+339)                                       21067160
          THT(J+19) = THT(I+341)                                       21067170
          THT(J+20) = THT(I+350)                                       21067180
          THT(I+25) = THT(I+347)                                       21067190
               THT(K+14)=THT(I+345)*THT(400)                           21067200
               THT(K+15)=THT(I+343)*THT(400)+THT(I+347)                21067210
               THT(J+8)  =THT(I+330)*DEL(J)   +THT(I+339)              21067220
               THT(J+9)  =THT(I+333)*DEL(J)   +THT(I+341)              21067230
          THT(J+10)=DEL(J)*(THT(I+335) + THT(I+357) + THT(I+352) )
C                                                                      21067250
C                      SUM FS,RS, UC,LC                                21067260
               THT(I+5) = THT(K+14) + THT(K+15) - THT(I+347)           21067270
               THT(I+1) = THT(J+8)+THT(J+9)+THT(J+10)-THT(I+339) THT(I+341) 21067280
               THT(1)   = THT(1) + THT(I+1) + THT(I+5)                 21067290
               THT(I+5) = THT(I+5) + THT(I+347)                        21067300
               THT(I+1) = THT(I+1)+ THT(I+339) + THT(I+341) + THT(I+350)   21067310
               THT(J+10)= THT(J+10)+THT(I+350)                         21067320
          THT(I+35) = THT(I+363)                                       21067330
               THT(400) = DEL(17)                                      21067340
      560  CONTINUE                                                    21067350
C                                                                      21067360
C                 RIB,  ATT,  BLHDS,  SUM VF                           21067370
           THT(5) = THT(333)+THT(362)                                  21067380
           THT(8) = THT(8)+THT(360)+THT(355)+THT(356)+THT(357)+THT(338)  21067390
          THT(35) = THT(363)/D(2)                                      21067400
          THT(30) = THT(361)                                           21067410
          THT(1) = (THT(1) + THT(35) + THT(30) + THT(5) + THT(8))*DLTBX  21067420
           THT(5) = THT(5)+THT(350)                                    21067430
           THT(8) = THT(8)+THT(339)                                    21067440
          THT(25) = THT(350)                                           21067450
          THT(28) = THT(339)                                           21067460
C                                                                      21067470
      570  THT(5) = THT(4)+THT(19)+THT(20)+THT(21)+THT(22)+THT(23)+THT(24)  21067480
     1              + THT(25) + THT(26) + THT(27) + THT(28)            21067490
C                                                                      21067500
C    TEST FOR C-SEC   GO TO MOVE DATA ON 2.  SETUP INBD DATA ON 1.     21067510
C                                                                      21067520
          IF(IC-ND2)                      600, 660, 600                21067530
C                 SETUP FOR PIVOT INBD #1/2                            21067540
C                   IC=1  FOR  C-SEC                                   21067550
C                                                                      21067560
C                 SETUP RATIOS FOR INTERPOLATION                       21067570
      600  THT(395) = THT(399)                                         21067580
          IF(THT(395).GT.B102)            THT(395)=B102                21067590
          THT(390) = THT(395) / B102                                   21067600
          THT(389) = THT(390) / B102                                   21067610
          THT(384) = (THT(395)-THT(398))/D2                            21067620
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CARD NO  ****                          CONTENTS                          ****
2556     C                                                                21067630
2557           DO  620  I=ND1,16                                          21067640
2558               TWT(388) = TWT(I+576)                                  21067650
2559               TWT(387) = TWT(I+552)-TWT(398)                         21067660
2560               TWT(386) = TWT(388) + TWT(387)*TWT(390)                21067670
2561               TWT(385) = TWT(388) + TWT(387)*TWT(389)                21067680
2562               TSS(I+2) = TWT(384) *(TWT(385)+TWT(386))               21067690
2563         620  CONTINUE                                                21067700
2564     C                                                                21067710
2565     C      COMPUTE DELTA WTS .....                                   21067720
2566     C                                                                21067730
2567           TWT(381) = ZERO                                            21067740
2568           IF( TWT(389) .LE. ZERO)          TWT(381) = D1             21067750
2569           TWT(400) = ZERO                                            21067760
2570           IF( TWT(390) .GE. D1 )           TWT(400) = D1             21067770
2571     C                                                                21067780
2572     C          SUM WEIGHTS      APPLY DELICU CL FS RS) TO C-SEC ELEMENTS WTS21067790
2573           TSS(9)  = TWT(381)*TWT(575)                                21067800
2574           TWT(380) = TWT(381)*(TWT(598)+TWT(576)) + TWT(400)*TWT(574)21067810
2575           TSS(8)  = TSS(8)  + TWT(380)                               21067820
2576           TWT(378) = TWT(381)*TWT(599) + TWT(400)*TWT(572)           21067830
2577           TWT(379) = TWT(381)*TWT(597) + TWT(400)*TWT(573)           21067840
2578     C                                                                21067850
2579           TWT(400) = DLCS(1)                                         21067860
2580           DO  650  I=ND1,ND2                                         21067870
2581               TWT(I+377) = DLCS(7)*TWT(I+377)*TWT(400)               21067880
2582               TSS(I+8)   = DLCS(1)*TSS(I+8)                          21067890
2583               TSS(I+11)  = DLCS(4)*TSS(I+11)                         21067900
2584               TSS(I+14)  = DLCS(13)*TSS(I+14)                        21067910
2585               TSS(I+16)  = DLCS(17)*TSS(I+16)                        21067920
2586               TSS(I+2)   = TSS(I+2) + TWT(I+377)                     21067930
2587               TWT(400)   = DLCS(4)                                   21067940
2588         650  CONTINUE                                                21067950
2589           TSS(11) = TSS(11) + TWT(378)                               21067960
2590           TSS(14) = TSS(14) + TWT(379)                               21067970
2591     C                                                                21067980
2592     C     SUM C-SEC TOTAL                                            21067990
2593           TSS(1) = CSDEL*(TSS(3)+TSS(4)+TSS(5)+TSS(6)+TSS(7)+TSS(8)) 21068000
2594     C                                                                21068010
2595     C     SUM BOX  .. INCL RT.RIB                                    21068020
2596         660  TWT(1) = TWT(1) + TWT(4)                                21068030
2597           DO  670  I=ND1,ND4                                         21068040
2598               TSS(I+4.) = S(I+94)*DELPV(I+1)                         21068050
2599               TSS(41)   = TSS(41)+TSS(I+41)                          21068060
2600         670  CONTINUE                                                21068070
2601           TSS(46) = TSS(41)*DELPV(7)                                 21068080
2602           TSS(41) = TSS(41)*DELPV(1) + TSS(46)                       21068090
2603     C                                                                21068100
2604     C            DOUBLE WTS FOR MOVE                                 21068110
2605           DO  680  I=ND1,25                                          21068120
2606               TWT(I) = TWT(I)*D2                                     21068130
2607               TWT(I+25)=TWT(I+25)*D2                                 21068140
2608               TSS(I) = TSS(I)*D2                                     21068150
2609         680  CONTINUE                                                21068160
2610     C                                                                21068167
2611     C            **MOVE DELTA RR, RR(C,W,MISC) TO TWT(31-34)**       21068168
2612     C             *FOR CM DATA STORAGE FOR WODATA/PRTO SUBR*         21068169
2613          TWT(31) = TWT(35)                                           21068170
2614          TWT(32) = TWT(36)                                           21068171
2615          TWT(33) = TWT(37)                                           21068172
2616          TWT(34) = TWT(38)                                           21068173
2617     C                                                                21068179
2618     C      MOVE PIVOT DESIGN DATA                                    21068180
2619           TSS(31) = PT(3)                                            21068190
2620     C           = C(P)                                               21068200
2621           TSS(32) = PT(9)                                            21068210
2622     C           = M(P)                                               21068220
2623           TSS(33) = PT(10)                                           21068230
2624     C           = D(P)                                               21068240
2625           TSS(34) = PT(64)                                           21068250
2626     C           = LD(P)                                              21068260
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CARD NO   ****                     CONTENTS                           ****
              TSS(35) = PT(65)                                      21068270
      C               = FBR                                         21068280
              TSS(36) = PT(66)                                      21068290
      C               = P(OD)                                       21068300
              TSS(37) = PT(68)                                      21068310
      C               = P(ID)                                       2106P320
      C                                                             21068330
       699  RETURN                                                  DLPV99 0
            END                                                     DLPV9 39
      C*******************************************************************
      C
      C       *****SUBROUTINE PRTA*****
      C   ***DESIGN DATA PRINT - TYPE A TORQUE-BOX SYNTHESIS SUMMARY***
      C
      C*******************************************************************
      C
            SUBROUTINE PRTA                                         PRTA0010
      C                                                             PRTA0020
      C           ***TYPE A PRINT--DESIGN SYNTHESIS AND WEIGHT DIST SUMMARY*PRTA0030
      C                                                             PRTA0040
      C                                                             PRTA0150
      C                                                             PRTA0160
      C                                                             PRTA0170
      C                                                             PRTA0190
            COMMON T(2060),D(2060),CD(2000),ND(100)                 PRTA0200
            COMMON /MISC/ XMISC(100)                                PRTA0201
      C                                                             PRTA0210
            DIMENSION DC(100),TDC(200),TSC(420),TSS(100),THT(400),TSEC(300),  PRTA0230
           1TC(340),TO(40),TR(40),                                  PRTA0231
           2YSTRC(11),TBWPI(11),GJROD(11),                          PRTA0232
           3TOGW(3),DGW(3),                                         PRTA0233
           4TOWV(11),TOWM(11),TOWT(11),                             PRTA0234
           5ULTPV(11),ULTPM(11),ULTPT(11),                          PRTA0235
           6ULTNV(11),ULTNM(11),ULTNT(11),                          PRTA0236
           7YBUI(11),YBLI(11),YBUD(11),YBLD(11),                    PRTA0237
           9R(16)                                                   PRTA0239
      C                                                             PRTA0240
      C                                                             PRTA0250
            EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1341)),(TSC(1),T(1541)),    PRTA0260
           1(TSS(1),T(1961)),(THT(1),CD(1101)),(TSEC(1),CD(1501)),  PRTA0261
           2(TC(1),T(960)),(TO(1),T(920)),(YSTRC(1),TSEC(166)),     PRTA0262
           3(TOGW(1),D(80)),(DGW(1),D(102)),(DPNZ,T(20)),(DNNZ,T(21)),        PRTA0263
           4(TR(1),T(1300)),(R(1),XMISC(85)),                       PRTA0264
           5(TOWV(1),CD(1968)),(TOWM(1),CD(1979)),(TOWT(1),CD(1990)),         PRTA0265
           6(ULTPV(1),TSEC(12)),(ULTPM(1),TSEC(1)),(ULTPT(1),TSEC(144)),      PRTA0266
           7(ULTNV(1),TSEC(111)),(ULTNM(1),TSEC(122)),(ULTNT(1),TSEC(155)),   PRTA0267
           8(YBUI(1),TSEC(133)),(YBLI(1),TSEC(188)),(TBWPI(1),T(745)),        PRTA0268
           9(YBUD(1),T(679)),(YBLD(1),T(690)),(GJROD(1),T(668))     PRTA0269
      C                                                             PRTA0270
            EQUIVALENCE (NCASE,ND(60)),(NODW,ND(56)),(IGW,ND(61)),  PRTA0280
           1(IOPI,ND(74)),(IOPJ,ND(80)),(IOPP,ND(81)),(IOPI,ND(82)),PRTA0281
           2(I,ND(27)),(L,ND(29)),(K,ND(30)),(N,ND(31)),(J2,ND(28)),PRTA0282
           3(WHVID,T(57)),                                          PRTA0283
           9(NPAGE,ND(85))                                          PRTA0289
      C                                                             PRTA0290
      C                                                             PRTA0300
      C                                                             PRTA0340
      C                                                             PRTA0345
      C           ****PRINT PAGE HEAD****                           PRTA0346
      C            ***TEST FOR TYPE OF ANALYSIS***                  PRTA0347
            IND = 1
        500 WRITE(6,100)NCASE,(R(N),N=1,8)
        100 FORMAT(1H1,4H A/ ,I4,1X,8A10,1X,13H** PRTA - 1P()
      C
            IF(NODW - 1)501,501,505
      C
        501 IF(IGW - 2)490,492,490
      C
        490 WRITE(6,491)
        491 FORMAT(1H+,103X,6H30) **)
            GO TO 520
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CARD NO ****                                CONTENTS                                ****
 2698      C
 2699        492 WRITE(6,502)
 2700        502 FORMAT(1H+,103X,6H429) **)
 2701            GO TO 520
 2702      C
 2703        505 IF(IGW - 21515,510,515
 2704        510 WRITE(6,511)
 2705        511 FORMAT(1H+,103X,6H427) **)
 2706            GO TO 520
 2707        515 WRITE(6,516)
 2708        516 FORMAT(1H+,103X,6H428) **)
 2709      C
 2710        520 NPAGE = NPAGE + 1
 2711            WRITE(6,101)NPAGE,(R(N),N=1,16)
 2712        101 FORMAT(5H PAGE,I4,1X,8A10)
 2713      C
 2714            WRITE (6,1900)      IOP1,NDOM,IGW,DGW,IGW),OPNZ,OPNZ
 2715       1900 FORMAT (27X,                              SHIOP1=I1,6H NDOM=I1,5H IGW=IPRTA0355
 2716           11,6H  DGW=F9.1,6H  NZ=*F6.3,2H/=F5.3)                                  PRTA0356
 2717      C
 2718            GO TO (522,530,532,534),IND
 2719      C                                                                          PRTA0359
 2720        522 IF (ND(2) - IOP1) 1901,1901,1910                                     PRTA0360
 2721       1901 IF (NDOM - ND(3)) 1910,1902,1910                                     PRTA0365
 2722       1902 IF (IOPP - IOP1) 1903,1906,1903                                      PRTA0370
 2723       1903 WRITE (6,1904)IO(22)                                                 PRTA0380
 2724            GO TO 1910                                                         PRTA0390
 2725       1904 FORMAT (1H+,12X,4H PT=F4.1)                                          PRTA0400
 2726       1905 FORMAT (1H+,12X,8H IPT PT=F4.1)                                      PRTA0401
 2727       1906 WRITE (6,1905)IO(22)                                                 PRTA0405
 2728      C                                                                          PRTA0409
 2729       1910 CONTINUE
 2730      C                                                                          PRTA0450
 2731      C      TYPE A PAGE PRINT  - SECTION DATA AND WEIGHT SUMMARIES -- ID=2      PRTA0460
 2732      C      BLOCK 1 --SECTION DATA, ROOT TO TIP                                PRTA0470
 2733      C                                                                          PRTA0480
 2734        200 WRITE (6,201)                                                       PRTA0490
 2735        201 FORMAT (72H                -**-SECTION DATA - ST. REQMTS.   NX=KIPPRTA0500
 2736           1S, FC,FT=KSI-**- /110H  SECT  =NX   -NX    FCU    FCL    FTU    FTNRTA0510
 2737           2L   TSKU  TSKL  T-U   T-L   TSTR  LRIB  BSTR  NOS HSTR  NFS  TWRSPRTA 520
 2738           3)                                                                  PRTA0530
 2739      C                                                                          PRTA0540
 2740      C      SET J2=1 FOR ST. PRINT.                                            PRTA0550
 2741             J2=ND(1)                                                           PRTA0560
 2742      C                                                                          PRTA0570
 2743      C                                                                          PRTA0580
 2744      C            **PRINT LINES 1-11, 17 ITEMS/LINE--DATA 2-18 FOR EACH SETPRTA0590
 2745        202  DO 203 N=1,11                                                     PRTA0600
 2746             L = N*18                                                           PRTA0610
 2747             K = L - 16                                                         PRTA0620
 2748             WRITE (6,204)N,(TC(I),I=K,L,1)                                     PRTA0630
 2749        203  CONTINUE                                                          PRTA0640
 2750        204  FORMAT (3X,I2,F7.2,F6.2,F6.2,4F7.2,5F6.3,F6.2,F6.3,F5.1,F5.2,2F6.3)  PRTA0650
 2751      C                                                                          PRTA0660
 2752      C                                                                          PRTA0670
 2753      C                                                                          PRTA0770
 2754      C                                                                          PRTA0780
 2755      C      TEST FOR TYPE OF DATA PRINTED  1=ST., 2=VF  EXIT ON 2              PRTA0790
 2756             IF (J2-ND(2)) 207,209,209                                          PRTA0800
 2757      C                                                                          PRTA0809
 2758      C       SET J2=2, TEST FOR VF, MOVE DATA FOR PRINT                        PRTA0810
 2759        207  J2=ND(2)                                                          PRTA0820
 2760             IF (IDC(74)) 208,209,208                                           PRTA0830
 2761        208  WRITE            (6,2080)                                         PRTA0840
 2762       2080 FORMAT (5HR                -**-SECTION DATA - STIFF. REQMTS.-**- IPRTA0850
 2763      C                                                                          PRTA0860
 2764      C          TEST IF FLUTTER STIFFNESS PENALTIES EXIT                        PRTA0870
 2765             DO 2081 I=1,44                                                     PRTA0880
 2766             IF (CD(I+88) - D(I)) 2083,2081,2083                                PRTA0890
 2767        2081 CONTINUE                                                           PRTA0900
 2768             WRITE            (6,2082)                                         PRTA0910
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06/11/74      INPUT LISTING                    AUTOFLOW CHART SET - SWEEP   WING AND EMPENNAGE MODULE -

CARD NO       ****                              CONTENTS                              ****

 2769          2082 FORMAT (5HH0          -***-NO FLUTTER STIFFNESS PENALTIES-***-  ,PRTA0920
 2770              1/6HH0     )                                                     PRTA0930
 2771               GO TO 209                                                      PRTA0940
 2772          C                                                                   PRTA0950
 2773          C          MOVE STIFFNESS REQMT DATA                                PRTA0960
 2774           2083 DO 2084 I=1,198                                               PRTA0970
 2775               TC(I)=CD(I+201)                                                PRTA0980
 2776           2084 CONTINUE                                                      PRTA0990
 2777               GO TO 202                                                      PRTA1000
 2778          C                                                                   PRTA1010
 2779          C                                                                   PRTA1020
 2780          C      BLOCK 3 -- EI,GJ SUMMARY (INCL VI)                           PRTA1030
 2781          C      EI,GJ/1,000,000,000                                          PRTA1040
 2782          C                                                                   PRTA1050
 2783           209 WRITE            (6,220)                                      PRTA1060
 2784          C                                                                   PRTA1070
 2785           220 FORMAT (60HO                -**-SECTION EI,GJ SUMMARY (EI,GJ-(10)-9PRTA1080
 2786              1)-**-/10H     ITEM    SECT 1   SECT 2   SECT 3   SECT 4   SECT 5 PRTA1090
 2787              2  SECT 6   SECT 7   SECT 8   SECT 9   SECT 10   SECT 11 )       PRTA1100
 2788          C                                                                   PRTA1120
 2789          C      STRUCTURAL EI,GJ REQMT -- 3 LINES                            PRTA1130
 2790          C      PRINT DATA FROM  TSS(1) - TSS(55)                            PRTA1140
 2791          C                                                                   PRTA1150
 2792          C              PRINT DATA FROM TR(I-33).  SET UP DATA TO (10**-9)   PRTA1160
 2793               DO 2201 I=1,33                                                 PRTA1170
 2794               TR(I) = CD(I)*DC(13)                                           PRTA1180
 2795           2201 CONTINUE                                                      PRTA1190
 2796          C                                                                   PRTA1230
 2797          C      LINES 1,2,3 = ST  DATA                                       PRTA1240
 2798          C      LINES 4,5 = GJ RATIO AND FJVF. DATA                          PRTA1250
 2799          C      LINES 6,7,8,9 = COMPOSITE SECTION -- ST + VF -- DATA.        PRTA1260
 2800          C      LINES 10,11,12,13 = TVF/T(ST) RATIOS                         PRTA1270
 2801          C                                                                   PRTA1280
 2802           222 WRITE (6,223)(TR(I),I=1,22),(CD(I+44),J=1,11)                  PRTA1290
 2803          C                                                                   PRTA1300
 2804           223 FORMAT (10H    GJ-ST.11F9.2,/10H    EI-ST.11F9.1,/10H GJ/EI-ST.11FPRTA1310
 2805              19.4)                                                          PRTA1320
 2806          C                                                                   PRTA1330
 2807          C         TEST FOR GJVF                                            PRTA1340
 2808               IF (GJRQD(1)) 240,240,224                                      PRTA1345
 2809           224 DO 2240 I=1,11                                                 PRTA1350
 2810               TR(I) = GJRQD(I)*DC(13)                                        PRTA1355
 2811               TR(I+11) = CD(I+33)*DC(13)                                     PRTA1356
 2812           2240 CONTINUE                                                      PRTA1358
 2813          C                                                                   PRTA1359
 2814               WRITE (6,225)(CD(I+66),I=1,11),(TR(I),I=1,11)                  PRTA1360
 2815           225 FORMAT (10H GJS/GJVF 11F9.4,/10H    GJ-VF 11F9.2)              PRTA1370
 2816          C                                                                   PRTA1380
 2817          C       LINES 6-13                                                  PRTA1390
 2818           226 WRITE            (6,227)(TR(I+22),I=1,11),(TR(I+11),I=1,11),(CD(PRTA1400
 2819              I+55),I=1,11),(CD(I+77),I=1,11),(CD(I+88),I=1,11),(CD(I+99),I=1,11)PRTA1410
 2820              ,(CD(I+110),I=1,11),(CD(I+121),I=1,11)                         PRTA1420
 2821          C                                                                   PRTA1430
 2822           227 FORMAT (10H  GJ-COMP.11F9.2,/10H  EI-COMP.11F9.2,/10H (GJ/EI)C.11FPRTA1440
 2823              19.4,/10H GJC/GJVF 11F9.4,/10H TVF/TSKU 11F9.4,/10H TVF/TSKL 11F9.4PRTA1450
 2824              2,/10H TVF/TWFS 11F9.4,/10H TVF/TWRS 11F9.4)                   PRTA1460
 2825          C                                                                   PRTA1470
 2826          C                                                                   PRTA1480
 2827          C       PRINT PAGE 2 -- WT AND WT/IN SUMMARY.                       PRTA1490
 2828           240 IND = 2
 2829               GO TO 500
 2830           530 WRITE            (6,241)                                      PRTA1510
 2831          C                                                                   PRTA1519
 2832           241 FORMAT (52H            -**-PANEL WEIGHT SUMMARY.  LBS/SIDE-**-/10PRTA1520
 2833              1HH PANEL       SUM       T-BOX      L.E.      T.E.      MISC.  DELPRTA1530
 2834              2TA VF       TIP         RT-RIB    C-SECT)                      PRTA1540
 2835          C                                                                   PRTA1548
 2836          C            ***ADJUST IBD/OBD WTS TO LB/SIDE AT NODH+1***          PRTA1549
 2837               IF (NODH - ND(1)) 242,242,2421                                 PRTA1550
 2838           242 TWT(50) = TWT(50)/D(2)*HAVIC                                   PRTA1551
 2839               TWT(54) = TWT(54)/D(2)*HAVID                                   PRTA1552
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CARD NO  ****                          CONTENTS                          ****
2840            DO 2420 I=1,5                                                  PRTA1553
2841            TWT(I+54) = TWT(I+54)/D(2)*WAVID                               PRTA1554
2842            TWT(I+144) = TWT(I+144)/D(2)*WAVID                             PRTA1555
2843         2420 CONTINUE                                                     PRTA1556
2844            C                                                              PRTA1559
2845            C                                                              PRTA1560
2846            C            **PRINT 10 PNL WTS PLUS INBD AND OBD**            PRTA1570
2847         2421 WRITE (6,243)(CD(I+133),I=1,6),TWT(50),CD(140),CD(141),(TWT(I+54),PRTA1580
                 I=1,5),DC(3),TWT(54)                                           PRTA158:
2849            C                                                              PRTA1599
2850         243 FORMAT (7H  TOTAL,F12.2,F11.2,2F10.2,F9.2,F10.2,F11.2,4X,2F10.2,/7PRTA1590
2851             1H   INBD,F12.2,F11.2,2F10.2,F9.2,F10.2,15X,F10.2)             PRTA1591
2852         244 FORMAT (4X,I2,1X,F12.2,F11.2,2F10.2,F9.2,F10.2)                PRTA1600
2853         245 FORMAT (7H    OBD,F12.2,F11.2,2F10.2,F9.2,F10.2,F11.2)         PRTA1610
2854            C                                                              PRTA1620
2855            C             *PNLS I=10.  DATA IN CD(142-201) 6/BLOCK, RT-TIP* PRTA1630
2856                  DO 246 N=1,10                                            PRTA1640
2857                  L = N*ND(6)                                              PRTA1650
2858                  K = L - ND(5)                                            PRTA1660
2859                  WRITE (6,244)N,(CD(I+141),I=K,L,1)                       PRTA1670
2860         246  CONTINUE                                                    PRTA1680
2861            C                                                              PRTA1690
2862            C             *OBD PNL*                                        PRTA1700
2863                  WRITE (6,245)(TWT(I+144),I=1,5),DC(3),TWT(50)            PRTA1710
2864            C                                                              PRTA1718
2865            C          ***RESET IBD/OBD PNL WTS ON NODH=1***               PRTA1719
2866                  IF (NODH - ND(1)) 247,247,250                            PRTA1720
2867         247  TWT(50) = TWT(50)*D(2)/WAVID                                PRTA1721
2868                  TWT(54) = TWT(54)*D(2)/WAVID                             PRTA1722
2869                  DO 248 I=1,5                                             PRTA1723
2870                  TWT(I+54) = TWT(I+54)*D(2)/WAVID                         PRTA1724
2871                  TWT(I+144) = TWT(I+144)*D(2)/WAVID                       PRTA1725
2872         248  CONTINUE                                                    PRTA1726
2873            C                                                              PRTA1727
2874                  TWT(144) = TWT(144)/D(2)*WAVID                           PRTA1728
2875            C                                                              PRTA1729
2876            C                                                              PRTA1730
2877            C             **WT/IN DATA**                                   PRTA1740
2878         250  WRITE (6,251)                                               PRTA1750
2879         251  FORMAT (40H             -**-WEIGHT/INCH SUMMARY ** /84H  SECT.  PRTA1760
2880             1  TOTAL      T-BOX      L.E.       T.E.      MISC.  DELTA VF  CONC. PRTA1770
2881             2ITEMS  )                                                     PRTA1780
2882            C                                                              PRTA1790
2883         252  FORMAT (4X,I2,1X,F12.4,F11.4,F10.4,2F9.4,F10.4,F11.4)       PRTA1800
2884            C                                                              PRTA1810
2885            C             **DATA IN TC(220-340) 11 SETS OF 11 ITEMS, RT-TIP**  PRTA1820
2886            C              *PRINT FIRST 7 ITEMS OF EACH SET*               PRTA1830
2887                  DO 253 N=1,11                                            PRTA1840
2888                  K = N*ND(11) - ND(10)                                    PRTA1850
2889                  L = K + ND(6)                                            PRTA1860
2890                  WRITE (6,252)N,(TC(I+219),I=K,L,1)                       PRTA1870
2891         253  CONTINUE                                                    PRTA1880
2892            C                                                              PRTA1890
2893            C                                                              PRTA1900
2894            C          ***DESIGN LOADS SUMMARY***                          PRTA1910
2895            C            *ULT POSITIVE AND NEGATIVE LOADS AND 1-G TOTAL DW*  PRTA1920
2896                  WRITE (6,261)                                            PRTA1930
2897         261  FORMAT (42H             -**-DESIGN LOADS SUMMARY-**- /110H  SECT.  PRTA1940
2898             1  +V(ULT)     +M(ULT)     +T(ULT)     -V(ULT)     -M(ULT)     -T(ULPRTA1950
2899             2T)   VDW(1-G)   MDW(1-G)   TDW(1-G) )                        PRTA1960
2900            C                                                              PRTA1970
2901         262  FORMAT (4X,I2,F11.1,F13.1,F12.1,F11.1,2F12.1,F10.1,2F11.1)   PRTA1980
2902            C                                                              PRTA1990
2903            C            *ULT LOADS STORED TIP-ROOT. 1-G DW LOADS STORED RT-TIP* PRTA2000
2904                  DO 263 N=1,11                                            PRTA2010
2905                  K = ND(12) - N                                           PRTA2020
2906                  WRITE (6,262)N,ULTPV(K),ULTPM(K),ULTPT(K),ULTNV(K),ULTNM(K),ULTNT(PRTA2030
2907                 (K),TDWV(N),TDWM(N),TDWT(N)                               PRTA2040
2908         263  CONTINUE                                                    PRTA2050
2909                  GO TO 292                                                PRTA2060
2910            C                                                              PRTA2070
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CARD NO  ****                          CONTENTS                          ****
  2911   C                                                                PRTA2130
  2912   C          ****TEST FOR GW(2) FOR GEOMETRY PRINT****             PRTA2140
  2913   C             **TEST FOR ZERO GW(1) AND GW(2) FOR GEOMETRY PRINT** PRTA2141
  2914    270  IF (ND(2) - IGW) 2701,271,2702                             PRTA2150
  2915    2701 IF (DGW(1)) 2702,2702,299                                   PRTA2151
  2916    2702 IF (DGW(2)) 271,271,299                                     PRTA2152
  2917   C                                                                 PRTA2159
  2918    271  IF (NOOH - ND(2)) 2720,299,299                             PRTA2160
  2919   C                                                                 PRTA2169
  2920    2720 IND = 3
  2921         GO TO 500
  2922   C                                                                 PRTA2179
  2923   C              PRINT GEOMETRY                                     PRTA2180
  2924     532 WRITE          (6,273)TSEC(176),TSEC(155),TSEC(66),TSEC(88),TSEC(PRTA2190
  2925        199),T(100),YBUD(1),YBLD(1)                                  PRTA2200
  2926    273  FORMAT (4H0            -**-SECTION GEOMETRY SUMMARY-**-   /10ZH PRTA2210
  2927        1 SECT.    YSTRC      WIDTH     DAVE      DFS       DRS      C-AERO  PRTA2220
  2928        2 Y-BU     Y-BL                    /8H     ROOT2F10.3,3F9.3,F10.3,2FPRTA2230
  2929        39.4)                                                        PRTA2240
  2930    274  FORMAT (5X,I2,1X,2F10.3,3F9.3,F10.3,2F9.4)                  PRTA2250
  2931    275  FORMAT (8H     TIP2F10.3,3F9.3,F10.3,2F9.4,//)              PRTA2260
  2932   C                                                                 PRTA2270
  2933    276  DO 277 N=2,10,1                                            PRTA2280
  2934         K=ND(12)-N                                                  PRTA2290
  2935         WRITE          (6,274)N,TSEC(K+165),TSEC(K+44),TSEC(K+55),TSEC(KPRTA2300
  2936        1+77),TSEC(K+88),T(N+99),YBUD(K),YBLD(K)                     PRTA2310
  2937    277  CONTINUE                                                    PRTA2320
  2938   C                                                                 PRTA2330
  2939   C                                                                 PRTA2340
  2940    278  WRITE          (6,275)TSEC(166),TSEC(45),TSEC(56),TSEC(78),TSEC(PRTA2350
  2941        189),T(110),YBUD(1),YBLD(1)                                  PRTA2360
  2942   C                                                                 PRTA2370
  2943   C                                                                 PRTA2380
  2944         GO TO 299                                                   PRTA2555
  2945   C                                                                 PRTA2560
  2946   C                                                                 PRTA2570
  2947   C          ***PAGE 3.  SECTION DESIGN Y(BAR) DATA.***             PRTA2580
  2948   C            *TOTAL WT SUMMARY AND SECT J WT SUMMARY*             PRTA2590
  2949    292  IND = 4
  2950         GO TO 500
  2951    534  WRITE (6,2920)                                              PRTA2610
  2952    2920 FORMAT                  (42H         -**-SECTION DESIGN Y-BAR DAPRTA2620
  2953        (TA-**-,/48H0  STA  YBU(D)  YBU(A)  YBL(D)  YBL(A)  TB-W/IN )  PRTA2621
  2954    2921 FORMAT (1H 3X,I2,4F8.4,F9.4)                                PRTA2625
  2955         DO 2922 I=1,11                                              PRTA2630
  2956         K = ND(12) - I                                              PRTA2640
  2957         WRITE (6,2921)I,YBUD(K),YBUI(K),YBLD(K),YBLI(K),TBWPI(I)    PRTA2650
  2958    2922 CONTINUE                                                    PRTA2660
  2959   C                                                                 PRTA2670
  2960   C                                                                 PRTA2680
  2961   C            **TOTAL WT SUMMARY--TWT(1-59),(145-149)*             PRTA2690
  2962         WRITE (6,293)                                               PRTA2700
  2963    293  FORMAT (1H0,/48H              -**-ROOT SECTION WEIGHT SUMMARY-**-/ PRTA2710
  2964        1 8H   TWT)                                                  PRTA2720
  2965   C                                                                 PRTA2730
  2966    294  FORMAT (3X,I2,9F11.4)                                       PRTA2740
  2967    295  FORMAT (2X,I3,5F11.4)                                       PRTA2750
  2968    296  FORMAT (1H0,/48H              -**-SECTION (J) WEIGHT SUMMARY-**- /2PRTA2760
  2969        1 8H               J=STA NO.I3,5H,  Y=F8.2,/8H   TWT)       PRTA2770
  2970   C                                                                 PRTA2780
  2971   C             *ROOT DATA*                                         PRTA2790
  2972         DO 297 N=1,94,9                                             PRTA2800
  2973         K = N + ND(8)                                               PRTA2810
  2974         WRITE (6,294)N,(TWT(I),I=N,K,1)                             PRTA2820
  2975    297  CONTINUE                                                    PRTA2830
  2976         N = 95                                                      PRTA2840
  2977         K = 145                                                     PRTA2850
  2978         WRITE (6,295)N,(TWT(I+94),I=1,5),K,(TWT(I+144),I=1,5)       PRTA2860
  2979   C                                                                 PRTA2870
  2980   C             *SECTION J DATA.  WT DATA IN TSS(1-59),(96-100)*     PRTA2880
  2981         N = ND(12) - 10PJ                                           PRTA2890
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CARD NO  ****                          CONTENTS                          ****
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2982          WRITE (6,296)IOPJ,YSIRC(II)                                PRTA2900
2983          DO 298 N=1,54,8                                            PRTA2910
2984          K = N + ND(8)                                              PRTA2920
2985          WRITE (6,297)N,(TSS(I),I=N,K,1)                            PRTA2930
2986     298  CONTINUE                                                   PRTA2940
2987          N = 55                                                     PRTA2950
2988          K = 145                                                    PRTA2960
2989          WRITE (6,295)N,(TSS(I+54),I=1,5),K,(TSS(I+95),I=1,5)       PRTA2970
2990     C                                                               PRTA2980
2991          GO TO 270                                                  PRTA2990
2992     C                                                               PRTA3000
2993     C                                                               PRTA3010
2994     C              **EXIT**                                         PRTA3020
2995     299  RETURN                                                     PRTA3991
2996          END                                                        PRTA3999
2997     C*************************************************************************
2998     C
2999     C       *****SUBROUTINE PRTH*****
3000     C   ***DESIGN DATA PRINT - TYPE H C-SEC/PIVOT DESIGN SUMMARY***
3001     C
3002     C*************************************************************************
3003     C
3004          SUBROUTINE PRTH                                            PRTH0010
3005     C                                                               PRTH0011
3006     C     BK PRT SUBR -- TYPE H                                     PRTH0020
3007     C            ***PRINT PIVOT OR C-SEC ANALYSIS DATA***           PRTH0030
3008     C                                                               PRTH0040
3009     C                                                               PRTH0170
3010     C                                                               PRTH0190
3011          COMMON T(2060),D(2060),CD(2000),ND(100),TM(500)            PRTH0200
3012          COMMON /MISC/ XMISC(100)                                   PRTH0201
3013     C                                                               PRTH0210
3014          DIMENSION TDC(200),TSC(120),TSS(100),DC(100),              PRTH0220
3015         1TWT(400),TSEC(300),TOGW(3),DGW(3),                         PRTH0221
3016         2R(16)                                                      PRTH0229
3017     C                                                               PRTH0230
3018     C                                                               PRTH0250
3019          EQUIVALENCE (TDC(1),T(1134)),(TSC(1),T(1534)),(TSS(1),T(1896)),PRTH0260
3020         1(DC(1),D(1401)),(TWT(1),CD(1101)),(TSEC(1),CD(1531)),      PRTH0261
3021         2(TOGW(1),D(1801)),(DGW(1),D(1102)),(DPNZ,T(20)),(DSAZ,T(21)),PRTH0262
3022         3(R(1),XMISC(85)),                                          PRTH0263
3023         8(IGW,ND(57)),(NODX,ND(58)),(IOP1,ND(82)),                  PRTH0268
3024         9(NCASE,ND(60)),(NPAGE,ND(85)),(N,ND(31))                   PRTH0269
3025     C                                                               PRTH0270
3026     C                                                               PRTH0320
3027     C                                                               PRTH0330
3028     C       TEST FOR TYPE OF PRINT ID=N                             PRTH0340
3029     C     C-SEC DATA ON N 1                                         PRTH0350
3030     C       PIVOT DATA PRINT ON N=2                                 PRTH0360
3031     C                                                               PRTH0370
3032      300  IF (N - ND(1)) 390,390,560                                PRTH0390
3033     C                                                               PRTH0400
3034     C                                                               PRTH0410
3035     C            ***C-SEC WT DATA***                                PRTH0420
3036     C              *TSS(I-54),TWT(33)-393)*                         PRTH0430
3037      390  N = ND(12)                                                PRTH0440
3038          I = IGW                                                    PRTH0441
3039          IND = 1
3040       500 WRITE(6,100)NCASE
3041       100 FORMAT(1HI,4HCASE,I4,82X,13H** PRTH - IP(I
3042     C
3043          IF(NODX - 1)501,501,505
3044     C
3045       501 IF(IGW - 21)490,492,490
3046     C
3047       490 WRITE(6,491)
3048       491 FORMAT(1H+,103X,6H30) **)
3049           GO TO 520
3050     C
3051       492 WRITE(6,502)
3052       502 FORMAT(1H+,103X,6H29) **)
```

CARD NO **** CONTENTS ****

```
3053            GO TO 520 ,
3054          C
3055            505 IF(IGW - 2)515,510,515
3056            510 WRITE(6,511)
3057            511 FORMAT(1H+,103X,6H27) **)
3058                GO TO 520
3059            515 WRITE(6,516)
3060            516 FORMAT(1H+,103X,6H28) **)
3061          C
3062            520 GO T ) (522,530),IND
3063          C
3064            522 WRITE (6,302)     N,IOGW(I),DGW(I),IGW,NODW,IOPI                PRTH0450
3065          C                                                                     PRTH0460
3066                WRITE (6,571)(R(I),I=1,16)                                      PRTH0470
3067                WRITE (6,391)                                                   PRTH0480
3068             391 FORMAT (5H0              -***-CENTER-SECTION DATA -- LB/AV-***-,PRTH0490
3069            1/6H0  TSS      -**-DETAIL WEIGHT DATA-**-  )                     PRTH0500
3070                DO 392 N=1,5M,9                                                 PRTH0510
3071                K = N + ND(8)                                                   PRTH0520
3072                WRITE (6,312)N,(TSS(I),I=N,K,1)                                 PRTH0530
3073          C                                                                     PRTH0531
3074             302  FORMAT (12X,        8H PANEL I2,13H DATA.  TOGW=F8.1,6H  DGW=F0.PRTH0535
3075            11,6H  IGW=I1,7H  NODW=I1,7H  IOPI=I1,4H  T=F0.5)                   PRTH0536
3076             312  FORMAT (3X,I3,9F11.4)                                        PRTH0540
3077          C                                                                     PRTH0549
3078             392  CONTINUE                                                     PRTH0550
3079          C                                                                     PRTH0560
3080                WRITE (6,393)                                                   PRTH0570
3081             393  FORMAT (6H0  TWT)                                           PRTH0580
3082                DO 394 N=331,393,9                                              PRTH0590
3083                K = N + ND(8)                                                   PRTH0600
3084                WRITE (6,312)N,(TWT(I),I=N,K,1)                                 PRTH0610
3085             394  CONTINUE                                                     PRTH0620
3086                GO TO 599                                                       PRTH0630
3087          C                                                                     PRTH0640
3088          C                                                                     PRTH0850
3089          C                                                                     PRTH0860
3090          C                                                                     PRTH0870
3091          C       PRINT CASE AND DESIGN POINT DATA HEADING                      PRTH0880
3092             560  N=IGW                                                        PRTH0890
3093                IND = 2
3094                GO TO 500
3095              930 WRITE (6,570)     IOGW(N),DGW(N),DPNZ,DNNZ                  PRTH0900
3096          C                                                                     PRTH0910
3097             570  FORMAT (21X,                  12H      TOGW=F8.1,6H  DGW=F8.1,8PRTH0920
3098            1H    +ND=F6.3,8H  -NZ=F6.3)                                      PRTH0930
3099          C                                                                     PRTH0940
3100                WRITE (6,571)(R(I),I=1,16)                                      PRTH0950
3101             571  FORMAT (1H0,8X,8A10,/10X,8A10)                              PRTH0960
3102          C                                                                     PRTH0970
3103          C       PRINT PIVOT DATA                                              PRTH0980
3104             579  WRITE           (6,561)                                      PRTH0990
3105             561  FORMAT (42H         PIVOT AND DELTA T.B. WT. SUMMARY/6H0  TSS) PRTH1000
3106             562  FORMAT (3X,I3,10F10.3)                                       PRTH1010
3107                DO 563 N=1,91,10                                                PRTH1020
3108                K=N+ND(8)                                                       PRTH1030
3109                WRITE           (6,562)N,(TSS(I),I=N,K,1)                       PRTH1040
3110             563  CONTINUE                                                     PRTH1050
3111          C       TWT REGION                                                    PRTH1060
3112                WRITE           (6,564)                                      PRTH1070
3113             564  FORMAT (6H0  TWT)                                           PRTH1080
3114                DO 565 N=1,91,10                                                PRTH1090
3115                K=N+ND(8)                                                       PRTH1100
3116                WRITE           (6,562)N,(TWT(I),I=N,K,1)                       PRTH1110
3117             565  CONTINUE                                                     PRTH1120
3118          C                                                                     PRTH1130
3119                WRITE           (6,566)                                      PRTH1140
3120                DO 566 N=331,391,10                                             PRTH1150
3121                K=N+ND(8)                                                       PRTH1160
3122                WRITE           (6,562)N,(TWT(I),I=N,K,1)                       PRTH1170
3123             566  CONTINUE                                                     PRTH1180
```

CARD NO	****	CONTENTS	****
3124	C		PRTHI190
3125	C		PRTHI200
3126	C		PRTHI700
3127	C EXIT		PRTHI800
3128	999 RETURN		PRTHI830
3129	END		PRTHI940

OVERLAY (10,0)

TORQUE-BOX STRUCTURAL SYNTHESIS/WEIGHT ANALYSIS
FOR METALLIC DESIGNS - NO. 2

```
06/11/74        INPUT LISTING                    AUTOFLOW CHART SET - SWEEP    WING AND EMPENNAGE MODULE -

FORTRAN MODULE      (LIST,AUTOSEQ)

 CARD NO        ****                          CONTENTS                                    ****

      1         C*************************************************************************
      2         C
      3         C        *****PROGRAM OLAY10*****
      4         C   ***PROGRAM FOR FIFTH OVERLAY OF WING/EMPENNAGE MODULE***
      5         C        STRUCTURAL SYNTHESIS/WEIGHT ANALYSIS - METALLIC DESIGN NO 2
      6         C
      7         C*************************************************************************
      8         C
      9               PROGRAM OLAY10
     10         C
     11               COMMON T(7120)
     12         C
     13               COMMON /MISC/ XMISC(100)
     14         C
     15               REWIND 24
     16         C
     17               BUFFER IN(24,1)(T(1),T(7210))
     18         C
     19               IF(UNIT(24))10,10,10
     20         C
     21            10 CALL CNSTR
     22         C
     23               REWIND 24
     24         C
     25               BUFFER OUT(24,1)(T(1),T(7120))
     26         C
     27               IF(UNIT(24))20,20,20
     28         C
     29            20 CONTINUE
     30         C
     31               END
     32         C*************************************************************************
     33         C
     34         C        *****SUBROUTINE CNSTR*****
     35         C   ***TORQUE-BOX SYNTHESIS/WEIGHT ANALYSIS CONTROL***
     36         C
     37         C*************************************************************************
     38         C
     39               SUBROUTINE CNSTR                                          CNSR0010
     40         C       STRINGER ANALYSIS CONTROL PROGRAM                       CNSR0020
     41         C     ****REVISION--11-13-69--ADD C-SEC CONST. SECTION/LOAD LOOP. D(877)CNSR0030
     42         C               =CSID= 0.0 = LOOP ID FOR C-SEC ****             CNSR0040
     43         C     ****REVISION--03-13-69--KSEC(I) LOGIC.  SETUP FCMAX,FTMAX.****  CNSR0050
     44         C                 ADD EFF WIDTH FOR NX AND WT CALC.             CNSR0060
     45         C     REVISION -- 03-23-67 -- CHANGE NX(I) VS NX(I-1) LOGIC.  K=D(469)  CNSR0070
     46         C               ADD INPUT T.C. GEOMETRY AND NX LOGIC            CNSR0080
     47         C     REVISION -- 01-17-68 -- NEW FORMAT AND LINKAGES.          CNSR0090
     48         C                                                               CNSR0100
     49         C      SETUP CONTROLS FOR 11-SECTION/10-PANEL DESIGN            CNSR0110
     50         C                                                               CNSR0120
     51         C                                                               CNSR0140
     52               COMMON T(2060),D(2060),CD(2000),ND(100),TW(900)           CNSR0150
     53         C                                                               CNSR0160
     54               DIMENSION DC(100),TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),  CNSR0170
     55              1TC(340),TO(40),TT(24),DEL(30),                            CNSR0171
     56              2YSTRC(1),DJONT(1),DBLHD(1),DBKPT(5),                      CNSR0172
     57              3DKFCU(1),DKFTL(1),DNOU(1),DNXL(1),                        CNSR0173
     58              4SLCFS(5',34&,(2),                                         CNSR0174
     59              5DTT'@(12),                                                CNSR0175
     60              6YB'D(1),YBLD(1),YBUI(1),YBL(1),DEFF(1),DNX(1),            CNSR0176
     61              7TR'PI(1),TMAP(1),WFWP(1),NPNLS(1),TPNLW(1),TDCNT(1),      CNSR0177
     62              8D' SKU(1),DCSKL(1),CTSKU(1),DISKL(1),DCBST(1),DCNOS(1),   CNSR0178
     63              9D'LST(1),DCHST'(1),DLCFS(1),DLCRS(1),DNOL(1)              CNSR0179
     64         C                                                               CNSR0180
     65         C                                                               CNSR0190
     66         C                                                               CNSR0200
     67               EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1341)),(TSC(1),D(1541)),  CNSR0210
     68              1(TSS(1),T(1961)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),    CNSR0211
     69              2(TC(1),T(960)),(TO(1),T(920)),(TT(1),T(1317)),            CNSR0212
     70              3(YSTRC(1),TSEC(186)),                                     CNSR0213
```

CARD NO **** CONTENTS ****

```
     4(DBKPT(1),D(475)),(DEL(1),THT(251)),(DYPVT,D(200)),             CNSR0214
     5(DLCVU,DEL(1)),(DLCVL,DEL(4)),(UCLFS,DEL(13)),(DCLRS,DEL(17)),  CNSR0215
     6(I,ND(29)),(K,ND(30)),(N,ND(31)),(IPA,ND(23)),(IPB,ND(24)),     CNSR0216
     7(IOPI,ND(74)),(IOPJ,ND(80)),(IOPI,ND(82)),                      CNSR0217
     8(IC,ND(48)),(ICD,ND(49)),(IVF,ND(51)),                          CNSR0218
     9(ISEC,ND(55)),(NODH,ND(56)),(NCSEC,ND(68)),(IF4,ND(93))         CNSR0219
C                                                                     CNSR0220
      EQUIVALENCE (CKXX(1),D(74)),(SKMN,D(370)),(CH20L,D(392)),       CNSR0230
     1(SWDCP(1),D(423)),(DBLHD(1),D(650)),(DJONT(1),D(651)),          CNSR0231
     2(DNXU(1),D(931)),(DXXL(1),D(942)),(DKFCU(1),D(639)),            CNSR0232
     3(DKFIL(1),D(1008)),(DOPTP,D(1399)),(SLCFS(1),D(1470)),          CNSR0233
     4(CBLHD,THT(200)),(CJONT,THT(201)),                              CNSR0234
     5(YBUI(1),TSEC(133)),(YBLI(1),TSEC(188)),(DXXI(1),T(723)),       CNSR0235
     6(YBUD(1),T(679)),(YBLD(1),T(690)),(DEFFI(1),T(800)),            CNSR0236
     8(WPNLS(1),T(645)),(TPNLW(1),T(656)),(TBCHT(1),T(789)),          CNSR0238
     9(TBMPI(1),T(745)),(THMPI(1),T(778)),(VFWPI(1),T(756))           CNSR0239
C                                                                     CNSR0250
      EQUIVALENCE (DCSKU(1),D(721)),(DCSKL(1),D(732)),                CNSR0260
     1(DTSKU(1),D(743)),(DTSKL(1),D(754)),(DCDST(1),D(765)),          CNSR0261
     2(DCNDS(1),D(776)),(DCLST(1),D(787)),(DCHST(1),D(753)),          CNSR0262
     3(DLCFS(1),D(809)),(DLCRS(1),D(820)),(DJ20L(1),D(831)),          CNSR0263
     4(TKXMN,TDC(64)),(TKXMX,TDC(65)),(TKMNL D(395)),(SKMNL,D(394)),  CNSR0264
     5(BMIN,D(380)),(STLMN,D(375)),(STLMX,D(376)),                    CNSR0265
     6(DTTRB(1),T(666)),                                              CNSR0266
     9(HSTMN,D(377)),(HSTMX,D(378))                                   CNSR0269
C                                                                     CNSR0270
C                                                                     CNSR0280
C                                                                     CNSR0400
C      WT. CALC. ID=IC 1= AREA, 2=AREA AND PANEL WT.                  CNSR0410
 2000 IC = ND(1)                                                      CNSR0420
C                                                                     CNSR0430
C                                                                     CNSR0440
C             ***TEST FOR BASIC TYPE OR OPT BOX SEARCH. ID=IOPI***    CNSR0449
 1000 IF (NODH-ND(3)) 700,100,700                                     CNSR0450
 100  IF (ND(2) - IOPI) 101,103,700                                   CNSR0460
C                                                                     CNSR0470
C                     OPT TYPE. ID=3,4,5                              CNSR0471
 101  IF (IOPI - ND(3)) 102,102,104                                   CNSR0480
C                                                                     CNSR0489
C             ***ID=3.CONST. B(STK) SEARCH***                         CNSR0490
 102  D(380) = TO(6)                                                  CNSR0500
      D(381) = TO(6)                                                  CNSR0510
      GO TO 700                                                       CNSR0520
C                                                                     CNSR0529
C             ***ID=2. CONST. NOS SEARCH***                           CNSR0530
 103  D(382) = TO(6)                                                  CNSR0540
      GO TO 700                                                       CNSR0550
C                                                                     CNSR0559
C              **ID=4,5. VARIABLE NOS,B(STR). SETUP STATION DATA***   CNSR0560
 104  TT(1) =(TO(7) - TO(6))/TO(4)                                    CNSR0570
      TT(2) = TO(6) - YSTRC(1)*TT(1)                                  CNSR0580
      K = IOPJ                                                        CNSR0590
      DO 105 I=1,K                                                    CNSR0595
      N = ND(12) - IOPJ                                               CNSR0600
      TT(I+13) =  YSTRC(N)*TT(1)+TT(2)                                CNSR0610
 105  CONTINUE                                                        CNSR0620
      TT(1) = (TO(9) - TO(8))/TO(5)                                   CNSR0630
      N = ND(11) - IOPJ                                               CNSR0640
      TT(2) = TO(8)   YSTRC(N)*TT(1)                                  CNSR0650
      N = IOPJ + ND(1)                                                CNSR0660
      DO 106 I=N,11                                                   CNSR0671
      K = ND(12) - IOPJ                                               CNSR0680
      TT(I+13) = YSTRC(K)*TT(1) + TT(2)                               CNSR0690
 106  CONTINUE                                                        CNSR0700
C                                                                     CNSR0709
C                    TEST FOR 4 OR 5                                  CNSR0710
      IF (IOPI - ND(4)) 107,107,108                                   CNSR0720
 107  DO 1070 I=1,11                                                  CNSR0730
      DCNDS(I) = TT(I+13)                                             CNSR0740
 1070 CONTINUE                                                        CNSR0750
      GO TO 700                                                       CNSR0760
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CARD NO  ****                          CONTENTS                          ****
   142      100  DO 1080 I=1,11                                          CNSR0770
   143           DCBST(I) = TT(I+13)                                     CNSR0780
   144      1080 CONTINUE                                                CNSR0790
   145      C                                                            CNSR0800
   146      C                                                            CNSR0810
   147      C                                                            CNSR0900
   148      C                                                            CNSR0910
   149      C     STRINGER SPACING CONTROL                               CNSR0920
   150      C     SECTION B - STRINGER CONTROL                           CNSR0930
   151      C                                                            CNSR0940
   152      C                                                            CNSR0950
   153      C     TEST FOR ZERO V IN STMEB SUBR   USE (I-1) DATA AT SEC 2-11  CNSR0960
   154      C     USE MIN DATA AT TIP                                    CNSR0970
   155      C                                                            CNSR0980
   156      C     MIN COVER LOAD= TMG*100 PSI OR = NX(LWR)               CNSR0990
   157      C     AT SEC(I) =2 TO 11,  FOR M(I)>0, -M(I) NOT ZERO, USE NX(LWR),FTMXCNSR1000
   158      C     FOR +M,-M (I)=0, USE LARGER OF   NX(LWR(I-1), KNQL(I)*(NX(I-1)  CNSR1010
   159      C                                                            CNSR1020
   160      C     FOR M(I) NOT ZERO +NX(I) MUST BE LARGER THAN KNQL(I)*NX(I-1),NQLCNSR1030
   161      C     I-1) OR NX(-M(I),FTMAX)                                CNSR1040
   162      C              *** CLEAR GW(I) WEIGHT SECTION.  TWT(I) TO TWT(96) *** CNSR1050
   163       700 DO 701 I=1,153                                          CNSR1060
   164           TWT(I)=DC(3)                                           CNSR1070
   165       701 CONTINUE                                               CNSR1080
   166      C                                                            CNSR1090
   167      C          *****SETUP SECTION LOOP FOR 11 POINTS *****       CNSR1100
   168      C            USE ABS VALUE OF ULT. V AND M                  CNSR1110
   169      C            TEST FOR MAG. OF +NX(I) AND -NX(I)             CNSR1120
   170      C            SETUP FCMAX(I) AND FCMAX(0)                    CNSR1130
   171      C                                                           CNSR1140
   172           DO 799 ISEC=1,11                                       CNSR1150
   173      C                                                           CNSR1159
   174      C          ***TEST FOR CSEC TYPE SKIP.  NCSEC+3 FOR CONST SEC/LDS*** CNSR1160
   175           IF (ND(2) - ISEC) 710,710,712                          CNSR1170
   176       710 IF (ND(3) - NCSEC) 711,711,712                         CNSR1180
   177       711 TDC(77) = TSEC(ISEC+44)                                CNSR1190
   178      C                                                           CNSR1200
   179           IC = ND(2)                                             CNSR1210
   180           I = ND(12) - ISEC                                      CNSR1220
   181           CBLHD = DBLHD(I)                                       CNSR1230
   182           CJONT = DJONT(I)                                       CNSR1240
   183           GO TO 682                                              CNSR1250
   184      C                                                           CNSR1260
   185      C                                                           CNSR1270
   186       712 TDC(55)=TDC(46)                                        CNSR1280
   187      C                                                           CNSR1289
   188      C     TEST FOR CONTROL DATA SETUP                           CNSR1290
   189           TDC(200) = TC(3)                                       CNSR1300
   190           TDC(197) = CKNQL                                       CNSR1305
   191           IWF=ND(1)                                              CNSR1310
   192           IF (ND(1) - ICD) 720,742,720                           CNSR1315
   193      C                                                           CNSR1316
   194      C          ***PROCESS INPUT DESIGN DATA***                  CNSR1317
   195      C            **SK(U,L), TSK(U,L., BSTR, NDS, L(MIN,MAX),HIMIN,MAX)*  CNSR1318
   196      C            *K(NQL)*                                       CNSR1319
   197       720 N = ND(12) - ISEC                                      CNSR1320
   198           IF (DCSKU(N)) 722,722,721                              CNSR1325
   199       721 TKUMN = DCSKU(N)                                       CNSR1330
   200           TKUMX = TKUMN                                          CNSR1335
   201       722 IF (DCSKL(N)) 724,724,723                              CNSR1340
   202       723 TKUML = DCSKL(N)                                       CNSR1345
   203       724 IF (DTSKU(N)) 726,726,725                              CNSR1350
   204       725 SKUMN = DTSKU(N)                                       CNSR1351
   205       726 IF (DTSKL(N)) 728,728,727                              CNSR1352
   206       727 SKUML = DTSKL(N)                                       CNSR1353
   207       728 IF (DCBST(N)) 730,730,729                              CNSR1354
   208       729 BMIN = DCBST(N)                                        CNSR1355
   209       730 IF (DCNOS(N)) 732,732,731                              CNSR1356
   210       731 TDC(200) = DCNOS(N)                                    CNSR1357
   211       732 IF (DCLST(N)) 734,734,733                              CNSR1358
   212       733 STLMN = DCLST(N)                                       CNSR1359
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CARD NO	**** CONTENTS ****	
213	STLMX = STLMN	CNSR1360
214	734 IF (DCHST(N)) 736,736,735	CNSR1361
215	735 HSTMN = DCHST(N)	CNSR1362
216	HSTMX = HSTMN	CNSR1365
217	736 IF (DLCFS(N)) 738,738,737	CNSR1370
218	737 SWBCP(1) = DLCFS(N)	CNSR1375
219	738 IF (DLCRS(N)) 740,740,739	CNSR1380
220	739 SWBCP(2) = DLCRS(N)	CNSR1385
221	740 IF (DXNOL(N)) 742,742,741	CNSR1390
222	741 TDC(197) = DXNOL(N)	CNSR1395
223	C	CNSR1399
224	C ***U***	CNSR1400
225	742 TDC(80) = ABS (TSEC(ISEC))	CNSR1410
226	C	CNSR1419
227	C ***V***	CNSR1420
228	TDC(79) = ABS(TSEC(ISEC+111))	CNSR1430
229	C	CNSR1439
230	C ***D(AVE)***	CNSR1440
231	TDC(78)=TSEC(ISEC+55)	CNSR1450
232	C	CNSR1459
233	C ***W(STRUCT)***	CNSR1460
234	TDC(77)=TSEC(ISEC+44)	CNSR1470
235	C	CNSR1479
236	C ****VFS***	CNSR1480
237	TDC(75)=TSEC(ISEC+22)	CNSR1490
238	C	CNSR1499
239	C ****VRS***	CNSR1500
240	TDC(76)=TSEC(ISEC+33)	CNSR1510
241	C	CNSR1520
242	C *** SETUP EFF WIDTH FOR NX AND WT CALC. ***	CNSR1530
243	TSEC(240) = (SLCFS(1) + SLCFS(2))/TDC(77)	CNSR1540
244	TSEC(239) = SLCFS(5)*TSEC(240) + D(1)*(SWBCP(1)+SWBCP(2))/TDC(77)	CNSR1550
245	TSEC(240) = TSEC(240) + D(1)	CNSR1560
246	C	CNSR1570
247	C	CNSR1580
248	C	CNSR1590
249	C	CNSR1600
250	C	CNSR1610
251	C ***D(FS)***	CNSR1620
252	TDC(69) = TSEC(ISEC+77)	CNSR1630
253	C	CNSR1640
254	C ***D(RS)***	CNSR1650
255	TDC(70)=TSEC(ISEC+88)	CNSR1660
256	C	CNSR1670
257	C	CNSR1680
258	C ***EFFECTIVE DEPTH--D(EFF)***	CNSR1690
259	TDC(73) = TDC(78) - YBU(ISEC) - YBL(ISEC)	CNSR1700
260	IF (TDC(73) - D(1)) 743,744,744	CNSR1710
261	743 TDC(73)=(D(1)+TDC(78))/D(2)	CNSR1720
262	744 TDC(71) = TDC(77)*TDC(73)*TSEC(239)	CNSR1730
263	C	CNSR1740
264	C NNX(LWR), +NX(I), -NX(I), ZERO TESTS FOR +M(I), -M(I), MIN. NX	CNSR1750
265	C SETUP NX(I),+,-	CNSR1760
266	I = ND(12) - ISEC	CNSR1770
267	TDC(72) = DNXU(I)*TDC(80)/TDC(71)	CNSR1780
268	TDC(71)= ABS (TSEC(ISEC+121) /TDC(71))	CNSR1790
269	C	CNSR1800
270	C	CNSR1810
271	C TEST MAG OF +,-NX. TIP, SECT. 2 TO 11	CNSR1820
272	C	CNSR1830
273	IF (ISEC - ND(1)) 660,660,670	CNSR1840
274	C	CNSR1850
275	C ***TIP SECTION***	CNSR1860
276	660 IF (TDC(72)/SKNN - D(65)) 661,661,662	CNSR1870
277	661 TDC(72) = D(65)*SKNN	CNSR1880
278	662 IF (TDC(71)) 676,676,675	CNSR1890
279	C	CNSR1900
280	C	CNSR1910
281	C	CNSR1920
282	C	CNSR1930
283	C SECTIONS 2-11 SET IC=2 FOR WT CALC ID	CNSR1940

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CARD NO  ****                          CONTENTS                          ****
  284    C       (*,-NX(I)) * .0(NX(I-1))                                CNSR1950
  285     670  IC = ND(2)                                                 CNSR1960
  286    C                                                                CNSR1970
  287    C                                                                CNSR1980
  288    C                                                                CNSR1990
  289          TWT(164) = CKNX(I)*TWT(169)                               CNSR2000
  290          IF (TDC(71) - TWT(164)) 671,672,672                       CNSR2010
  291     671  TDC(71) = TWT(164)                                        CNSR2020
  292     672  IF (TDC(72)) 673,674,673                                  CNSR2030
  293     673  TWT(164) = CKNX(I)*TWT(170)                               CNSR2040
  294          IF (ABS (TDC(72)) - TWT(164)) 674,675,675                 CNSR2050
  295     674  TDC(72) = TWT(164)                                        CNSR2060
  296     675  TDC(161) = TDC(71)/TDC(72)                                CNSR2070
  297          IF (TDC(161)-TDC(197)) 676,676,678                        CNSR2080
  298     676  TDC(161) = TDC(197)                                       CNSR2090
  299          TDC(71) = DNXL(I)*TDC(72)/DNXU(I)*TDC(161)                CNSR2100
  300    C                                                               CNSR2108
  301    C       *** SETUP MAX FC(I), FT(I), DATA ***                    CNSR2109
  302     678  I = ND(12) - ISEC                                         CNSR2110
  303          TDC(46) = DKFCU(I)*TSEC(234)                              CNSR2111
  304          TDC(60) = DKFTL(I)*TSEC(235)                              CNSR2115
  305          TDC(1a21= DKFTL(I)*TSEC(238)                              CNSR2116
  306          TDC(49) = DKFCU(I)*TSEC(236)                              CNSR2120
  307          TDC(48) = TDC(49)/TDC(46)                                 CNSR2121
  308          TDC(48) = TSEC(237)                                       CNSR2125
  309          TDC(55) = TDC(46)                                         CNSR212E
  310          IF (TDC(72)*TDC(48) - TDC(71)) 679,679,680                CNSR2130
  311     679  TDC(55) = TDC(72)*TDC(49)/TDC(71)                        CNSR2140
  312     680  CALL SS (TDC(55))                                         CNSR2150
  313          TDC(56)=TDC(45)                                           CNSR216
  314    C                                                               CNSR2170
  315    C     TVF (REQD)                                                CNSR2180
  316          TDC(74) = TSEC(ISEC+66)                                   CNSR2190
  317    C                                                               CNSR2200
  318    C                                                               CNSR2210
  319    C       DO SECTION DESIGN IVF=1 --(ST)                          CNSR2220
  320    C       1. UPR COVER      2. LWR COVER                          CNSR2230
  321    C       3. F.SPAR, R. SPAR                                      CNSR2240
  322    C                                                               CNSR2250
  323     681  CALL SECTD                                                CNSR2260
  324    C                                                               CNSR2270
  325    C                                                               CNSR2280
  326    C                                                               CNSR2320
  327    C                                                               CNSR2460
  328    C       COMPUTE EI,GJ ---  STRUCTURE REQD --                    CNSR2470
  329    C         IEIGJ= 1                                              CNSR2480
  330     682  CALL EIGJC                                                CNSR2490
  331    C                                                               CNSR2500
  332    C     GJ(I) IN TSS(7), EI(I) IN TSS(8)                          CNSR2510
  333    C     TEST FOR GJVF(REQD) AND TYPE OF ANALYSIS                  CNSR2520
  334     683  IF (TDC(74)) 780,780,684                                  CNSR2530
  335    C                                                               CNSR2540
  336    C     VFCAL SUBR SETS UP IEIGJ ID IF  DELTA VF NOT 0.0          CNSR2550
  337    C      1=NO CALC  2= CALC. COMPOSITE EI/GJ.(PRT8, PRTC TEST FOR PRINT) CNSR2560
  338    C                                                               CNSR2570
  339     684  CALL VFCAL                                                CNSR2580
  340    C                                                               CNSR2590
  341    C       TEST FOR REDESIGN FOR VF AND COMPOSITE EIGJ             CNSR2600
  342    C       DO IF IVF=2.  EI,GJ= STRUCT. IF IVF=1,3                 CNSR2610
  343          IF (IVF - ND(2)) 780,685,780                              CNSR2620
  344     685  CALL SECTD                                                CNSR2630
  345     686  CALL EIGJC                                                CNSR2640
  346    C                                                               CNSR2650
  347    C              TYPE 8 PAGE PRINT ONLY ON NOPW=4,1 FOR OPT SEARCH CASE.CNSR2659
  348     687  IF (ND(2) - IOP1) 688,688,780                             CNSR2660
  349     688  IF (NODW - ND(3)) 689,790,78u                             CNSR2661
  350     689  IF (NODW - ND(1)) 780,780,790                             CNSR2662
  351    C                                                               CNSR2670
  352    C      TEST FOR TYPE 8 PAGE PRINT -- DETAIL DATA AT SEC(ISEC), ID=1 CNSR2680
  353     780  IF (IP8) 790,790,7870                                     CNSR2690
  354    C                                                               CNSR2699
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CARD NO  ****                          CONTENTS                          ****
  356     C       *** TEST FOR C-SEC TYPE. SEC II ONLY. ***                CNSA2700
  356      787  IF (ND(2) - ISEC) 7870,7870,7871                          CNSA2710
  357      7870 IF (NCSEC - ND(1)) 7871,7871,790                          CNSA2720
  358      7871 CALL PRTB                                                 CNSA2730
  359     C                                                               CNSA2740
  360     C       DO WT CALC. IC=1 OR 2                                   CNSA2750
  361      790  CALL WTCAL                                               CNSA2760
  362     C                                                               CNSA2766
  363     C            ***SAVE SECTION SUMMARIES CALC BY WTCAL AND WTPIN***  CNSA2756
  364     C              *PNL(I) WTS FOR PRINT-TYPE A .  PNLS 1-10, ISEC=2-11*  CNSA2757
  365     C              *STORED BY PANELS-G/PNL-SUM,TB,LE,TE,MISC,WF*    CNSA2757
  366     C              *PNLS IN CD(142-201) STORED BY TIP*               CNSA2757
  367     C              *SUM TOTAL IN CD(134-138).  CD(140)=RT RIB, CD(141)=CSECCNSA2757
  368     C              *ALL WTS=LB/SIDE*                                 CNSA2757
  369           IF (ND(2) - ISEC) 7900,7900,7902                           CNSA2758
  370      7900 K = (ND(12) - ISEC)*ND(6)                                  CNSA2758
  371           DO 7901 I=1,6                                             CNSA2758
  372           K = K + ND(1)                                             CNSA2758
  373           CD(K+135) = TWT(I+58)                                     CNSA2758
  374      7901 CONTINUE                                                  CNSA2758
  375     C                                                               CNSA2758
  376     C              *SECTION CHORDWISE CONC DATA--TWT(381-391)*       CNSA2757
  377      7902 K = (ND(12) - ISEC)*ND(11) - ND(11)                       CNSA2757
  378           DO 7903 I=1,11                                            CNSA2757
  379           K = K + ND(1)                                             CNSA2757
  380           TC(K+219) = TWT(I+380)                                    CNSA2757
  381      7903 CONTINUE                                                  CNSA2757
  382     C                                                               CNSA2757
  383     C                                                               CNSA2758
  384     C              *SET TWT(44)=B(SPACING) FOR SECT J SEARCH PARAM. INDIC.*CNSA2758
  385           TWT(44) = TDC(82)                                         CNSA2760
  386     C                                                               CNSA2761
  387     C            ***TEST FOR SECTION J DATA SAVE. IOP1=2,3,4,5***   CNSA2762
  388     C              *SAVE TWT(1-100) IN TW(701-800) FOR TSS(1-100) PROCESS**CNSA2762
  389      7910 IF (ND(12) - ISEC - IOPJ) 795,7911,795                    CNSA2763
  390      7911 DO 7915 I=1,100                                           CNSA2764
  391           TW(I+700) = TWT(I)                                        CNSA2764
  392      7915 CONTINUE                                                  CNSA2764
  393     C                                                               CNSA2764
  394     C            ***SET N=2 FOR LOOP CONTROL***                     CNSA2764
  395           N=ND(2)                                                   CNSA2765
  396           GO TO 796                                                 CNSA2766
  397     C                                                               CNSA2766
  398     C              **RETURN FROM SUM.**                             CNSA2767
  399     C              *TW(801-900)=SECT(J) WT DATA FOR PRTA PRINT FROM TSS LOCCNSA2767
  400     C              *SAVE TWT(1-71),(97-120),(145-149)*              CNSA2767
  401      7912 DO 7918 I=1,71                                            CNSA2769
  402           TW(I+800) = TWT(I)                                        CNSA2770
  403      7918 CONTINUE                                                  CNSA2771
  404           DO 7917 I=1,24                                            CNSA2772
  405           TW(I+871) = TWT(I+96)                                     CNSA2773
  406      7917 CONTINUE                                                  CNSA2774
  407           DO 7918 I=1,5                                             CNSA2775
  408           TW(I+895) = TWT(I+144)                                    CNSA2776
  409      7918 CONTINUE                                                  CNSA2777
  410     C                                                               CNSA2778
  411     C            ***RESET BASIC TWT(1-100) DATA FROM TW(701-800)***  CNSA2779
  412           DO 7919 I=1,100                                           CNSA2780
  413           TWT(I) = TW(I+700)                                        CNSA2781
  414      7919 CONTINUE                                                  CNSA2782
  415     C                                                               CNSA2783
  416     C                                                               CNSA2788
  417     C       SET N=1 FOR OPNL DATA                                   CNSA2810
  418     C       *** TEST FOR C-SEC CALC. SEC II ONLY UNLESS BLND OR JOINT  CNSA2820
  419     C                ARE CALC. ***                                  CNSA2830
  420       795 N=ND(1)                                                   CNSA2840
  421           IF (ND(2) - ISEC) 7901,7901,7904                          CNSA2850
  422      7901 IF (ND(2) - NCSEC) 7902,795, 7904                         CNSA2860
  423      7902 IF (CJONT) 7904,7903,7904                                 CNSA2870
  424      7903 IF (CBLND) 7904,795,7904                                  CNSA2880
  425     C                                                               CNSA2888
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CARD NO	**** CONTENTS ****	
426	C TEST FOR PRTC PRINT.	CWSR2810
427	7994 IF (IPR) 799,799,7995	CWSR2820
428	C	CWSR2830
429	7995 CALL PRTC	CWSR2840
430	C	CWSR2900
431	C RETURN LOOP FOR ISEC	CWSR2910
432	799 CONTINUE	CWSR2920
433	C	CWSR2928
434	C ***PROCESS FINAL MTS. ADD INBD PYL(0) DATA, SETUP SUMS***	CWSR2929
435	8900 TWT(1) = TWT(1) + TWT(56)	CWSR2930
436	TWT(30) = TWT(30) + DTIRD(1)	CWSR2935
437	DO 8901 I=1,5	CWSR2940
438	TWT(I+44) = TWT(I+44) + TWT(I+54)	CWSR2945
439	CD(I+133) = TWT(I+44)	CWSR2950
440	8901 CONTINUE	CWSR2955
441	C	CWSR2960
442	CD(139) = TWT(52)	CWSR2965
443	CD(140) = TWT(54)	CWSR2970
444	TWT(48) = TWT(48) + TWT(55)	CWSR2975
445	TWT(49) = TWT(49) + TWT(55)	CWSR2980
446	C ***SET N=1 FOR END OF ISEC LOOP TEST***	CWSR2989
447	N = ND(1)	CWSR2990
448	C	CWSR3000
449	C	CWSR3110
450	C	CWSR3110
451	C SUM DELTA WF INTO ELEMENTS MTS	CWSR3120
452	C UPPER COVER	CWSR3130
453	796 TWT(9) = DLCVU*TWT(9) + TWT(19)	CWSR3140
454	TWT(10) = DLCVU*TWT(10) + TWT(20)	CWSR3150
455	TWT(11) = DLCVU*TWT(11) + TWT(21)	CWSR3160
456	TWT(2) = TWT(9) + TWT(10) + TWT(11)	CWSR3170
457	C	CWSR3180
458	C LOWER COVER	CWSR3190
459	TWT(12) = DLCVL*TWT(12) + TWT(22)	CWSR3200
460	TWT(13) = DLCVL*TWT(13) + TWT(23)	CWSR3210
461	TWT(14) = DLCVL*TWT(14) + TWT(24)	CWSR3220
462	TWT(3) = TWT(12)+ TWT(13) + TWT(14)	CWSR3230
463	C	CWSR3240
464	C I-RIBS	CWSR3250
465	TWT(5) = TWT(5) + TWT(25)	CWSR3260
466	C	CWSR3270
467	C TORQUE-BOX MISC.	CWSR3280
468	TWT(8) = TWT(8) + TWT(28) + TWT(29)	CWSR3290
469	C	CWSR3300
470	C FRONT SPAR	CWSR3310
471	TWT(15) = DELFS*TWT(15)	CWSR3320
472	TWT(16) = DELFS*TWT(16) + TWT(26)	CWSR3330
473	TWT(6) = TWT(16)+ TWT(15)	CWSR3340
474	C	CWSR3350
475	C REAR SPAR	CWSR3360
476	TWT(17) = DELRS*TWT(17)	CWSR3370
477	TWT(18) = DELRS*TWT(18) + TWT(27)	CWSR3380
478	TWT(7) = TWT(18)+ TWT(17)	CWSR3390
479	C	CWSR3400
480	C *****SECT (J) DATA, N=2. END OF ISEC LOOP, N=1.*****	CWSR3409
481	IF (N-ND(1)) 810,810,7912	CWSR3410
482	C	CWSR3411
483	C ***RESET SECTION J DATA***	CWSR3412
484	C *STORED IN TW(801-900)--FROM CWSTR MOVE*	CWSR3413
485	810 DO 8100 I=1,100	CWSR3414
486	TSS(I) = TWT(I+800)	CWSR3415
487	8100 CONTINUE	CWSR3416
488	C	CWSR3419
489	C **TEST FOR TYPE OF SEARCH AND PASS NO. FOR EXIT LOGIC**	CWSR3420
490	IF (ND(2) - IOP(1) 811,811,899	CWSR3430
491	811 IF (NOOM - ND(3)) 899,812,899	CWSR3440
492	C	CWSR3450
493	C	CWSR3458
494	C ***DISCRETE POINT SEARCH. NOOM=3, SAVE DESIGN DATA***	CWSR3460
495	C *RCD M, RCDS N TO N+9*	CWSR3470
496	812 TO(1) = TWT(1)	CWSR3480

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CARD NO      ****                          CONTENTS                          ****
     497          TO(3) = TSS(1)                                                CWSR3490
     498          TO(2) = TO(1) - TO(3)                                         CWSR3500
     499     C                                                                  CWSR3510
     500     C                 TEST IF PASS WAS OPT.                            CWSR3520
     501          IF (IOP1 - ND(5)) 813,813,899                                 CWSR3530
     502     C                                                                  CWSR3538
     503     C              *RCD 118-142.  5 BLOCKS OF DATA, 5 RCDS EACH*       CWSR3540
     504     C              *BLOCK(N) BASED ON VALUE OF IOP1*                   CWSR3541
     505     C              *RCD(1) OF BLOCK(N)=MISC DATA.  WRITE FROM TSC(1-150)* CWSR3542
     506     C              *RCD(2) OF BLOCK(N)=TWT(1-150)*                     CWSR3543
     507     C              *RCD(3) OF BLOCK(N)=TSS(1-100)*                     CWSR3544
     508     C              *RCD(4) OF BLOCK(N)=TC(1-340)*                      CWSR3545
     509     C              *RCD(5) OF BLOCK(N)=CD(1-400)*                      CWSR3548
     510     C                                                                  CWSR3549
     511      813 N = IOP1*ND(5) + 113                                          CWSR3550
     512     C                                                                  CWSR3558
     513     C              *SETUP TSC(1-150)*                                  CWSR3559
     514          DO 8130 I=1,5                                                 CWSR3560
     515          TSC(I) = TO(I)                                                CWSR3561
     516          TSC(I+5) = TO(I+17)                                           CWSR3562
     517      8130 CONTINUE                                                     CWSR3568
     518     C                                                                  CWSR3569
     519          TSC(11) = D(375)                                              CWSR3570
     520          TSC(12) = D(376)                                              CWSR3571
     521          TSC(13) = D(380)                                              CWSR3572
     522          TSC(14) = D(381)                                              CWSR3573
     523          TSC(15) = D(382)                                              CWSR3574
     524     C                                                                  CWSR3578
     525          DO 8131 I=1,11                                                CWSR3580
     526          TSC(I+15) = TBAPI(I)                                          CWSR3582
     527          TSC(I+26) = TWAPI(I)                                          CWSR358-
     528          TSC(I+37) = VFWPI(I)                                          CWSR3586
     529          TSC(I+48) = WPNLS(I)                                          CWSR3588
     530          TSC(I+59) = TPNLW(I)                                          CWSR3590
     531          TSC(I+70) = TBCWT(I)                                          CWSR3592
     532          TSC(I+81) = DEFFI(I)                                          CWSR3594
     533          TSC(I+92) = YBUD(I)                                           CWSR3596
     534          TSC(I+103) = YBLD(I)                                          CWSR3598
     535          TSC(I+114) = DCBST(I)                                         CWSR3600
     536          TSC(I+125) = DCNOS(I)                                         CWSR3602
     537          TSC(I+136) = DNX(I)(I)                                        CWSR3610
     538      8131 CONTINUE                                                     CWSR3620
     539     C                                                                  CWSR3630
     540     C            ***WRITE 5 RCDS***                                    CWSR3640
     541          IFN = N                                                       CWSR3650
     542          CALL WRITMS (1,TSC(1),150,IFN)                                CWSR3660
     543          IFN = N + ND(1)                                               CWSR3670
     544          CALL WRITMS (1,TWT(1),150,IFN)                                CWSR3675
     545          IFN = N + ND(2)                                               CWSR3680
     546          CALL WRITMS (1,TSS(1),100,IFN)                                CWSR3685
     547          IFN = N + ND(3)                                               CWSR3690
     548          CALL WRITMS (1,TC(1),340,IFN)                                 CWSR3695
     549          IFN = N + ND(4)                                               CWSR3700
     550          CALL WRITMS (1,CD(1),400,IFN)                                 CWSR3705
     551     C                                                                  CWSR3710
     552     C                                                                  CWSR3720
     553     C                                                                  CWSR9900
     554     C            **EXIT**                                              CWSR9010
     555      899 RETURN                                                        CWSR9000
     556          END                                                           CWSR9999
     557     C*************************************************************************
     558     C
     559     C       *****SUBROUTINE SECTD*****
     560     C   ***TORQUE-BOX SECTION SYNTHESIS - SEARCH LEVEL 1 CONTROL***
     561     C
     562     C*************************************************************************
     563     C
     564          SUBROUTINE SECTD                                              SECT0010
     565     C                                                                  SECT0011
     566     C            SECTION ANALYSIS SUBR---STR---                        SECT0020
     567     C                                                                  SECT0030
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CARD NO	**** CONTENTS ****	
568	C	SECT0110
569	C	SECT0130
570	COMMON T(2060),D(2060),CD(2000),ND(100)	SECT0140
571	C	SECT0150
572	DIMENSION DC(100),TDC(200),TSC(420),TSS(100),THT(400),TSEC(300),	SECT0160
573	1DEL(30),	SECT0161
574	2DJOINT(11),DELHD(11),	SECT0162
575	3YBUD(11),YOLD(11),DXBU(11),DXOL(11),	SECT0163
576	9DCRST(11),DR15(4)	SECT0169
577	C	SECT0170
578	C	SECT0180
579	EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1134)),(TSC(1),T(1154)),	SECT0190
580	1(TSS(1),T(1196)),(THT(1),CD(1101)),(TSEC(1),CD(1501)),	SECT0191
581	2(PI,D(15)),(VTID,D(20)),(TANTH,TDC(19)),	SECT0192
582	3(DELHD(1),D(650)),(DJOINT(1),D(669)),(DRIS(1),D(1475)),	SECT0193
583	4(DXBU(1),D(33)),(DXOL(1),D(54)),(DCREST(1),D(705)),	SECT0194
584	5(STIFN,D(36)),(SKIN,D(37)),(STRMN,D(371)),(HGT(1),D(372)),	SECT0195
585	6(STMX,D(378)),(STFMX,D(379)),(BMIN,D(380)),(BMAX,D(381)),	SECT0196
586	7(SNMIN,D(382)),(STFMI,D(384)),(SKMAX,D(383)),(TRMAX,D(385)),	SECT0197
587	8(CNSID,D(465)),(DTC,D(467)),(DTCI,D(468)),(CONTC,D(367)),	SECT0198
588	9(YBUD(1),T(679)),(YOLD(1),T(680))	SECT0199
589	C	SECT0200
590	EQUIVALENCE (DEL(1),THT(251)),(DLSKU,DEL(2)),(DLSKL,DEL(5)),	SECT0210
591	1(DLFSH,DEL(15)),(DLRSH,DEL(19)),	SECT0211
592	2(CJONT,THT(201)),(CBLHD,THT(200)),	SECT0212
593	5(IB,ND(52)),(IVF,ND(51)),(IDVF,ND(50)),	SECT0215
594	6(IBT,ND(72)),(IMX,ND(71)),	SECT0216
595	7(ICD,ND(49)),(ISC,ND(22)),	SECT0217
596	8(NEB,ND(37)),(IBSEC,ND(69)),(IKI,ND(62)),	SECT0218
597	9(ISEC,ND(55)),(I,ND(29))	SECT0219
598	C	SECT0420
599	C	SECT0430
600	C	SECT0440
601	C **** SETUP CJONT AND CBLHS ****	SECT0450
602	7000 I = ND(12) - ISEC	SECT0460
603	C	SECT0470
604	CBLHD = DELHD(I)	SECT0480
605	CJONT = DJONT(I)	SECT0490
606	C	SECT0500
607	C	SECT0510
608	C TEST FOR TYPE OF ANALYSIS ON IVF 1,3=ST., 2=WF	SECT0520
609	C	SECT0530
610	IF (IVF - ND(2)) 700,400,700	SECT0540
611	C	SECT0550
612	C STRENGTH REGNT ANALYSIS -- UPR-LWR COVERS, FRONT-REAR SPARS	SECT0560
613	C NO. OF STRINGER (BMIN,MAX) CONTROL -- BMAX AND NOSMIN ADJ. LIMITS	SECT0570
614	C COMPUTE NOSMIN SEC(I) -- USE LARGER OF SNMIN OR NOS(BMAX)	SECT0580
615	700 IB = ND(1)	SECT0590
616	TDC(198)=SNMIN	SECT0600
617	TDC(199)=(TDC(77)/BMAX)-D(1)	SECT0610
618	TDC(199)=INT (TDC(199))	SECT0620
619	IF (TDC(198)-TDC(199)) 7051,7052,7052	SECT0630
620	7051 TDC(198)=TDC(199)	SECT0640
621	C	SECT0649
622	C START IB+1, FCSTART=FCMAX	SECT0650
623	7052 TDC(195)=TDC(55)	SECT0660
624	C	SECT0669
625	C OPT SEARCH OR CONTROL	SECT0670
626	C TEST INPUT CONTROL DATA. FOR ID=1 ROOT TO TIP	SECT0680
627	C FOR ID=2,3 CONTROL DATA ONLY AT JOINTS	SECT0690
628	C	SECT0700
629	C SPECIAL CONTROL LOGIC -- TEST FOR D(367)=-2,+2	SECT0710
630	9000 IF (D(1) - CONTC) 9001,9010,9010	SECT0720
631	C CONTROL WITH INPUT BLOCK -- ICD = 2	SECT0730
632	9001 IDVF=ND(1)	SECT0740
633	TDC(68) = TDC(77)/BMIN - D(1)	SECT0750
634	IF (ISC - ND(2)) 705,9002,706	SECT0760
635	9002 IF (TDC(200)) 7060,7060,9003	SECT0770
636	9003 TDC(198) = TDC(200)	SECT0780
637	GO TO 7060	SECT0790
638	C CONTROL WITH NO INPUT BLOCK -- ICD = 1	SECT0800

CARD NO	**** CONTENTS	****
839	9010 IF (ND(2) - ISC) 9011,9011,702	SECT0810
840	9011 IF (CONTC) 9012,703,703	SECT0820
841	9012 IF (ISEC - ND(2)) 7020,704,704	SECT0830
842	C	SECT0840
843	702 IF (ISEC -ND(1)) 7020,7020,7021	SECT0850
844	C	SECT0859
845	C SECTION 1, TIP -- SETUP ID	SECT0860
846	7020 ID=ND(1)	SECT0870
847	C	SECT0879
848	C SETUP NDS MIN-MAX FOR OPT SEARCH =F(BMIN) AND SNMIN BMAX	SECT0880
849	7021 TDC(68) =(TDC(77)/BMIN)-D(1)	SECT0890
850	TDC(68) =INT (TDC(68))	SECT0900
851	IDVF=ND(1)	SECT0910
852	7023 IF (ICD - ND(2)) 7022,705,7022	SECT0920
853	C	SECT0929
854	C NO INPUT CONTROLS	SECT0930
855	7022 IF (TDC(60) - TDC(198)) 7060,7061,7061	SECT0940
856	C	SECT0950
857	7060 TDC(68) = TDC(198)	SECT0960
858	GO TO 7061	SECT0970
859	C	SECT0980
860	C INPUT CONTROLS -- TEST FOR BMIN, NDS	SECT0990
861	705 IF (IDC(200)) 7022,7022,7053	SECT1000
862	C	SECT1009
863	C INPUT NDS, TEST INPUT B	SECT1010
864	7053 TDC(198)=TDC(200)	SECT1020
865	C	SECT1029
866	C TEST FOR INPUT BSTR = 0	SECT1030
867	IF (DCBST(ISEC)) 7022,7022,7055	SECT1040
868	C	SECT1050
869	C INPUT NDS AND BSTR -- USE LARGE OF NDSMIN, NDS(B) --NO SEARCH	SECT1060
870	7055 IF (TDC(68)-TDC(198)) 7060,7061,7061	SECT1070
871	C	SECT1080
872	C INPUT CONTROL FOR CONSTANT NDS OR BSTR OPT SEARCH AT SECT. 1,2	SECT1090
873	C AND AT INDICATED JOINTS --- IB=1 FCSTART= FCMAX AT JOINTS	SECT1100
874	703 IF (ISEC -ND(2)) 7021,7021,7031	SECT1110
875	C	SECT1120
876	C SEC 3 TO 11 -- TEST FOR JOINT(I), IF NOT 0, OPT SEARCH	SECT1130
877	7031 IF (CJOINT) 704,704,7021	SECT1140
878	C	SECT1150
879	C CONSTANT NDS OR BSTR TEST AT SECTION(I) --IB=1, FCSTART=FCMAX I-1	SECT1160
880	704 IF (ISC - ND(3)) 7032,7040,7032	SECT1170
881	C	SECT1180
882	C USE (NDS(I-1)), NO LIMIT ON STR SPACING MIN OR MAX	SECT1190
883	7032 TDC(60)=TD (81)	SECT1200
884	IDVF=ND(2)	SECT1210
885	GO TO 706	SECT1220
886	C	SECT1230
887	C CONSTANT BSTR B(I)=B(I-1), ST. AND VF IDVF=3	SECT1240
888	C NDS(I) WILL NOT BE WHOLE INTEGER	SECT1250
889	7040 TDC(68)=(TDC(77)/TDC(82)) -D(1)	SECT1260
890	IDVF = ND(3)	SECT1270
891	IF (TDC(68)) 7041,706,706	SECT1280
892	7041 TDC(68)=DC(3)	SECT1290
893	706 TDC(198)=TDC(68)	SECT1300
894	C	SECT1310
895	C SETUP (B/T) LIMIT DATA - AIKSKMX), LMIN, LMAX	SECT1320
896	7061 TWT(305)= HSTMN*TSEC(224) + STFMN*TSEC(223)	SECT1330
897	TWT(306) = HSTMX + STFMX*STRFN	SECT1340
898	TWT(304) = STRMN*TWT(308)	SECT1350
899	TWT(302) = TSEC(223)*STFMN/D(19)	SECT1360
900	C	SECT1369
901	C B/T -- MIN, MAX, CONTROL	SECT1370
902	TWT(308) = HSTMN/STRMN	SECT1380
903	TWT(309) = HSTMX/STRMN	SECT1390
904	TWT(307) = TWT(309)	SECT1400
905	C	SECT1409
906	C B/T(F)	SECT1410
907	TWT(310) = DC(3)	SECT1420
908	TWT(311) = DC(3)	SECT1430
909	IF (D(1) - STRFN) 7063,7065,7067	SECT1440

CARD NO	**** CONTENTS ****	
710	7063 TWT(311) = SIFMX/STRMN	SECT1450
711	C	SECT1459
712	C Z(2) TYPE. INTERM. ID. 1=H, 2=F FOR LWR B/T	SECT1460
713	IB*=ND(1)	SECT1470
714	IF (TWT(311) - TWT(309)*TSEC(221)) 7064,7065,7065	SECT1480
715	7064 IB1=ND(2)	SECT1490
716	C	SECT1499
717	C Z(1), Z(2). MAX B/T ID. 1=H, 2=F	SECT1500
718	7065 TWT(310) = SIFMX/STRMN	SECT1510
719	IMX = ND(1)	SECT1520
720	TWT(303) = HSTMN * STRFN*SIFMX	SECT1530
721	IF (TWT(309)*TSEC(221) - TWT(310)) 7066,7067,7067	SECT1540
722	7066 IMX = ND(2)	SECT1550
723	TWT(307) = TWT(310)/TSEC(221)	SECT1560
724	C	SECT1569
725	C MIN STR AREA FOR MIN GEOMETRY, MAX(A)	SECT1570
726	7067 TDC(15) = STR2(TWT(309) * TSEC(225)	SECT1580
727	TWT(304)*STRMN*TWT(306) * TSEC(205)	SECT1590
728	C	SECT1600
729	C FC(START) = FCMAX(1)	SECT1610
730	7068 TDC(195) = TDC(56)	SECT1620
731	TDC(193)=TDC(72)*TKMIN/SKMN	SECT1630
732	C	SECT1640
733	C SETUP STARTING NOS	SECT1650
734	7070 TDC(81)=TDC(68)	SECT1660
735	CALL SFSCH (TDC(68))	SECT1670
736	C	SECT1679
737	C SAVE BI DATA IN BI-1 LOC.	SECT1680
738	707 DO 708 I=1,40	SECT1690
739	TSC(I+80) = TSC(I)	SECT1700
740	708 CONTINUE	SECT1710
741	C	SECT1719
742	C TEST WITH MIN NOS	SECT1720
743	IF (TSC(1) - TDC(190)) 712,712,7090	SECT1730
744	7090 IB=ND(2)	SECT1740
745	TSC(1) =(TSC(81)-D(1))	SECT1750
746	IF (TSC(1)) 712,712,709	SECT1760
747	C	SECT1769
748	C DO BINI	SECT1770
749	709 CALL SFSCH (TSC(1))	SECT1780
750	IF(TSC(83)) TSC(61) 712,710,707	SECT1790
751	710 IF (TSC(114) TSC(34)) 711,711,712	SECT1800
752	C	SECT1809
753	C USE BI DATA, MOVE TO OPT LOC N+80	SECT1810
754	711 DO 713 I=1,40	SECT1820
755	TSC(I+80) = TSC(I)	SECT1830
756	713 CONTINUE	SECT1840
757	C	SECT1850
758	C USE BI-1 DATA	SECT1860
759	C MOVE TO KOPT LOC	SECT1870
760	712 DO 714 I=1,40	SECT1880
761	TDC(I+80) = TSC(I+80)	SECT1890
762	714 CONTINUE	SECT1900
763	C	SECT1909
764	C SAVE Y-BAR FOR NEXT PASS	SECT1910
765	YBUD(ISEC) = TDC(109)	SECT1920
766	C	SECT1930
767	C SETUP TSK*DELTA SKU	SECT1940
768	TWT(150)=SKMN	SECT1950
769	IF (SKMN-TDC(114)) 7120,760,760	SECT1960
770	7120 TWT(150)=TDC(114)*DLSKU	SECT1970
771	C	SECT1980
772	C *** SETUP T(BAR) CORRECTION FACTORS FOR LOWER COVER ***	SECT1990
773	760 TSEC(244) = DC(3)	SECT2000
774	TSEC(243) = DRIS(1)	SECT2010
775	IF (D(2) - STRFN) 7601,7601,7604	SECT2020
776	7601 IF (CMSID) 7602,7603,7602	SECT2030
777	7602 TSEC(243) = DRIS(2)	SECT2040
778	IF (CMSID - D(2)) 7603,7603,7604	SECT2050
779	7603 TSEC(244) = TDC(81)	SECT2060
780	7604 TSEC(242) = TDC(77)*TSEC(239)	SECT2070

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CARD NO  ****                          CONTENTS                          ****
  781          TSEC(244) = TSEC(242)/(TSEC(242)-TSEC(244)*TSEC(243)-D(2)*GRISI3))SECT2080
  782    C                                                                SECT2090
  783    C                                                                SECT2100
  784    C          *** SAVE EFF WT FACTORS ***                           SECT2110
  785          TSEC(241) = TSEC(232)                                      SECT2120
  786          TSEC(242) = TSEC(240)                                      SECT2130
  787          TSEC(243) = TSEC(232)                                      SECT2140
  788    C                                                                SECT2150
  789    C                                                                SECT2160
  790    C                                                                SECT2170
  791    C     MOVE DATA FOR TO FINAL LOC                                 SECT2180
  792    C       SAVE F(L) -- UPPER COVER                                 SECT2190
  793          TDC(103) = TDC(105)                                        SECT2200
  794          TDC(160) = TDC(107)                                        SECT2210
  795          TDC(105) =TDC(110)                                         SECT2220
  796          TDC(107) =TDC(111)                                         SECT2230
  797          TDC(109) =TDC(112)                                         SECT2240
  798    C                                                                SECT2250
  799    C                                                                SECT2260
  800    C     TEST FOR VERTICAL TAIL -- T(UPR)=T(LWR)                    SECT2270
  801     7600 IF (VTID) 7610,7610,761                                    SECT2280
  802    C                                                                SECT2289
  803    C      SET LWR COVER =UPR COVER                                  SECT2290
  804     761  TMT(151)=TMT(150)                                          SECT2300
  805          TDC(87)=TDC(86)                                            SECT2310
  806          TDC(110)=TDC(109)                                          SECT2320
  807          TDC(112)=TDC(114)                                          SECT2330
  808          TDC(111)=TDC(84)                                           SECT2340
  809          TDC(174)=TDC(82)                                           SECT2350
  810          TDC(173) = TDC(95)                                         SECT2360
  811          TSEC(244) = D(1)                                           SECT2370
  812          YBLD(1SEC) = YBUD(1SEC)                                    SECT2390
  813          GO TO 762                                                  SECT2390
  814    C                                                                SECT2400
  815    C                                                                SECT2410
  816    C          *** TEST FOR STR, PL, HP, FDH (0,1,2,3) ***           SECT2420
  817    C               SETUP DATA FOR PL AND FDH                        SECT2430
  818    C            *** NX(LWR) = K(EFF)*NX(UPR) ***                    SECT2440
  819     7610 TDC(167) = DC(3)                                           SECT2450
  820          I = ND(12) - 1SEC                                          SECT2460
  821          TDC(72) = TDC(72)*TSEC(244)/DNXU(I)*DNXL(I)                SECT2470
  822          TDC(168) = TDC(96)                                         SECT2480
  823          IF (D(1) - CNSID) 763,764,7121                             SECT2490
  824    C                                                                SECT2500
  825    C          *** TEST FOR HC, FDH ***                              SECT2510
  826     763  IF (CNSID - D(2)) 7630,7630,764                           SECT2520
  827     7630 TDC(167) = DTCL                                            SECT2530
  828          TDC(168) = TDC(96) - TSEC(226) + TSEC(230)                 SECT2540
  829    C                                                                SECT2549
  830    C               **** PLATES , HC, FDH DATA ****                  SECT2550
  831     764  TDC(87) = TDC(72)/TDC(60)                                  SECT2560
  832          TDC(173) = TDC(168)*TDC(82)                                SECT2570
  833          TDC(112) = TDC(87) - TDC(168)                              SECT2580
  834          TMT(151) = TDC(112)*DLSKL                                  SECT2590
  835          IF (TDC(112) - SKMNL) 7640,7640,7641                       SECT2600
  836     7640 TDC(112) = SKMNL                                           SECT2610
  837          TMT(151) = SKMNL                                           SECT2620
  838          TDC(87)= TDC(112) + TDC(168)                               SECT2630
  839     7641 TDC(166) = TDC(71)/TDC(87)                                 SECT2640
  840    C                                                                SECT2650
  841    C     *** SETUP FOR LWR COVER COMPRESSION. ID=0 FIRST PASS. **   SECT2660
  842          ILWRC = ND(1)                                              SECT2670
  843    C                                                                SECT2679
  844    C               TEST FOR FC(MAX) LWR.                            SECT2680
  845          IF (TDC(162) - TDC(166)) 7642,7644,7644                    SECT2690
  846     7642 TDC(166) = TDC(162)                                        SECT2700
  847     7643 TDC(87) = TDC(71)/TDC(166)                                 SECT2710
  848          TDC(112) = TDC(87) - TDC(168)                              SECT2720
  849          TMT(151) = TDC(112)*DLSKL                                  SECT2730
  850    C                                                                SECT2739
  851    C            EVALUATE FC(LWR) FOR B/T.                           SECT2740
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CARD NO   ****                     CONTENTS                              ****

      7644 CALL SS (TDC(166))                                          SECT2750
           TDC(172) = TDC(87)                                          SECT2750
           TDC(110) = TDC(167)/TDC(112) + D(1)                         SECT2770
     .     IF (TDC(167)) 7658,7658,7657                                SECT2780
      7657 TDC(110) = SQRT (D(3)*TDC(110)*(TDC(110) + D(1))) + D(1))   SECT2790
      7658 TDC(174) = TDC(45)*TDC(110)                                 SECT2800
           TDC(110) = TDC(82)/TDC(112)                                 SECT2810
     C                                                                 SECT2820
     C                                                                 SECT2830
     C           ***TEST FOR HP, FDH ***                               SECT2840
           IF (D(2) - CNSID) 765,765,7645                              SECT2850
     C                                                                 SECT2860
     C      **FDH **                                                   SECT2870
      765  TDC(110) = D(1)                                             SECT2880
           TDC(111) = TDC(72)/TDC(87)                                  SECT2890
           TDC(174) = D(1)                                             SECT2900
           TDC(169) = DC(3)                                            SECT2910
           TDC(170) = DC(3)                                            SECT2920
           TDC(171) = TSEC(228)/D(2)                                   SECT2930
           YBLD(ISEC) = YBUD(ISEC)*TDC(87)/TDC(88)                     SECT2940
           GO TO 7651                                                  SECT2950
     C                                                                 SECT2959
      7650 TDC(169) = TSEC(231)                                        SECT2960
           TDC(170) = TDC(91)                                          SECT2970
           TDC(171) = TSEC(2..)                                        SECT2980
      7651 TDC(120) = TDC(112)/TDC(114)                                SECT2990
           TDC(113) = TDC(87) + TDC(170) + TDC(171) + TDC(1..)         SECT3000
           GO TO 750                                                   SECT3010
     C                                                                 SECT3020
     C                                                                 SECT3030
     C      *** PL, HC    TEST FOR PASS NO = 1 OR 2                    SECT3040
      7645 IF (ILWRC - ND(2)) 7646,7649,7648                           SECT3050
     C                                                                 SECT3059
     C       *** PASS 1   TEST B/T(ALLOWABLE) TO B/T(ACTUAL) ***       SECT3060
      7646 IF (TDC(174)- TDC(110)) 7647,7649,7649                      SECT3070
     C                                                                 SECT3080
     C         SEARCH FOR FC AT B/T(ALLOWABLE) = B/T(ACTUAL)           SECT3090
     C     SET ID=2   SAVE UPPER COVER DATA - TDC(72,194), TSC(2), DTC(D4(62)SECT3100
      7647 ILWRC = ND(2)                                               SECT3110
           TDC(169) = DTC                                              SECT3120
           TDC(170) = TSC(2)                                           SECT3130
           TDC(171) = TDC(194)                                         SECT3140
           TDC(120) = TDC(72)                                          SECT3150
     C     SET LOWER COVER DATA FOR BOT SURF   SET IKI= 2(ND(32))      SECT3160
           DTC=DTCL                                                    SECT3170
           TDC(194) = TDC(168)*TDC(82)                                 SECT3180
           TSC(2) = TDC(82)                                            SECT3190
           TDC(72) = TDC(71)                                           SECT3200
           IKI = ..(2)                                                 SECT3210
           CALL BU.                                                    SECT3220
           TDC(113) = TSC(38))                                         SECT3230
     C                                                                 SECT3239
     C                TEST WITH FC(I-1)                                SECT3240
           IF (TDC(113) - TDC(166)) 7659,7648,7648                     SECT3250
      7659 TDC(166) = TDC(113)                                         SECT3260
           GO TO 7643                                                  SECT3270
     C                                                                 SECT3280
     C      ** SECOND PASS COMPLETE   RESET DATA **                    SECT3290
      7648 DTC = TDC(169)                                              SECT3300
           TSC(2) = TDC(170)                                           SECT3310
           TDC(194) = TDC(171)                                         SECT3320
           TDC(72) = TDC(120)                                          SECT3330
     C                                                                 SECT3340
     C       **** CALC FT(LWR)   TEST FOR PL, HP. ****                 SECT3350
      7649 TDC(111) = TDC(72)/TDC(87)                                  SECT3360
           IF (CNSID - D(1)) 7660,7660,7661                            SECT3370
      7660 YBLD(ISEC) = YBUD(ISEC)*TDC(87)/TDC(88)                     SECT3380
           GO TO 762                                                   SECT3390
     C                                                                 SECT3399
      7661 YBLD(ISEC) = YBUD(ISEC)*(DTCL + TDC(87))/(DTC + TDC(88))    SECT3400
           GO TO 7650                                                  SECT3410
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CARD NO  ****                          CONTENTS                          ****
  923    C                                                                SECT3420
  924    C     RESET KOPT DATA TO FINAL FORMAT                            SECT3430
  925    C     SETUP LOWER COVER --ASSUME SIMILAR TO UPPER COVER IN CONSTRUCTION SECT3440
  926    C     COMPUTE GEOMETRIC CONSTANTS                                SECT3450
  927    C      TEST FOR ALPHA=1/KSKLWR *,- ALPHA UPR --- USE SMALLER VALUE SECT3460
  928     7121 TDC(180) = TDC(88)/TDC(114)                                SECT3470
  929          TDC(188)=D(1)/THPNL                                        SECT3480
  930          IF (TDC(188)-TDC(189)) 7122,7123,7123                      SECT3490
  931     7122 TDC(188)=TDC(188)                                          SECT3500
  932     7123 TDC(188)= TDC(97)/TDC(114)                                 SECT3510
  933          TDC(187)=(TDC(188)-D(1))/TDC(188)                          SECT3520
  934          TDC(171)=TDC(187)*TDC(188)                                 SECT3530
  935          TDC(170) = TDC(171)*TDC(187)/D(2)                          SECT3540
  936          TDC(171)=TDC(171)*TDC(187)/D(3)*TDC(187)                   SECT3550
  937    C                                                                SECT3560
  938    C      TBAR LWR COMP.                                            SECT3560
  939          TDC(172)= SQRT (TDC(71)*TDC(100)/(TDC(185)*TDC(183)))      SECT3570
  940          TDC(188)=TDC(71)/TDC(172)                                  SECT3580
  941          IF (TDC(182) - TDC(188)) 740,741,741                       SECT3590
  942     740  TDC(172)= TDC(71)/TDC(182)                                 SECT3600
  943          \DC(188)=TDC(182)                                          SECT3610
  944     741  TDC(87)=TDC(72)/TDC(60)                                    SECT3620
  945          IF (TDC(87)-TDC(172)) 742,743,743                          SECT3630
  946     742  TDC(87)=TDC(172)                                           SECT3640
  947     743  TDC(112)=TDC(87)/TDC(188)                                  SECT3650
  948    C                                                                SECT3660
  949    C      SETUP DELTA SKL*TSKL                                      SECT3660
  950          TWT(151)=TDC(112/A\SKL                                     SECT3670
  951          IF (TDC(112) -SKPNL) 744,744,745                           SECT3680
  952     744  TDC(112)= SKPNL                                            SECT3690
  953          TWT(151)= SKPNL                                            SECT3700
  954          TDC(87) = TDC(112)*TDC(189)                                SECT3710
  955    C                                                                SECT3719
  956    C      COMPUTE BSTR LWR                                          SECT3720
  957     745  TDC(174)= SQRT ((TDC(71)*TDC(100)*TDC(100) / (PI*PI*TDC(183) *TDC(SECT3730
         187))) * (TDC(188)/TDC(171)-(TDC(170)*TDC(170)/TDC(188))))      SECT3740
  959    C                                                                SECT3749
  960    C     TEMP CARD FOR BSTR LWR                                     SECT3750
  961          TDC(174) = TDC(82)                                         SECT3760
  962          TDC(173)=TDC(174)*(TDC(87)-TDC(112))                       SECT3770
  963          IF (TDC(173)-TDC(194))746,747,747                          SECT3780
  964     746  TDC(173)=TDC(194)                                          SECT3790
  965          TDC(87)=TDC(112) + (TDC(173)/TDC(174))                     SECT3800
  966    C                                                                SECT3809
  967    C      SETUP SUM TBAR LWR, FTL, BOT LWR                          SECT3810
  968     747  TDC(111)=TDC(72)/TDC(87)                                   SECT3820
  969          TDC(110)=TDC(174)/TDC(112)                                 SECT3830
  970    C                                                                SECT3840
  971    C       ***TEMP YBAR(LWR) (STR) ****                             SECT3850
  972     7470 TDC(174) = (TDC(87) - TDC(112))/TDC(98)                    SECT3860
  973          IF (D(1) - TDC(174)) 7471,7471,7472                        SECT3870
  974     7471 TDC(174) = D(1)                                            SECT3880
  975     7472 YBLD(ISEC) = (TDC(88)*YBUD(ISEC) - TDC(114)/D(2)*TDC(114))/TDC(88)SECT3890
         ) - TDC(114)                                                     SECT3900
  976          TDC(174) = ((YBLD(ISEC)*TDC(174)*HSTPN/TDC(98) + TDC(112))*(TDC(87SECT3910
         )) - TDC(112)) + TDC(112)/D(2)*TDC(112))/TDC(87)                 SECT3920
  977          YBLD(ISEC) = TDC(174)                                      SECT3930
  978    C                                                                SECT3940
  979     782  TDC(120)= TDC(112)/TDC(114)                                SECT3950
  980          TDC(188)= TDC(120)*TDC(90)                                 SECT3960
  981          TDC(171)= TDC(120)*TDC(93)                                 SECT3970
  982          TDC(178)= TDC(91)*TDC(87)/TDC(88)                          SECT3980
  983          TDC(113)= TDC(87)*TDC(90)*TDC(91) + TDC(93)                SECT3990
  984    C                                                                SECT4000
  985    C       RESET FIL) FOR PRINT                                     SECT4010
  986          TDC(188) = TDC(188)                                        SECT4020
  987    C                                                                SECT4030
  988    C             ****RESET NX(UPR)****                              SECT4040
  989     788  I = ND(12) - ISEC                                          SECT4050
  990          TDC(72) = TDC(72)/TSEC(PW)*CHOU(I)/CHOL(I)                 SECT4060
  991    C                                                                SECT4070
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CARD NO	**** CONTENTS ****	
994	C	SECTN4080
995	C	SECTN4090
996	C FRONT AND REAR SPARS	SECTN4100
997	C FRONT SPAR - ST. ID=1	SECTN4110
998	7500 IHLB = ND(1)	SECTN4120
999	C	SECTN4130
1000	CALL STHEB (TDC(75),TDC(63))	SECTN4140
1001	C	SECTN4150
1002	C	SECTN4160
1003	DO 753 I=1,6	SECTN4170
1004	TDC(I+178) = TSS(I+3)	SECTN4180
1005	753 CONTINUE	SECTN4190
1006	C	SECTN4200
1007	C	SECTN4210
1008	C	SECTN4220
1009	C	SECTN4230
1010	C SAVE THRS X DELTA RSW	SECTN4240
1011	TMT(152)=TSS(29)	SECTN4250
1012	IF (TSS(29) - TDC(180)) 7530,7531,7531	SECTN4260
1013	7530 TMT(152)=TDC(1 *DLRSW	SECTN4270
1014	C	SECTN4280
1015	C REAR SPAR ST	SECTN4290
1016	7531 IHLB ND(2)	SECTN4300
1017	C	SECTN4310
1018	CALL STHEB (TDC(76),TDC(70))	SECTN4320
1019	DO 754 I=1,6	SECTN4330
1020	TDC(I+185) = TSS(I+3)	SECTN4340
1021	754 CONTINUE	SECTN4350
1022	C	SECTN4360
1023	C	SECTN4370
1024	C	SECTN4380
1025	C	SECTN4390
1026	C SAVE THRS X DELTA RSW	SECTN4400
1027	TMT(153)=TSS(29)	SECTN4410
1028	IF (TSS(29) TDC(187)) 7540,730,730	SECTN4420
1029	7540 TMT(153)=TDC(187)*DLRSW	SECTN4430
1030	C	SECTN4440
1031	C	SECTN4450
1032	C SET DELTA TW LOC TO ZERO - COVERS AND FS/RS	SECTN4460
1033	730 DO 731 I=1,4	SECTN4470
1034	TDC(I+115) =DC(3)	SECTN4480
103	TDC(I+174)=DC(3)	SECTN4490
1036	TSC(I+35)=DC(3)	SECTN4500
1037	731 CONTINUE	SECTN4510
1038	TDC(120) = DC(3)	SECTN4520
1039	TDC(185) = DC(3)	SECTN4530
1040	TDC(192) = DC(3)	SECTN4540
1041	C	SECTN4550
1042	C EXIT STRENGTH WEIGHT ANALYSIS	SECTN4560
1043	GO TO 799	SECTN4570
1044	C	SECTN4580
1045	C	SECTN4590
1046	C VF CALC, TEST DELTA	SECTN4600
1047	C 3=CONST (I=1)	SECTN4610
1048	C TSC(80) NOS(MAX), TSC(79)=NOS(MIN),	SECTN4620
1049	C COMPUTE TOTAL PENALTIES -- TEST EACH COMPONENT	SECTN4630
1050	C	SECTN4640
1051	C UPPER COVER	SECTN4650
1052	400 IF (TDC(116)) 721,721,715	SECTN4660
1053	C	SECTN4669
1054	C TWF(FEOD)= TSK* DELTA TW	SECTN4670
1055	715 TWF= ND(2)	SECTN4680
1056	TSS(99)=TMT(150)+TDC(116)	SECTN4690
1057	TSC(79)=TDC(81)	SECTN4700
1058	C	SECTN4710
1059	C TEST FOR STR ORIENTATION	SECTN4720
1060	IF (IDWF - ND(2)) 7150,717,717	SECTN4730
1061	C	SECTN4740
1062	C OPT SEARCH FOR V.F	SECTN4750
1063	7150 TSC(80)=TDC(150)	SECTN4760
1064	GO TO 7170	SECTN4770

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CARD NO  ****                          CONTENTS                          ****
1065     C                                                                SECT4780
1066     C       CONST. 0 OR NOS. -- USE OPT STRUCT. NOS + MIN AND MAX    SECT4790
1067      717  TSC(80)= TDC(81)                                           SECT4800
1068     C                                                                SECT4810
1069     C      SETUP FOR SEARCH  IB=1 FOR FIRST PASS                     SECT4820
1070      7170 TSC(1)=TSC(79)                                            SECT4830
1071           IB=ND(1)                                                  SECT4840
1072           CALL SFSCH (TSC(1))                                       SECT4850
1073     C                                                                SECT4860
1074     C      SAVE 35 CELLS-- TSC(1)---TSC(35) TO TSC(41)---TSC(75)     SECT4870
1075      719  DO 7190 I=1,35                                            SECT4880
1076           TSC(I+40)=TSC(I)                                          SECT4890
1077      7190 CONTINUE                                                  SECT4900
1078     C                                                                SECT4909
1079     C       TEST FOR NOS SEARCH                                      SECT4910
1080           IF (TSC(80) - TSC(1)) 7180,720,720                        SECT4920
1081     C     SETUP IB=1                                                 SECT4930
1082      7180 TSC(1)=TSC(40) -D(1)                                      SECT4940
1083           IF (TSC(1)) 720,720,718                                   SECT4950
1084      718  CALL SFSCH (TSC(1))                                       SECT4960
1085     C                                                                SECT4969
1086     C     TEST TBARS                                                 SECT4970
1087           IF (TSC(6) - TSC(46)) 7181,720,720                        SECT4980
1088      7181 IB=ND(2)                                                  SECT4990
1089           GO TO 719                                                 SECT5000
1090     C                                                                SECT5010
1091     C      OPT WF SECT. FOUND -- COMPUTE DELTA WF --SIR,RIBS,MISC. SK.,ATT. SECT5020
1092      720  TDC(120)= TSC(49)-TDC(89)                                 SECT5030
1093           TDC(118) = TSC(56) - TDC(96)                              SECT5040
1094           TSC(36)= TSC(50)+TSC(53) TDC(90)-TDC(93)                  SECT5050
1095           TSC(39)= TSC(52)-TDC(92)                                  SECT5060
1096           TSC(37)= TSC(51)-TDC(91)                                  SECT5070
1097           GO TO 722                                                 SECT5080
1098     C                                                                SECT5090
1099     C       SAVE STRUCT DATA IN WF BLOCK                             SECT5100
1100      721  DO 7220 I=1,35                                            SECT5110
1101           TSC(I+40) = TSC(I)                                        SECT5120
1102      7220 CONTINUE                                                  SECT5130
1103     C                                                                SECT5140
1104     C                                                                SECT5150
1105     C      TEST DELTA TWF (HR -- TWF(EQU)= (D(UPR)/D(LWR))XTWF(EQD)  SECT5160
1106      722  TSC(38) = DC(3)                                           SECT5170
1107           IF (TDC(117)) 727,727,724                                 SECT5180
1108     C                                                                SECT5190
1109     C       COMPUTE LOWER COVER PENALTIES                            SECT5200
1110     C       TEST FOR VERT.                                           SECT5210
1111      724  IF (VTID) 725,725,7240                                    SECT5220
1112      7240 TDC(117)=TDC(116)                                         SECT5230
1113      725  TWT(164)= TDC(87)/TDC(88)                                 SECT5240
1114           TDC(119)=TDC(118)*TWT(164)                                SECT5250
1115           TSC(38)=TSC(36)*TWT(164)                                  SECT5260
1116           TSC(37) = TSC(37)*TWT(164) + TSC(37)                      SECT5270
1117     C                                                                SECT5280
1118     C                                                                SECT5290
1119     C                                                                SECT5300
1120     C                                                                SECT5310
1121     C                                                                SECT5320
1122     C              *FS/RS PENALTIES*                                 SECT5330
1123      727  TDC(177) = TDC(69)*TDC(175)                               SECT5340
1124           TDC(178) = TDC(70)*TDC(176)                               SECT5350
1125           TDC(185) = TDC(177)                                       SECT5360
1126           TDC(192) = TDC(178)                                       SECT5370
1127     C                                                                SECT5380
1128     C                                                                SECT5410
1129     C                                                                SECT5420
1130     C       EXIT                                                     SECT5430
1131      799  RETURN                                                    SECT5440
1132           END                                                       SECT5450
1133     C*****************************************************************
1134     C
1135     C       *****SUBROUTINE SFSCH*****
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CARD NO **** CONTENTS ****

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1136      C   ***SEARCH LEVEL 2 CONTROL - ALLOWABLE DESIGN STRESSES***
1137      C
1138      C*****************************************************************
1139      C
1140            SUBROUTINE SFSCH (BSTR)                                    SFSC0010
1141      C                                                                SFSC0011
1142      C     FC SEARCH SUBROUTINE, GIVEN BI, WFID AND BID               SFSC0020
1143      C                                                                SFSC0030
1144      C                                                                SFSC0070
1145      C     IWF1 TSK SEARCH ID  1=OPT TSK, 2= TWF, 3=TSK(INPUT)        SFSC0080
1146      C      IBI=1 START AT FCMAX,  =2 USE FCI-1                       SFSC0090
1147      C      BSTR = NO OF STR                                          SFSC0100
1148      C                                                                SFSC0140
1149            COMMON T(2060),D(2060),CD(2000),ND(100)                    SFSC0150
1150      C                                                                SFSC0160
1151            DIMENSION                                  DC(100),        SFSC0170
1152           1TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300)              SFSC0180
1153           2,DRIS(4),DNXU(11),DNXL(11)                                 SFSC0181
1154      C                                                                SFSC0190
1155            EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),  SFSC0200
1156           1(DC(1),D(1401)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),      SFSC0201
1157           2(DNXU(1),D(931)),(DNXL(1),D(942)),(DRIS(1),D(975)),        SFSC0202
1158           3(STRFN,D(361)),(SKMN,D(370)),(CNSID,D(461)),               SFSC0203
1159           4(STRSX,D(455)),(STRRO,D(456)),                             SFSC0204
1160           5(TKXMN,TDC(64)),(TKMX,TDC(65)),                            SFSC0205
1161           6(IB,ND(52)),(IWF,ND(51)),(KFC,ND(49)),(IHX,ND(47)),        SFSC0206
1162           7(I02,ND(46)),(I01,ND(45)),(LF3,ND(44)),(LF2,ND(43)),(LF1,ND(42)),  SFSC0207
1163           8(IL,ND(40)),(IK,ND(39)),(IKT,ND(32)),(IN,ND(30)),(ISC,ND(86)),  SFSC0208
1164           9(ISEC,ND(55)),(N,ND(31)),(I,ND(29))                        SFSC0209
1165      C                                                                SFSC0210
1166      C                                                                SFSC0220
1167      C                                                                SFSC0270
1168      C                                                                SFSC0280
1169      C     SETUP B AND MOVE IDS                                       SFSC0290
1170      C                                                                SFSC0300
1171      C                                                                SFSC0310
1172       3001 TSC(1)=BSTR                                                SFSC0320
1173            TSC(3) =TDC(195)                                           SFSC0330
1174            TSS(12) = TDC(195)                                         SFSC0340
1175            TSC(2)= TDC(77)/(TSC(1) *D(1))                             SFSC0350
1176      C                                                                SFSC0360
1177      C        *** SETUP K(CAPS/SPARS), K(RIBS) FOR STR, PL, HP, FDH. ***  SFSC0370
1178      C              **ADD NET EFF WIDTH FOR TENSION**                 SFSC0371
1179            TSEC(232) = TSC(1)/(TSC(1)*D(1))                           SFSC0380
1180            TSEC(260) = DRIS(2)                                        SFSC0390
1181            TSEC(244) = TSC(1)                                         SFSC0400
1182            TSEC(233) = (TSC(1) + D(2))/TS/(1)                         SFSC0410
1183      C             **TEST CONST **                                    SFSC0420
1184            IF (CNSID - D(2)) 3002,3009,3006                           SFSC0430
1185      C             **TEST FOR STR OR H/SPAR**                         SFSC0440
1186       3002 IF (CNSID) 3003,3003,3008                                  SFSC0450
1187       3003 IF (STRFN - D(1)) 3006,3006,3007                           SFSC0460
1188       3006 TSEC(244) = DC(3)                                          SFSC0470
1189       3007 TSEC(232) = D(1)                                           SFSC0480
1190            TSEC(260) = DRIS(1)                                        SFSC0490
1191       3008 TSEC(233) = TSEC(232)                                      SFSC0500
1192      C            ***CALC REQD T-BAR INSERTS, EFF TENSION WIDTH DATA***  SFSC0509
1193       3009 TSEC(226) = TSEC(225)/TSC(2)*TSEC(232)                     SFSC0510
1194            TSEC(230) = TSEC(229)/TSC(2)*TSEC(232)                     SFSC0520
1195            TSEC(261) = TDC(77)*TSEC(239)                              SFSC0521
1196            TSEC(244) = TSEC(261)/(TSEC(261)-TSEC(244)*TSEC(260)-D(2)*DRIS(2  )SFSC0522
1197      C                                                                SFSC0530
1198      C     SETUP LOC OF F1,F2,F3 DATA                                 SFSC0540
1199            LF1=ND(13)                                                 SFSC0550
1200            LF2=ND(14)                                                 SFSC0560
1201            LF3=ND(15)                                                 SFSC0570
1202      C                                                                SFSC0571
1203      C            ***CALC. FC(L**) FOR T-BAR SET BY TENSION***        SFSC0572
1204      C              FC=(KXC*FT)/(KXT). KXT=KX(L)*KW(EFF)*KNXU/KNXL   SFSC0573
1205            I =ND(12) - ISEC                                           SFSC0574
1206            TSS(67) = TDC(72)/TDC(71)*DNXL(11)/DNXU(11)*TDC(49) TSEC(244)  SFSC0575
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CARD NO  ****                          CONTENTS                          ****
1207      3010 IF ( TSS(67) ) 300,300,3004                                SFSC0570
1208      3004 IF ( TSS(67) - TSC(3) ) 3005,300,300                       SFSC0579
1209      3005 TSC(3) = TSS(67)                                           SFSC0577
1210           TSS(12) = TSS(67)                                          SFSC0578
1211      C                                                               SFSC0580
1212      C       TEST FOR OPT, TVF, OR TSK INPUT                         SFSC0590
1213       300  IF (ND(2) - IVF) 302,301,302                              SFSC0600
1214      C                                                               SFSC0610
1215      C       TVF SEARCH - USE OPTIST) FCOR                           SFSC0620
1216       301  TSS(12) = TDC(84)                                         SFSC0630
1217            TSS(67) = TSS(99)                                          SFSC0640
1218            GO TO 303                                                  SFSC0650
1219      C                                                               SFSC0660
1220      C       ST TSK  OPT OR INPUT -- TEST IB                         SFSC0670
1221       302  TSS(67) = 9999                                            SFSC0680
1222            IF (ND(1) - IB) 420,303,303                                SFSC0690
1223       420  TSS(12) = TSC(84)                                         SFSC0700
1224      C                                                               SFSC0710
1225      C       SETUP CONTROL POINTS                                    SFSC0720
1226       303  TSS(100) = TSC(2)/TSS(67)                                 SFSC0730
1227            TSS(67) = TDC(72)/(TDC(194)/TSC(2)*TSEC(232) + TSS(67))   SFSC0740
1228            IF (TSS(67)-TSC(3)) 422,423,423                            SFSC0750
1229       422  TSC(3) = TSS(67)                                          SFSC0760
1230      C                                                               *FSC0761
1231      C            ***KSK RANGE TEST WITH ABS MAX KSK=F(KSTR,BSTR,LMIN(STR))*SFSC0762
1232      C              *KSK(A/MAX)= BSTR/(BSTR + KSTR*LMIN(STR))*       SFSC0762
1233      C              *KSK(A/MAX)= BSTR/(BSTR + KSTR*LMIN(STR))*       SFSC0763
1234      C              *CHECK WITH REQD MAX. SET REQD TO ABS MAX IF GREATER  SFSC0764
1235      C              *CHECK REQD MIN. SET TO .70 ABS MAX IF (A) RANGE REQD,  SFSC0765
1236      C               (B) IF MIN GREATER THAN ABS MAX*                  SFSC0766
1237      C            ***CHECK ONLY IF STR CONST***                        SFSC0767
1238       423  TSEC(262) = TKXMN                                          SFSC0770
1239            TSEC(263) = TKXMX                                          SFSC0771
1240            IF (CNSID) 4230,4230,4239                                  SFSC0772
1241       4230 TSC(412) = STRSK                                           SFSC0775
1242            IF (STRSK) 4231,4231,4232                                  SFSC0776
1243       4231 TSC(412) = STRRO                                           SFSC0780
1244       4232 TSC(412) = TSC(2)/(TSC(412)*TWT(305) + TSC(2))             SFSC0781
1245            IF (TSC(412) - TKXMX) 4233,4239,4239                       SFSC0782
1246       4233 TKXMX = TSC(412)                                           SFSC0785
1247            IF (TKXMN - TKXMX) 4234,4235,4235                          SFSC0786
1248       4234 IF (TSC(412) - 1.1*TKXMN) 4235,4236,4236                   SFSC0790
1249       4235 TKXMN = 0.70*TSC(412)                                      SFSC0791
1250            GO TO 4239                                                 SFSC0795
1251       4236 TKXMN = TSC(412)                                           SFSC0800
1252       4239 TSC(412) = TKXMX                                           SFSC0805
1253      C                                                               SFSC0809
1254      C              EEE TEST FOR FOH ***                             SFSC0810
1255            IF (CNSID - D(21)) 4240,4240,480                           SFSC0820
1256       4240 IK1= ND(2)                                                 SFSC0830
1257      C                                                               SFSC0840
1258      C       **** SETUP CAP AREA FOR NX CALC. ( PL OR HP) ****        SFSC0850
1259            TDC(194) = TDC(194)*TSEC(232)                              SFSC0860
1260            CALL BOT                                                   SFSC0870
1261      C                  RESET CAP AREA TO K=1.0                      SFSC0880
1262            TDC(194) = TDC(194)/TSEC(232)                              SFSC0890
1263            TDC(196) = TSC(381)                                        SFSC0900
1264            IF (TDC(196) - TSC(3)) 424,425,425                         SFSC0910
1265       424  TSC(3) = TDC(196)                                         SFSC0920
1266      C                                                               SFSC0930
1267      C       **** TEST CONST.  MIN GAGE TEST FOR B/T  IN STR. CASE ONLY ** SFSC0940
1268       425  IF (CNSID) 490,4250,490                                   SFSC0950
1269      C                                                               SFSC0960
1270      C          SET B/T (MIN).  ID=1                                 SFSC0970
1271       4250 TSC(409) = TSS(100)                                        SFSC0980
1272            IK1 = ND(1)                                                SFSC0990
1273      C       **** SETUP CAP AREA FOR NX CALC. ( PL OR HP) ****        SFSC1000
1274            TDC(194) = TDC(194)*TSEC(232)                              SFSC1010
1275            CALL BOT                                                   SFSC1020
1276      C                  RESET CAP AREA TO K=1.0                      SFSC1030
1277            TDC(194) = TDC(194)/TSEC(232)                              SFSC1040
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CARD NO  ****                          CONTENTS                          ****
1278           TSS(100) = TSC(381)                                        SFSC1050
1279      425  IF (TSC(3) - TSS(102)) 426,427,427                         SFSC1060
1280      426  TSC(3) = TSS(100)                                          SFSC1070
1281      C                                                               SFSC1080
1282      C       FCMAX = TSC(3),  FC START = TSS(67)                     SFSC1090
1283      427  TSS(67) = TSS(12)                                          SFSC1100
1284      C                                                               SFSC1110
1285      4270 IF (TSC(3) - TSS(67) - TOC(50)) 431,306,306                SFSC1120
1286      C      SETUP FC3 =FCSO                                          SFSC1130
1287      431  TSS(67) = TSC(3)                                           SFSC1140
1288           TSS(12) = TSS(67)                                          SFSC1150
1289      C                                                               
1290      C     SET ID FOR TSCH TRACE              ISG = 1               
1291      C                                                               
1292      306  ISG=ND(1)                                                  SFSC1160
1293           CALL TSCH(TSS(12))                                         SFSC1161
1294           IF (ND(2) - TOL) 304,305,307                               SFSC1170
1295      C      L1=LMAX, TEST FCMAX                                      SFSC1180
1296      304  DO 432 I=1,35                                              SFSC1190
1297           IN=I+LF3                                                   SFSC1200
1298      432  TSC(I)=TSC(I+380)                                          SFSC1210
1299           TSS(9) = TSC(383)                                          SFSC1220
1300      433  IF (TSS(12)-TSC(3)) 350,309,309                           SFSC1240
1301      C     USE F3 DATA, MOVE TO 1 LOC                               SFSC1250
1302      309  N=LF3                                                      SFSC1260
1303      330  DO 310 I=1,35                                              SFSC1270
1304           IN=I+N                                                     SFSC1280
1305      310  TSC(I+380)=TSC(IN)                                         SFSC1290
1306           GO TO 399                                                  SFSC1310
1307      C      F3 TOO LARGE, SET=FCMAX!                                 SFSC1320
1308      305  TSC(3)= TSS(12)                                            SFSC1330
1309           TSS(12)=D(30)*TSC(12)                                      SFSC1340
1310           GO TO 306                                                  SFSC1350
1311      C      F3 OK SAVE DATA AND LOC OF DATA  35 CELLS PER BLOCK      SFSC1360
1312      C                                                               SFSC1370
1313      C                                                               SFSC1380
1314      C            *** FOR CASE:  FCMAX, B=1.0  ***                   SFSC1390
1315      400  TSS(12) = TSC(3)                                           SFSC1400
1316           TSC(2) = D(1)                                              SFSC1410
1317           GO TO 492                                                  SFSC1420
1318      C                                                               SFSC1430
1319      C                                                               SFSC1440
1320      C                                                               SFSC1450
1321      C          ***PLATES AND H/C ***                                SFSC1460
1322      490  TSS(67) = TSS(12)                                          SFSC1470
1323      4900 IF (TSC(3) - TSS(67)) 491,493,492                          SFSC1480
1324      491  TSS(67) = TSC(3)                                           SFSC1490
1325           TSS(12) = TSC(3)                                           SFSC1500
1326           GO TO 493                                                  SFSC1510
1327      492  TSC(3) = TSS(67)                                           SFSC1520
1328      C                                                               
1329      C     SET ID FOR TSCH TRACE              ISG = 2               
1330      C                                                               
1331      493  ISG=ND(2)                                                  SFSC1530
1332           CALL TSCH(TSS(12))                                         SFSC1531
1333           GO TO 399                                                  SFSC1540
1334      C                                                               SFSC1550
1335      C                                                               SFSC1560
1336      307  DO 308 I=1,35                                              SFSC1570
1337      308  TSC(I+190)=TSC(I+380)                                      SFSC1580
1338           TSS(9)= TSC(383)                                           SFSC1600
1339      C     TEST SLOPE AT F3                                         SFSC1610
1340           TSS(11)=D(37)*TSS(12)                                      SFSC1620
1341      C                                                               
1342      C     SET ID FOR TSCH TRACE              ISG = 3               
1343      C                                                               
1344           ISG=ND(3)                                                  SFSC1629
1345           CALL TSCH (TSS(11))                                        SFSC1630
1346           IF (ND(1 - ND(2)) 311,433,433                              SFSC1640
1347      311  TSS(8)= TSC(383)                                           SFSC1650
1348           IF (TSS(9)-TSS(8)) 433,302,312                             SFSC1660
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CARD NO	**** CONTENTS ****	
1349	C SEARCH FC LESS THAN F3, SETUP F2AND F1	SFSC1670
1350	312 TSS(11)=D(38)*TSS(12)	SFSC1680
1351	NFC=ND(1)	SFSC1690
1352	C	
1353	C SET ID FOR TSCH TRACE ISG = 4	
1354	C	
1355	320 ISG=ND(4)	SFSC1700
1356	CALL TSCH(TSS(11))	SFSC1701
1357	IF (101 - ND(2)) 313,310,313	SFSC1710
1358	313 TSS(8)= TSC(383)	SFSC1720
1359	DO 314 I=1,35	SFSC1730
1360	IN=I+LF2	SFSC1740
1361	314 TSC(IN)=TSC(I+380)	SFSC1750
1362	IF (NFC - ND(2)) 3140,3141,3140	SFSC1770
1363	3140 IF (TSS(8)-TSS(9)) 3141,321,324	SFSC1780
1364	3141 NFC=ND(2)	SFSC1790
1365	IF (101 - ND(2))315,315,324	SFSC1800
1366	C DO F1 DATA	SFSC1810
1367	315 TSS(10) = TSS(11) - D(38)*(TSS(12) - TSS(11))	SFSC1820
1368	IF (TSS(10) - TDC(50)/D(38)) 329,329,323	SFSC1825
1369	C	
1370	C SET ID FOR TSCH TRACE ISG = 5	
1371	C	
1372	323 ISG=ND(5)	SFSC1830
1373	CALL TSCH(TSS(10))	SFSC1831
1374	IF (101 - ND(2)) 316,321,316	SFSC1840
1375	316 TSS(7)= TSC(383)	SFSC1850
1376	DO 3161 I=1,35	SFSC1860
1377	IN=I+LF1	SFSC1870
1378	3161 TSC(IN)=TSC(I+3	SFSC1880
1379	C INTERPOLATION NO 1	SFSC1900
1380	326 IK=ND(1)	SFSC1910
1381	CALL BGSP (TSS(40),TSS(7))	SFSC1920
1382	3262 IF (IL - ND(2)) 327,340,331	SFSC1930
1383	C LEFT, MOVE 1 AND 2 TO 2 AND 3	SFSC1940
1384	327 IF (TSS(11) - TSS(10) - TDC(50)/D(38)) 328,317,317	SFSC1950
1385	328 IF (TSS(8)-TSS(7))329,329,344	SFSC1960
1386	C USE F2 DATA	SFSC1970
1387	329 M=LF2	SFSC1980
1388	GO TO 330	SFSC1990
1389	317 TSS(9)= TSS(8)	SFSC2000
1390	TSS(8)= TSS(7)	SFSC2010
1391	TSS(12)=TSS(11)	SFSC2020
1392	TSS(11)= TSS(10)	SFSC2030
1393	M=LF3	SFSC2040
1394	LF3=LF2	SFSC2050
1395	LF2=LF1	SFSC2060
1396	LF1=M	SFSC2070
1397	GO TO 315	SFSC2080
1398	C F2 NG, TEST EPS FC 0,+ USE F3 DATA	SFSC2090
1399	318 IF (TSS(12) - TSS(11) - TDC(50)*D(38)) 309,319,319	SFSC2100
1400	319 TSS(11)= (TSS(11) + TSS(12))/D(2)	SFSC2110
1401	GO TO 2	SFSC2120
1402	C F1 NG TEST EPS FC 0,+,USE F2,F3 -=LOOP	SFSC2130
1403	321 IF (TSS(11) - TSS(10) - D(38)*TDC(50)) 324,324,322	SFSC2140
1404	322 TSS(10)=(TSS(10)+TSS(11)/D(2)	SFSC2150
1405	GO TO 323	SFSC2160
1406	324 TSS(7)=TSS(8)	SFSC2170
1407	TSS(8)=TSS(9)	SFSC2180
1408	M=LF1	SFSC2190
1409	LF1=LF2	SFSC2200
1410	330 LF2=M	SFSC2210
1411	TSS(11)= (TSS(10)+TSS(12))/D(2)	SFSC2220
1412	IF (TSS(12) - TSS(10) - D(38)*TDC(50)/D(2)) 343,343,3540	SFSC2225
1413	C	
1414	C SET ID FOR TSCH TRACE ISG = 6	
1415	C	
1416	3540 ISG = ND(6)	SFSC2229
1417	CALL TSCH (TSS(11))	SFSC2230
1418	IF (101 - ND(2)) 325,343,325	SFSC2240
1419	325 TSS(8)=TSC(383)	SFSC2250

CARD NO	****	CONTENTS	****
1426		DO 337 I=1,35	SFSC2260
1427		IN=I+LF2	SFSC2270
1428	337	TSC(IN)=TSC(I+300)	SFSC2280
1429		GO TO 326	SFSC2300
1424	C	ID=3 EXTRAP. RIGHT TEST WITH FMAX	SFSC2310
1425	331	IF (TSS(12)/D(37) - TSC(3)) 332,309,309	SFSC2320
1426	C	MOVE 2,3 TO 1AND 2	SFSC2330
1427	332	DO 333 I=1,2	SFSC2340
1428		TSS(I+6)=TSS(I+7)	SFSC2350
1429	333	TSS(I+9)=TSS(I+10)	SFSC2360
1430		N=LF1	SFSC2380
1431		LF1=LF2	SFSC2390
1432		LF2=LF3	SFSC2400
1433		LF3=N	SFSC2410
1434		TSS(12) = (TSS(12) - TSC(3))/D(2)	SFSC2420
1435		IF (TSS(12) - TSS(11) - TDC(50)/D(41)) 329,329,334	SFSC2430
1436	C		SFSC2440
1437	C		SFSC2450
1438	C		
1439	C	SET ID FOR TSCH TRACE ISO = 7	
1440	C		
1441	334	ISO=ND(7)	SFSC2460
1442		CALL TSCH(TSS(12))	SFSC2461
1443		IF (101 - ND(2)) 335,338,335	SFSC2470
1444	335	TS9(9)=TSC(383)	SFSC2480
1445		DO 336 I=1,35	SFSC2490
1446		IN=I+LF3	SFSC2500
1447	336	TSC(IN)=TSC(I+300)	SFSC2510
1448		GO TO 326	SFSC2530
1449	C	SET FCMAX=F3	SFSC2540
1450	338	TSC(3)=TSS(12)	SFSC2580
1451		IF (TSS(11) + D(38)*TDC(50) - TSS(12)) 339,329,329	SFSC2560
1452	339	TSS(12)= (TSS(11)+TSS(12))/D(2)	SFSC2570
1453		GO TO 334	SFSC2580
1454	C		SFSC2590
1455	C	FMI FOUND COMPUTE TMI	SFSC2600
1456	340	TSS(85)=TDC(47)	SFSC2610
1457	C	TEST FMI WITH F1 AND F3 FOR INTERVAL	SFSC2620
1458		IF (TSS(10)-TSS(65)) 411,344,344	SFSC2630
1459	411	IF (TSS(85)-TSS(12)) 412,308,309	SFSC2640
1460	C		
1461	C	SET ID FOR TSCH TRACE ISO = 8	
1462	C		
1463	412	ISO=ND(8)	SFSC2650
1464		CALL TSCH(TSS(85))	SFSC2661
1465	C	IF LMI=LMAX,USE MI, GO TO EXIT	SFSC2680
1466		IF (101 - ND(2)) 380,341,390	SFSC2670
1467	C	FMI NG, USE MIN OF F1,F2,F3	SFSC2680
1468	341	IF (TSS(7)-TSS(8))343,343,342	SFSC2690
1469	342	IF (TSS(9)-TSS(8))309,329,326	SFSC2700
1470	343	IF (TSS(7)-TSS(9))344,344,309	SFSC2710
1471	C	USE F1 DATA	SFSC2720
1472	344	N=LF1	SFSC2730
1473		GO TO 330	SFSC2740
1474	C		SFSC2750
1475	C		SFSC2760
1476	C	FIND FMAX FOR START BETWEEN F3 AND FMAX SET F1=F3	SFSC2770
1477	350	N=LF1	SFSC2780
1478		LF1=LF3	SFSC2790
1479		LF3=N	SFSC2800
1480		TSS(7)=TSS(9)	SFSC2810
1481		TSS(10)=TSS(12)	SFSC2820
1482		TSS(88) = D(39)*(TSC(3) - TSS(10))	SFSC2830
1483		IMX=ND(1)	SFSC2840
1484		TSS(11)=TSS(10)+TSS(88)	SFSC2850
1485	C		
1486	C	SET ID FOR TSCH TRACE ISO = 9	
1487	C		
1488		ISO=ND(9)	SFSC2858
1489		CALL TSCH (TSS(11))	SFSC2860
1490		IF (101 - ND(2)) 351,381,351	SFSC2870

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CARD NO    ***                          CONTENTS                          ****
1491        351  TSS(8)=TSC(383)                                          SFSC2880
1492             DO 352 I=1,35                                            SFSC2890
1493             IN=I+LF2                                                 SFSC2900
1494        352  TSC(IN)=TSC(I+380)                                       SFSC2910
1495             IF (TSS(8)-TSS(7))355,355,353                            SFSC2920
1496        C     MOVE F2 TO F3,DF F2 AND INTERP                          SFSC2930
1497        353  N=LF3                                                    SFSC2940
1498             LF3=LF2                                                  SFSC2950
1499             TSS(12) = TSS(11)                                        SFSC2960
1500             TSS(9)=TSS(8)                                            SFSC2970
1501             GO TO 359                                                SFSC2980
1502        355  IMX=IMX+ND(1)                                            SFSC2990
1503             TSS(12)=TSS(11)+TSS(68)                                  SFSC3000
1504        C                                                             SFSC3010
1505        C    SET ID FOR TSCH TRACE              ISO = 10
1506        C
1507             ISO=ND(10)                                               SFSC3020
1508             CALL TSCH (TSS(12))                                      SFSC3030
1509             IF (I01 - ND(2)) 356,360,356                             SFSC3040
1510        C     TEST IMX FOR 10 AND TBAR 2,3+.001                       SFSC3050
1511        356  TSS(9)=TSC(383)                                          SFSC3060
1512             DO 357 I=1,35                                            SFSC3070
1513             IN=I+LF3                                                 SFSC3080
1514        357  TSC(IN)=TSC(I+380)                                       SFSC3090
1515             IF (IMX -ND(10)) 358,326,326                             SFSC3100
1516        358  IF (TSS(8)-TSS(9)-D(6))326,326,359                       SFSC3110
1517        C    MOVE 2,3 TO 1,2                                          SFSC3120
1518        359  N=LF1                                                    SFSC3130
1519             LF1=LF2                                                  SFSC3140
1520             LF2=LF3                                                  SFSC3150
1521             LF3=N                                                    SFSC3160
1522             TSS(7)=TSS(8)                                            SFSC3170
1523             TSS(8)=TSS(9)                                            SFSC3180
1524             TSS(10)=TSS(11)                                          SFSC3190
1525             TSS(11)=TSS(12)                                          SFSC3200
1526             GO TO 355                                                SFSC3210
1527        C     F3  NO                                                  SFSC3220
1528        360  IF (TSS(7) - TSS(8)) 353,353,338                         SFSC3230
1529        C                                                             SFSC3240
1530        3090 TSS(11) = TSS(62)                                        SFSC3250
1531             GO TO 389                                                SFSC3260
1532        C                                                             SFSC3270
1533        C    F2 NO I NO  SET FCMAX = F2  MOVE FC2 ONLY TO F3 ,TEST I02 SFSC3280
1534        381  TSS(61)= TSS(10)                                         SFSC3290
1535        389  TSC(3 )=TSS(11)                                          SFSC3300
1536             TSS(63)= TSS(11)                                         SFSC3310
1537             IF (ND(2) - I02) 382,373,368                             SFSC3320
1538        C     L1 LESS THAN LMIN, ASTR OK  R=L1/LMIN                   SFSC3330
1539        382  TSS(58) = TSC(LF1 + 25)                                  SFSC3340
1540        387  TSS(80)=TSC(405)                                         SFSC3350
1541             TSS(62) =(TSS(61) + TSS(63))/D(2)                        SFSC3360
1542        C
1543        C    SET ID FOR TSCH TRACE              ISO = 11
1544        C
1545             ISO=ND(11)                                               SFSC3369
1546             CALL TSCH (TSS(62))                                      SFSC3370
1547        C    TEST I01,I02 FOR TYPE OF DATA AND CONDITION              SFSC3380
1548             IF (I01 - ND(2)) 383,385,383                             SFSC3390
1549        C                                                             SFSC3400
1550        C     F2 OK, SAVE IN BASIC F2 LOC                             SFSC3410
1551        383  TSS(11)=TSS(62)                                          SFSC3420
1552             TSS(8) = TSC(383)                                        SFSC3430
1553             DO 384 I=1,35                                            SFSC3440
1554             IN=I+LF2                                                 SFSC3450
1555        384  TSC(IN)=TSC(I+380)                                       SFSC3460
1556             TSS(58)=TSC(405)                                         SFSC3470
1557        C    INTERPOLATE AT R=1.0                                     SFSC3480
1558             IK=ND(2)                                                 SFSC3500
1559             CALL COMP (TSS(61),TSS(58))                              SFSC3510
1560             TSS(12)=TSC(47)                                          SFSC3520
1561        C
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CARD NO  ****                          CONTENTS                          ****
 1562     C     SET ID FOR TSCH TRACE              ISG = 12
 1563     C
 1564           ISG=ND(12)                                                SFSC3529
 1565           CALL TSCH (TSS(12))                                       SFSC3530
 1566           TSC(3)= TDC(47)                                           SFSC3540
 1567           IF (101 - ND(2)) 3650,338,3650                            SFSC3550
 1568     C     TEST FC1-F2                                               SFSC3560
 1569      3650 IF (TSS(12) - TSS(11)) 3651,353,335                       SFSC3570
 1570      3651 TSS(9) = TSS(8)                                           SFSC3580
 1571           TSC(3) = TSS(11)                                          SFSC3590
 1572           TSS(11) = TSS(12)                                         SFSC3600
 1573           TSS(12) = TSC(3)                                          SFSC3610
 1574           N = LF3                                                   SFSC3620
 1575           LF3 = LF2                                                 SFSC3630
 1576           LF2 = N                                                   SFSC3640
 1577           GO TO 325                                                 SFSC3650
 1578     C                                                               SFSC3660
 1579     C     FSUB2 NG TEST TYPE                                        SFSC3670
 1580      365  TSS(63)=TSS(62)                                           SFSC3680
 1581           IF (TSS(63) - TSS(61) - TDC(50)) 377,366,366              SFSC3690
 1582      366  TSC(3)=TSS(63)                                            SFSC3700
 1583           TSS(60) = TSC(414)                                        SFSC3710
 1584           IF (102 - ND(2)) 370,370,367                              SFSC3720
 1585     C     FC2 TSK NG                                                SFSC3730
 1586      368  IF (TSS(63) - TSS(61) - TDC(50)) 377,370,370              SFSC3740
 1587      370  TSS(62) =(TSS(61)+TSS(63))/D(2)                           SFSC3750
 1588     C
 1589     C     SET ID FOR TSCH TRACE              ISG = 13
 1590     C
 1591           ISG=ND(10)+ND(3)                                          SFSC3759
 1592           CALL TSCH (TSS(62))                                       SFSC3760
 1593           IF (102 - ND(2)) 371,3693,371                             SFSC3770
 1594     C                                                               SFSC3780
 1595     C     SET UP F2 POINT                                           SFSC3790
 1596      371  TSC(10)=TSC(333)                                          SFSC3800
 1597           TSC(11)=TSS(62)                                           SFSC3810
 1598           DO 372 I=1,35                                             SFSC3820
 1599           IN=I+LF2                                                  SFSC3830
 1600      372  TSC(10)=TSC(I+380)                                        SFSC3840
 1601           TSS(12) = TSS(11)                                         SFSC3860
 1602           GO TO 360                                                 SFSC3870
 1603     C                                                               SFSC3880
 1604     C     FIRST F2, ASTR NG, SETUP SEARCH                           SFSC3890
 1605      373  TSS(60)=TSC(I+12 )/TSC(LF1+11 )                           SFSC3900
 1606      376  TSS(60) TSC(414)                                          SFSC3910
 1607           TSS(62) =(TSS(61)+TSS(63))/D(2)                           SFSC3920
 1608     C
 1609     C     SET ID FOR TSCH TRACE              ISG = 14
 1610     C
 1611           ISG=ND(10)+ND(4)                                          SFSC3929
 1612           CALL TSCH (TSS(62))                                       SFSC3930
 1613           IF (ND(2) - 101) 371,374,371                              SFSC3940
 1614     C     FC2 NG, TEST 102                                          SFSC3950
 1615      374  IF (TSS(62) - TSS(61) - TDC(50)) 377,375,375              SFSC3960
 1616      375  TSS(63)=TSS(62)                                           SFSC3970
 1617           TSC(3)=TSS(63)                                            SFSC3980
 1618           IF (102 - ND(2)) 370,376,376                              SFSC3990
 1619     C                                                               SFSC3991
 1620     C          ***CHECK AVE OF PT 1 AND 1-1***                      SFSC3999
 1621      377  TSS(62) = (TSS(62) + TSS(61))/D(2)                        SFSC4000
 1622           CALL TSCH (TSS(62))                                       SFSC4010
 1623           IF (101 - ND(2)) 371,344,371                              SFSC4020
 1624     C                                                               SFSC4030
 1625     C     MINI FOUND SETUP M2, LMI LESS THAN LMAX, TEST FCMAX       SFSC4040
 1626     C     SAVE TMI DATA                                             SFSC4050
 1627      380  IF (TSC(3)-TSS(65))399,399,381                            SFSC4060
 1628      381  TSS(64)=TSC(383)                                          SFSC4070
 1629      3811 DO 382 I=1,35                                             SFSC4080
 1630      382  TSC(I+225)=TSC(I+380)                                     SFSC4090
 1631     C     TEST FOR LOC OF TMI                                       SFSC4110
 1632           IF (TSS(11)-TSS(65)) 383,392,368                          SFSC4120
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CARD NO **** CONTENTS ****

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  383 IF (TSS(8)-TSS(64))385,384,384                          SFSC4130
C      MOVE F2 TO F1, M1 TO F2                                SFSC4140
  384 N=LF1                                                   SFSC4150
      LF1=LF2                                                 SFSC4160
      LF2=N                                                   SFSC4170
      TSS(7)=TSS(8)                                           SFSC4180
      TSS(10)=TSS(11)                                         SFSC4190
  391 TSS(8)=TSS(64)                                          SFSC4200
      TSS(11)=TSS(65)                                         SFSC4210
  387 DO 385 I=1,35                                           SFSC4220
      IN=I+N                                                  SFSC4230
  385 TSC(IN)=TSC(I+225)                                      SFSC4240
      GO TO 400                                               SFSC4260
C      MOVE M1 TO F3                                          SFSC4270
  386 TSS(9)= TSS(64)                                         SFSC4280
      TSS(12)=TSS(65)                                         SFSC4290
      N=LF3                                                   SFSC4300
      GO TO 387                                               SFSC4310
  388 IF (TSS(8)-TSS(64))389,390,390                          SFSC4320
C     MOVE M1 TO F1 LOC                                       SFSC4330
  389 TSS(7)=TSS(64)                                          SFSC4340
      TSS(10)=TSS(65)                                         SFSC4350
      N=LF1                                                   SFSC4360
      GO TO 387                                               SFSC4370
C     MOVE F2 TO F3, M1 TO F2                                 SFSC4380
  390 N=LF3                                                   SFSC4390
      LF3=LF2                                                 SFSC4400
      LF2=N                                                   SFSC4410
      TSS(9)= TSS(8)                                          SFSC4420
      TSS(12)=TSS(11)                                         SFSC4430
      GO TO  391                                              SFSC4440
C                                                             SFSC4450
C      F2 = M1                                                SFSC4460
  392 IF (TSS(7)-TSS(9))396,399,393                           SFSC4470
C      INCREASE F1                                            SFSC4480
  393 TSS(10)=TSS(11) - D(38)*(TSS(11)-TSS(10))               SFSC4490
C
C     SET ID FOR TSCH TRACE              ISG = 15
C
      ISG=ND(10)+ND(5)                                        SFSC4499
      CALL TSCH (TSS(10))                                     SFSC4500
      IF (IOI - ND(2)) 394,404,394                            SFSC4510
  394 TSS(7)=TSC(383)                                         SFSC4520
      N=LF1                                                   SFSC4530
  398 DO 395 I=1,35                                           SFSC4540
      IN=I+N                                                  SFSC4550
  395 TSC(IN)=TSC(I+380)                                      SFSC4560
      GO TO 400                                               SFSC4580
C      DECREASE F3                                            SFSC4590
  396 TSS(12)=TSS(11) + D(38)*(TSS(12)-TSS(11))               SFSC4600
C
C     SET ID FOR TSCH TRACE              ISG = 16
C
      ISG=ND(10)+ND(8)                                        SFSC4609
      CALL TSCH (TSS(12))                                     SFSC4610
      IF (IOI - ND(2)) 397,401,397                            SFSC4620
  397 TSS(9)=TSC(383)                                         SFSC4630
      N=LF3                                                   SFSC4640
      GO TO 398                                               SFSC4650
C                                                             SFSC4660
C     INTERPOLATION NO 2                                      SFSC4670
C                                                             SFSC4680
  400 IK=ND(1)                                                SFSC4690
      CALL COMP (TSS(10),TSS(7))                              SFSC4700
      IF (IL  - ND(2)) 401,400,404                            SFSC4710
C      EXTRAP LEFT,IL=1 TEST F1,F2,M1                         SFSC4720
  401 IF (TSS(7)-TSS(8))402,403,403                           SFSC4730
  402 IF (TSS(7)-TSS(64))344,408,408                          SFSC4740
  403 IF (TSS(8)-TSS(64))329,408,408                          SFSC4750
C      EXTRAP RIGHT,IL=3 TEST F2,F3,M1                        SFSC4760
  404 IF (TSS(8)-TSS(9))403,403,405                           SFSC4770
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CARD NO  ****                          CONTENTS                          ****
1704      405  IF (TSS(9)-TSS(6))309,406,406                                SFSC4780
1705      C      USE M1 DATA, MOVE TO 1 LOC                                 SFSC4790
1706      406  DO 407 I=1,35                                                SFSC4800
1707      407  TSC(I+380)= TSC(I+225)                                       SFSC4810
1708           GO TO 399                                                    SFSC4870
1709      C                                                                 SFSC4840
1710      C      FM2 FOUND, SET UP FM2 DATA                                 SFSC4850
1711      408  TSS(66) = TDC(47)                                            SFSC4860
1712      C
1713      C      SET ID FOR TSCH TRACE              ISS = 17
1714      C
1715           ISS=ND(10)+ND(7)                                             SFSC4069
1716           CALL TSCH (TSS(66))                                          SFSC4070
1717           IF (101 - ND(21)) 409,403,409                                SFSC4880
1718      C      TEST TM1,TM2                                               SFSC4890
1719      409  IF (TSS(84)-TSC(383)) 406,410,399                            SFSC4900
1720      410  IF (TSC(256)-TSC(411))399,399,406                            SFSC4910
1721      C                                                                 SFSC4920
1722      C                                                                 SFSC4930
1723      C      SETUP FOR EXIT FROM SUBROUTINE                             SFSC4940
1724      399  DO 3000 I=1,35                                               SFSC4950
1725      3000 TSC(I+3)= TSC(I+380)                                         SFSC4960
1726      C                                                                 SFSC4970
1727      C            ***RESET KSK(MIN,MAX)***                             SFSC4980
1728           TKXMN = TSEC(262)                                            SFSC4990
1729           TKXMX = TSEC(263)                                            SFSC5000
1730      C                                                                 SFSC5010
1731      C                                                                 SFSC9990
1732      C            ***EXIT***                                           SFSC9991
1733      3999 RETURN                                                       SFSC9998
1734           END                                                          SFSC9999
1735      C*****************************************************************
1736      C
1737      C       *****SUBROUTINE BOT*****
1738      C   ***INTERPOLATION/EVALUATION FOR COMPRESSION STRESS, GIVEN (B/T)***
1739      C
1740      C*****************************************************************
1741      C
1742           SUBROUTINE BOT                                               BOT 0010
1743      C       FC( B/T)  CALC. SUBR.                                     BOT 0020
1744      C                                                                 BOT 0030
1745      C      REVISION -- 01-10-66 -- NEW FORMAT                         BOT 0040
1746      C                                                                 BOT 0050
1747      C                                                                 BOT 0060
1748      C         *** REVISION -- 05-29-68-- ADD PLATE LOGIC ***          BOT 0070
1749      C                                                                 BOT 0080
1750      C      GIVES FC +,- EPS.                                          BOT 0090
1751      C      IK=1 ,FC AT B/T                                            BOT 0100
1752      C      IK=2 ,FC AT (B/T)FC = BI/TSK(IFC)                          BOT 0110
1753      C                                                                 BOT 0120
1754      C                                                                 BOT 0140
1755           COMMON T(2060),D(2060),CD(2000),ND(100)                      BOT 0150
1756           DIMENSION DC(100),TDC(200),TSC(420),TSS(100),TBT(4)          BOT 0170
1757           EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),  BOT 0210
1758          1(TKXMX,T(1405)),(TBT(1),T(1317))                             BOT 0211
1759           EQUIVALENCE (DC(1),D(1401)),(CKSK,D(1307)),                  BOT 0220
1760          1(DTC,D(1482)),(CNSID,D(1401))                                BOT 0221
1761           EQUIVALENCE (IL,ND(40)),(IK,ND(39)),(IKI,ND(32)),(IKK,ND(31)),   BOT 0230
1762          1(I,ND(30))                                                   BOT 0231
1763      C                                                                 BOT 0270
1764      C                                                                 BOT 0280
1765      C                                                                 BOT 0290
1766      C         *** SETUP CONSTANTS FOR STR, PL, HC ANALYSIS ***        BOT 0300
1767      560  TBT(2) = TDC(194)/TSC(2)                                     BOT 0310
1768           TBT(3) = D(1)                                                BOT 0320
1769           TBT(4) = DTC                                                 BOT 0330
1770           IF (CNSID - D(1)) 561,562,563                                BOT 0340
1771      C                                                                 BOT00349
1772      C          *** STR ***                                            BOT 0350
1773      561  TBT(2) = DC(3)                                              BOT 0360
1774           TBT(3) = TSC(412)                                            BOT 0370
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CARD NO    ****                          CONTENTS                          ****
  1775     C                                                                BOT00370
  1776     C        *** STR, PL.  TC=0.0 ***                                BOT 0380
  1777      562   TBT(4) = DC(3)                                           BOT 0390
  1778            IF (IKI - ND(1)) 569,560,60                              BOT00395
  1779     C                                                                BOT 0400
  1780     C          **** TEST FOR TYPE OF B/T ANALYSIS. IKI=1 OR 2. ****  BOT 0410
  1781      563   IF (IKI - ND(1)) 56,56,60                                BOT00420
  1782     C                                                                BOT 0430
  1783     C        **** IKI=1.  CALC FC FOR GIVEN B/T AND TSKIN ****       BOT 0440
  1784     C              CALC ALPHA CORRECTION FOR B/T(PHYSICAL)--STR-PL-HC BOT 0450
  1785      56    TBT(3) = TSC(2)/TSC(409)                                 BOT 0460
  1786            TBT(2) = TBT(4).TBT(3) + D(1)                            BOT 0470
  1787            TBT(1) = SQRT (D(3)*TBT(2)*(TBT(2) + D(1)) + D(1))       BOT 0480
  1788            TSC(409) = TSC(409)/TBT(1)                               BOT 0490
  1789      569   IF (TDC(56) - TSC(409)) 41,531,531                       BOT 0500
  1790     C                                                                BOT 0510
  1791     C      INTERPOLATE                                               BOT 0520
  1792      41    I=ND(1)                                                  BOT 0530
  1793            IF(TDC(I+12) - TSC(409))43,42,44                         BOT 0540
  1794     C                                                                BOT 0550
  1795     C     INTERPOLATE 0 TO FC1                                       BOT 0560
  1796      43    TSC(30:       (54)*TDC(57)/TSC(409)*TDC(57)/TSC(409)     BOT 0570
  1797            GO TO 53                                                 BOT 0580
  1798     C                                                                BOT 0590
  1799     C     USE FC1                                                    BOT 0600
  1800      42    TSC(381) = TDC(1)                                        BOT 0610
  1801            TSC(409) = TDC(I+12)                                     BOT 0620
  1802            GO TO 98                                                 BOT 0630
  1803     C                                                                BOT 0640
  1804      44    I=I+ND(1)                                                BOT 0650
  1805            IF (TDC(I+12) - TSC(409))45,42,44                        BOT 0660
  1806      45    TSC(414) =  TDC( I-1)                                    BOT 0670
  1807            TSC(416) = TDC(I)                                        BOT 0680
  1808            TSC(4     - TDC(I+11)/TSC(409)                           BOT 0690
  1809            TSC(419) = TDC(I+12)/TSC(409)                            BOT 0700
  1810            TSC(415) = TSC(414)+ ((TSC(416)-TSC(414))*(TSC(417) - D(1))  )/(TSCBOT 0710
  1811           1(417)-TSC(419)))                                         BOT 0720
  1812     C                                                                BOT 0730
  1813            CALL SS (TSC(415))                                       BOT 0740
  1814            TSC(418)= TDC(45)/TSC(409)                               BOT 0750
  1815     C                                                                BOT00750
  1816     C      INTERPOLATE FOR FC1                                       BOT 0760
  1817            IK=ND(2)                                                 BOT 0770
  1818            CALL COSP (TSC(414),TSC(417))                            BOT 0780
  1819            TSC(381) = TDC(47)                                       BOT 0790
  1820            CALL SS (TSC(381))                                       BOT 0800
  1821            TSC(420) = TDC(45)                                       BOT 0810
  1822            TSC(408)=ABS(TSC(420)-TSC(409))                          BOT 0820
  1823            TSC(407) = TSC(381)                                      BOT 0830
  1824            KK=ND(2)                                                 BOT 0840
  1825            TSC(413) = -D(38)*TDC(50)                                BOT 0850
  1826            IF (TSC(409)-TSC(420)) 46,54,4.                          BOT 0860
  1827      46    TSC(413) = D(38)*TDC(50)                                 BOT 0870
  1828            KK=ND(1)                                                 BOT 0880
  1829      47    TDC(51) = TSC(381)+TSC(413)                              BOT 0890
  1830            CALL SS (TDC(51))                                        BOT 0900
  1831            IF (KK-ND(2))  48,49,48                                  BOT 0910
  1832     C      KK=1 FC TO RT OF FC1                                      BOT 0920
  1833     C                                                                BOT 0930
  1834      48    IF (TSC(409) - TDC(45)) 51,50,52                         BOT 0940
  1835      51    TSC(381) = TDC(51)                                       BOT 0950
  1836            TSC(420) = TDC(45)                                       BOT 0960
  1837            GO TO 47                                                 BOT 0970
  1838     C                                                                BOT 0980
  1839      50    TSC(381) = TDC(51)                                       BOT 0990
  1840            GO TO 54                                                 BOT 1000
  1841     C                                                                BOT01009
  1842     C      KK = 2  FC TO LEFT OF FC1                                 BOT 1010
  1843      49    IF (TSC(409)-TDC(45)) 52,50,51                           BOT 1020
  1844     C                                                                BOT 1030
  1845     C     SECOND ST. LINE INTERPOLATION                              BOT 1040
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CARD NO **** CONTENTS ****

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 52   TSC(381)=TSC(381)+((TDC(51)-TSC(391))*(TSC(420)-TSC(409))/(TSC(420BOT 1050
     1)-TDC(45)))                                                       BOT 1060
C                                                                       BOT 1070
      CALL SS (TSC(381))                                                BOT 1080
      IF (TSC(408) - ABS (TDC(45) - TSC(409))) 55,54,54                 BOT 1090
 55   TSC(381) = TSC(407)                                               BOT 1100
C                                                                       BOT01109
C       TO SETUP EXIT                                                   BOT 1110
 530  GO TO 53                                                          BOT 1120
C                                                                       BOT 1130
C                                                                       BOT 1140
C      IK=2 , FIND FC AT B/T MIN = B1/TSK                               BOT 1150
C      R = (B/T)FC /(B1/TSK)                                            BOT 1160
 60   I=ND(1)                                                           BOT 1170
C                                                                       BOT 1180
 601  TSC(414)=TDC(I)                                                   BOT 1190
      CALL BOTC (TSC(414),TSC(417))                                     BOT 1200
C                                                                       BOT01209
C      TEST POINT 1                                                     BOT 1210
      IF (TSC(417) - D(1)) 61,6' ,62                                    BOT 1220
C                                                                       BOT 1233
C      FC IS LESS THAN F(1), SOLVE FOR FC(RCOD)                         BOT 1240
 61   TSC(414) = TDC(50)/D(2)                                           BOT01250
      CALL BOTC (TSC(414),TSC(417))                                     BOT 1260
      IF (D(1) - TSC(417)) 610,64,64                                    BOT 1270
 610  TSC(416) = TSC(414) + TDC(50)                                     BOT01280
      CALL BOTC (TSC(416),TSC(419))                                     BOT 1290
      IF (D(1) - TSC(419)) 611,65,66                                    BOT 1300
 611  TSC(414) = TSC(416)                                               BOT 1310
      TSC(417) = TSC(419)                                               BOT 1320
      GO TO 610                                                         BOT 1330
C                                                                       BOT 1340
C      DO POINT 3                                                       BOT 1350
 62   I=I+ND(1)                                                         BOT 1360
      TSC(416)=TDC(I)                                                   BOT 1370
      CALL BOTC (TSC(416),TSC(419))                                     BOT 1380
      IF (D(1)-TSC(419)) 63,65,66                                       BOT 1390
 63   TSC(417)=TSC(419)                                                 BOT 1400
      TSC(414)=TSC(416)                                                 BOT 1410
      IF (ND(12) - I) 64,64,62                                          BOT 1420
 64   TSC(381)=TSC(414)                                                 BOT 1430
      GO TO 53                                                          BOT 1440
 65   TSC(381)=TSC(416)                                                 BOT 1450
      GO TO 53                                                          BOT 1460
C                                                                       BOT01469
C      R3 LESS THAN 1.0, FIRST INTERPOLATION                            BOT 1470
 66   TSC(415) = (TSC(414)+TSC(416))/D(2)                               BOT 1480
C                                                                       BOT 1490
      CALL BOTC (TSC(415),TSC(418))                                     BOT 1500
      IF (TSC(418) - D(1)) 69,67,68                                     BOT 1510
 67   TSC(381) =TSC(415)                                                BOT 1520
      GO TO 53                                                          BOT 1530
 68   TSC(414)=TSC(415)                                                 BOT 1540
      TSC(417)=TSC(418)                                                 BOT 1550
      GO TO 70                                                          BOT 1560
 69   TSC(416)=TSC(415)                                                 BOT 1570
      TSC(419)=TSC(418)                                                 BOT 1580
 70   TSC(415)=TSC(414) + ((TSC(416)-TSC(414))*(TSC(417)- D(1))/(TSC(417BOT 1590
     1) - TSC(419)))                                                    BOT 1600
C                                                                       BOT 1610
      CALL BOTC (TSC(415),TSC(418))                                     BOT 1620
      IF (ABS(TSC(418) - D(1)) - D(64)/D(18)) 67,67,700                 BOT01625
 700  IK = ND(2)                                                        BOT01630
      CALL CG3P (TSC(414),TSC(417))                                     BOT 1640
C                                                                       BOT 1650
      TSC(381) = TDC(47)                                                BOT 1660
C                                                                       BOT 1661
C         ****USE POINT 2 IO INTERPOLATED FC+- OR 0 (8-10-71)*****      BOT 1662
      IF (TSC(381)) 67,67,701                                           BOT01665
 701  CALL BOTC (TSC(381),TSC(409))                                     BOT01670
      TSC(413) = TSC(409) - D(1)                                        BOT01675
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CARD NO  ****                          CONTENTS                          ****
1917          IF (ABS(TSC(413)) - D(64)/D(10)) 54,54,702                 BOT01670
1918     702  IF (TSC(413)) 71,54,72                                      BOT01680
1919     C                                                                BOT01689
1920     C     FCI TO LEFT OF FCX                                         BOT 1690
1921      71   KK=ND(2)                                                   BOT 1700
1922           TSC(413) = (TSC(414) - TSC(381))/D(10)                     BOT01710
1923      81   TSC(416)=TSC(2 )                                           BOT 1720
1924           TSC(419)=TSC(409)                                          BOT 1730
1925           GO TO 73                                                   BOT 1740
1926     C                                                                BOT01749
1927     C     FCI TO RIGHT OF FCX                                        BOT 1750
1928      72   KK=ND(1)                                                   BOT 1760
1929           TSC(413) = (TSC(416) - TSC(381))/D(10)                     BOT01770
1930      80   TSC(414)=TSC(381)                                          BOT 1780
1931           TSC(417)=TSC(409)                                          BOT 1790
1932      73   TSC(381)=TSC(381)+TSC(413)                                 BOT 1800
1933     C                                                                BOT 1810
1934     C          *** TEST FOR FC NEG. ***                              BOT 1820
1935           IF (TSC(381)) 730,730,731                                  BOT 1830
1936     730  TSC(381) = TSC(381) - TSC(413)                             BOT 1840
1937           GO TO 53                                                   BOT 1850
1938     C                                                                BOT 1860
1939     731  CALL BOTC (TSC(381),TSC(409))                              BOT 1870
1940           IF (ABS(TSC(409) - D(1)) - D(64)/D(10)) 54,54,732          BOT01875
1941     732  IF (KK - ND(1)) 74,74,82                                   BOT01880
1942     C                                                                BOT01889
1943     C     KK=1 F(3)                                                  BOT 1890
1944      74   IF (TSC(409) - D(1)) 70,54,80                              BOT 1900
1945      70   TSC(419)=TSC(409)                                          BOT 1910
1946           TSC(416)=TSC(381)                                          BOT 1920
1947           GO TO 78                                                   BOT 1930
1948     C                                                                BOT01939
1949     C     LEFT, KK=2                                                 BOT 1940
1950      82   IF (D(1)-TSC(409)) 83,54,81                                BOT 1950
1951      83   TSC(414)= TSC(381)                                         BOT 1960
1952           TSC(417)=TSC(409)                                          BOT 1970
1953     C                                                                BOT01979
1954     C     SETUP PT. 2 FOR SECOND INTRP                               BOT 1980
1955      78   TSC(415) = (TSC(414) + TSC(416))/D(2)                      BOT 1990
1956     C                                                                BOT 2000
1957           CALL BOTC (TSC(415),TSC(418))                              BOT 2010
1958           IF (ABS(TSC(418) - D(1)) - D(64)/D(10)) 67,67,780          BOT02015
1959     780  CALL CG3P (TSC(414),TSC(417))                              BOT02020
1960           TSC(381)=TDC(47)                                           BOT 2030
1961     C                                                                BOT 2040
1962     C     SET UP EXIT                                                BOT 2050
1963     C          *** B/T=BASIC B/T WITH ALPHA=1.0 ***                  BOT 2060
1964      53   CALL SS (TSC(381))                                         BOT 2070
1965      54   TSC(409)=TDC(45)                                           BOT 2080
1966     C                                                                BOT02089
1967     C     TEST WITH MAX FC(1)                                        BOT 2090
1968      88   IF (TDC(55)-TSC(381)) 531,549,549                          BOT 2100
1969     C                                                                BOT02109
1970     C     USE MAX FC(1)                                              BOT 2110
1971     531  TSC(381) = TDC(55)                                          BOT 2120
1972           TSC(409) = TDC(56)                                         BOT 2130
1973     C                                                                BOT 2140
1974     C                                                                BOT 2150
1975     C     EXIT                                                       BOT 2160
1976     549  RETURN                                                     BOT 2170
1977          END                                                        BOT 2180
1978     C*************************************************************************
1979     C
1980     C       *****SUBROUTINE BOTC*****
1981     C   ***PLATE BUCKLING (B/T) EVALUATION***
1982     C
1983     C*************************************************************************
1984     C
1985          SUBROUTINE BOTC (SFCI,RBTI)                                BOTC0010
1986     C    *****SUBR. TO DETERMINE RATIO OF (B/T) ACTUAL/REQD.*****    BOTC0020
1987     C                                                               BOTC0030
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CARD NO  ****                          CONTENTS                          ****
 1988    C     ***REVISION--04-08-69-- ADD LOGIC FOR TSTR(MIN)=FIX*TSKIN1****   BOTC0040
 1989    C          **** 07-27-68 -- NEW SUBR B/T CALC GIVEN TC                  BOTC0050
 1990    C        *** REQD CONSTANTS SETUP BY SUBR BOT. ***                      BOTC0060
 1991    C                                                                       BOTC0070
 1992    C                                                                       BOTC0090
 1993          COMMON T(2060),D(2060),CD(2000),ND(100)                          BOTC0100
 1994          DIMENSION DC(100),TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300), BOTC0120
 1995         1TBT(4)                                                           BOTC0130
 1996          EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),  BOTC0180
 1997         1(SFC,T(1387)),(BBOT,T(1365)),(TBT(1),T(1317))                    BOTC0181
 1998          EQUIVALENCE (DC(1),D(1401)),(STRMN,D(37)),(CNSID,D(48)),         BOTC0190
 1999         1(STRRO,D(456)),(STRSK,D(455))                                    BOTC0191
 2000          EQUIVALENCE (TSEC(1),CD(1501)),(TWT(1),CD(1101))                 BOTC0200
 2001    C                                                                       BOTC0230
 2002    C                                                                       BOTC0240
 2003    C       *** SETUP FCI, EVAL. SS FOR B/T BASIC ***                       BOT
 2004     100  SFC=SFCI                                                        BOTC0260
 2005          CALL SS (SFC)                                                    BOTC0270
 2006    C                                                                       BOTC0280
 2007    C         *** TEST FOR STR CONST. ***                                   BOTC0290
 2008          IF (CNSID) 110,130,110                                           BOTC0300
 2009    C                                                                       BOTC0310
 2010    C            *** CALC B/T PHYSICAL ***                                  BOTC0320
 2011     110  ATSK = TBT(3)/SFC*TDC(72) - TBT(2)                              BOTC0330
 2012          TBT(1) = TSC(2)/ATSK                                             BOTC0340
 2013    C                                                                       BOTC0350
 2014    C       *** TEST FOR CONST. -- TBT(4) = TCORE FOR HP, 0 FOR STR, PL.** BOTC0360
 2015     111  IF (TBT(4)) 120,129,120                                          BOTC0370
 2016    C                                                                       BOTC0380
 2017    C        ** CALC B/T ALLOWABLE -- ALPHA=F(TC,TSK) **                    BOTC0390
 2018     120  APNL = TBT(4)/ATSK + D(1)                                       BOTC0400
 2019          ALPHA = D(3)*APNL*(APNL + D(1)) + D(1)                           BOTC0410
 2020          BBOT = BBOT*SQRT (ALPHA)                                         BOTC0420
 2021     129  RBTI = BBOT/TBT(1)                                              BOTC0430
 2022    C                                                                       BOTC0431
 2023    C      ****TEST MAGNITUDE OF RATIO***                                   BOTC0432
 2024          IF (RBTI - D(1)) 1290,1298,1291                                  BOTC0433
 2025     1290 IF (DC(61) - RBTI) 1298,1298,1299                                BOTC0434
 2026     1291 IF (RBTI - DC(60)) 1298,1298,1299                                BOTC0435
 2027     1298 RBTI = D(1)                                                      BOTC0436
 2028    C                                                                       BOTC0439
 2029     1299 GO TO 199                                                        BOTC0440
 2030    C                                                                       BOTC0450
 2031    C      **** STR.  DETERMINE MIN STR TBAR.  TEST FOR CONSTANT TSTR.***  BOTC0460
 2032     130  IF (STRSK) 110,110,131                                           BOTC0470
 2033     131  ATSK = TDC(72)/SFC/(TWT(305)/TSC(2)*STRRO + D(1))                BOTC0480
 2034          TBT(1) = TSC(2)/ATSK                                             BOTC0490
 2035          GO TO 129                                                        BOTC0500
 2036    C                                                                       BOTC0510
 2037    C                                                                       BOTC0520
 2038    C     ***EXIT*** RBTI= RATIO OF ALLOW(B/T) TO PHYSICAL B/T **           BOTC0530
 2039     199  RETURN                                                           BOTC0540
 2040          END                                                              BOTC0550
 2041    C*************************************************************************
 2042    C
 2043    C       *****SUBROUTINE TSCH*****
 2044    C   ***SEARCH LEVEL 3 CONTROL - OPTIMUM T(SKIN), A(STR)***
 2045    C
 2046    C*************************************************************************
 2047    C
 2048          SUBROUTINE TSCH (SFCI)                                           TSCH0010
 2049    C                                                                      TSCH0011
 2050    C     T-SKIN SUBROUTINE                                                TSCH0020
 2051    C                                                                      TSCH0030
 2052    C                                                                      TSCH0031
 2053    C     ***REVISION 11-29-72  SETUP AN ID COUNT FOR TRACING WHERE STBAR   TSCH0032
 2054    C               SUBROUTINE HAS BEEN CALL FROM IN THIS SUBROUTINE. ID   TSCH0033
 2055    C               IS PRINTED FROM PRTBK                                ****TSCH0034
 2056    C                                                                      TSCH0035
 2057    C                                                                      TSCH0110
 2058    C     IDSK  1=SEARCH, 2=TWF(CONST), 3=TSKI(INPUT)                      TSCH0120
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CARD NO  ****                          CONTENTS                          ****
  2058     C     RETURN ID, ISKAD 1=FC OK, 2=FC NG, 3= LI=LMAX,FC OK      TSCH0130
  2059     C                ISKBD 1=TBAR NG, 2=ASTR NG, 3=LI LESS THAN LMIN TSCH0140
  2061     C                                                              TSCH0150
  2062     C      ID FROM STBAR=IL2.  1=OK,  2=L=LMAX,  3=L NG,  4=ASTR NG TSCH0160
  2063     C                                                              TSCH0170
  2064     C     GIVEN FC, BSTR, YMIN, TVF                                TSCH0180
  2065     C                                                              TSCH0190
  2066     C                                                              TSCH0210
  2067           COMMON T(2060),D(2000),CD(2000),ND(180)                  TSCH0220
  2068           COMMON /IPRINT/ IP(80)
  2069     C                                                              TSCH0230
  2070           DIMENSION                                    DC(100),    TSCH0240
  2071          1TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),           TSCH0250
  2072          2DBKP(4)                                                  TSCH0260
  2073     C                                                              TSCH0270
  2074           EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),  TSCH0280
  2075          1(DC(1),D(1401)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),    TSCH0281
  2076          2(DBKP(1),D(574)),(STAFN,D(361)),(SKAN,D(370)),(STAPX,D(371)),    TSCH0282
  2077          3(STLMN,D(375)),(STLMX,D(376)),(HSTMN,D(377)),(STFMN,D(384)),     TSCH0283
  2078          4(CNSID,D(461)),(TKOMX,TDC(65)),(TKKMN,TDC(67)),(STRSK,D(455)),   TSCH0284
  2079          5(BOTHR,TSEC(248)),(BOTFR,TSEC(249)),(BOTHC,TSEC(250)),   TSCH0285
  2080          6(BOTFC,TSEC(251)),(CCRSH,TSEC(252)),(CCRSF,TSEC(253)),   TSCH0286
  2081          7(IDSK,ND(511)),(ISK2,ND(48)),(ISK1,ND(45)),(IL,ND(40)),(IK,ND(39)),TSCH0287
  2082          8(IL1,ND(34)),(IL2,ND(33)),(IL3,ND(32)),(IBT,ND(72)),(IMX,ND(71)),  TSCH0288
  2083          9(LT1,ND(28)),(LT2,ND(27)),(LT3,ND(20)),(ISTB,ND(87)),(IN,ND(30))  TSCH0289
  2084          A,(I,ND(29)),(N,ND(31))                                   TSCH0290
  2085     C                                                              TSCH0300
  2086     C                                                              TSCH0310
  2087     C                                                              TSCH0370
  2088     C                                                              CR000100
  2089     C            ***SAME DATA. TSEC(221,224),TWT(305,307),TDC(194),IMX,IBT*CR000101
  2090      98   IMXO = IMX                                               CR000102
  2091           IBTO = IBT                                               CR000103
  2092           TSEC(255) = TSEC(221)                                    CR000104
  2093           TSEC(256) = TSEC(224)                                    CR000105
  2094           TSEC(257) = TWT(305)                                     CR000106
  2095           TSEC(258) = TWT(307)                                     CR000107
  2096           TSEC(259) = TDC(194)                                     CR000108
  2097     C                                                              CR000109
  2098           IR001 = 0                                                CR000109
  2099     C      SETUP FC DATA, ASTRMIN                                   TSCH0380
  2100      99   TSC(381)=SFCI                                            TSCH0390
  2101           CALL 95 (TSC(381))                                       TSCH0400
  2102           TSC(400) =TDC(37)                                        TSCH0410
  2103           TSC(401) =TDC(38)                                        TSCH0420
  2104           TSC(402) =TDC(44)                                        TSCH0430
  2105           TSC(409) =TDC(95)                                        TSCH0440
  2106           TSC(410) =TDC(58)*TSC(409)                               TSCH0450
  2107           BOTHR = TSC(410)                                         10000171
  2108           BOTFR = TSC(409)*TSEC(221)*TSEC(222)                     10000172
  2109           TWT(312) = BOTFR                                         10000173
  2110     C                                                              TSCH0460
  2111     C                                                              CR000180
  2112     C            **SETUP REQD (B/T) FOR STR FLANGE AND WEBS**      CR000181
  2113      5001 BOTHC = (CCRSH/TSC(381))**1.333* TSEC(254)               CR000182
  2114           BOTFC = (CCRSF/TSC(381))**1.333*TSEC(254)                CR000183
  2115     C                                                              CR000184
  2116     C            ***TEST FOR CRITICAL B/T***                       CR000185
  2117           IF (BOTHR - BOTHC) 5002,5002,5004                        CR000186
  2118      5002 IF (BOTFC - BOTFR) 5003,5019,5019                        CR000187
  2119      5003 BOTFR = BOTFC                                            CR000188
  2120           TWT(312) = BOTFR                                         CR000189
  2121           GO TO 5006                                               CR000190
  2122      5004 BOTHR = BOTHC                                            CR000191
  2123           TSC(410) = BOTHR                                         CR000192
  2124           IF (BOTFC - BOTFR) 5005,5006,5006                        CR000193
  2125      5005 BOTFR = BOTFC                                            CR000194
  2126           TWT(312) = BOTFR                                         CR000195
  2127     C                                                              CR000196
  2128     C            ***SETUP CONTROL DATA***                          CR000197
  2129      5006 TSEC(221) = BOTFR/BOTHR                                  CR000198
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CARD NO  ****                          CONTENTS                          ****
 2130          TSEC(224) = D(1) + TSEC(221)*TSEC(222)                    CR000199
 2131          TWT(305) = HSTR1*TSEC(224) + STFMN*TSEC(223)              CR000200
 2132          TDC(194) = TWT(305)*STFMN + TSEC(225)                     CR000201
 2133          TWT(307) = TWT(309)                                       CR000202
 2134          IF (D(1) - STRMN) 5007,5009,5019                          CR000203
 2135     C            **Z(2) TYPE**                                     CR000204
 2136      5007 IBT = ND(1)                                              CR000205
 2137          IF(TWT(311) - TWT(309)*TSEC(221)) 5003,5009,5009          CR000206
 2138      5008 IBT = ND(2)                                              CR000207
 2139     C            **Z(2) AND Z(1) TYPE**                            CR000208
 2140      5009 IMX = ND(2)                                              CR000209
 2141          IF(TWT(310) - TWT(309)*TSEC(221)) 5019,5019,5011          CR000210
 2142      5011 IMX = ND(1)                                              CR000211
 2143          TWT(307) = TWT(310)/TSEC(221)                             CR000212
 2144     C                                                              CR000213
 2145     C                                                              CR000214
 2146     C      T-BAR, T(B/T)                                           TSCH0470
 2147      5019 TSC(385) = TDC(72)/TSC(381)                              10000190
 2148          TSS(57) = TSC(2)/TSC(403)                                 TSCH0490
 2149     C                                                              TSCH0500
 2150     C                                                              TSCH0550
 2151     C           *** TEST FOR STR ***                               TSCH0560
 2152      5029 IF(CNSID) 653,5000,653                                   TSCH0570
 2153     C                                                              TSCH0580
 2154     C             *** STR ***                                      TSCH0590
 2155      5000 IF (TSC(385) - TSS(57)) 500,500,501                      TSCH0600
 2156     C                                                              TSCH0610
 2157     C     TBAR LESS THAN T(BOT),EXIT,ID=2,1                        TSCH0620
 2158      500  ISK1= ND(2)                                             TSCH0630
 2159           ISK2 = ND(1)                                            TSCH0640
 2160           IF(DBKP(1)) 1501,1501,1500                              TSCH0641
 2161      1500 IK = ND(1)                                              TSCH0642
 2162           IF(IP(33))5101,5101,1501
 2163      5101 CALL PRTBK
 2164      1501 CONTINUE                                                TSCH0644
 2165           GO TO 599                                               TSCH0650
 2166     C                                                              10000260
 2167     C       TOT. AREA,  MIN STR GEOM. SETUP REGION ID              TSCH0660
 2168      501  TSC(382) = TSC(2)*TSC(385)                              TSCH0670
 2169           TSS(43)= TDC(194)                                       TSCH0690
 2170           TSS(44)=STRMN                                           TSCH0700
 2171           TSS(45)=HSTR1                                           TSCH0710
 2172           TSS(47)= TSEC(222)*HSTR1*TSEC(221)                      TSCH0720
 2173           IF (STFMN - TSS(47)) 640,645,645                        CR000301
 2174      640 TSS(47) = STFMN                                          CR000302
 2175      645 TSS(46) = STFMN*TSEC(223)                                CR000303
 2176     C                                                              TSCH0740
 2177     C          ** TEST FOR STR  ID=0,0  **                         TSCH0750
 2178           IF (CNSID) 650,5010,650                                 TSCH0760
 2179      650  TSS(49) = TSS(43)*TSEC(232)/TSC(2)                      TSCH0770
 2180           TSS(49) = TSC(385) - TSS(49)                            TSCH0780
 2181           TSC(391) = TSS(43)                                      TSCH0790
 2182     C                                                              TSCH0800
 2183     C             TRST IS FOR SEARCH, TVF, OR TSK(INPUT)           TSCH0810
 2184      655  IF (ND(2) - IDSK) 652,651,652                           TSCH0820
 2185     C             *** 651=TVF, 652=INPUT TAK AND SEARCH            TSCH0830
 2186      651  TSS(57) = TSS(99)                                       TSCH0840
 2187           TSS(49) = TSS(99)                                       TSCH0850
 2188      652  TSS(41) = TSS(49)                                       TSCH0860
 2189           TSS(42) = TSS(49)                                       TSCH0870
 2190           TSS(48) = DC(3)                                         TSCH0880
 2191           ILI = ND(1)                                             TSCH0890
 2192     C                                                              TSCH0891
 2193     C    SET ID FOR STBAR TRACE                    ISTB = 1        TSCH0892
 2194     C                                                              TSCH0893
 2195           ISTB = ND(1)                                            TSCH0894
 2196           CALL STBAR (TSS(49))                                    TSCH0900
 2197           IF(DBKP(1)) 1653,1653,1652                              TSCH0901
 2198      1652 IK = ND(1)                                              TSCH0902
 2199           IF(IP(33))5103,5103,1653
 2200      5103 CALL PRTBK
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CARD NO      ****                          CONTENTS                          ****
 2261          1053 CONTINUE                                                 TSCH0900
 2262               GO TO 599                                                TSCH0910
 2263          C                                                             TSCH0920
 2264          C                                                             TSCH0930
 2265          C                                                             TSCH0940
 2266          C          **** TEST FOR PL, MP, FDH ****                     TSCH0950
 2267           0**       IF (D(2) - CNS(0) 054,656,656                      TSCH0960
 2268          C              *** FDH -- B(STR) = 1.0 *** FINAL T(BAR)=TSK + T(BOND)  TSCH0970
 2269           654       TSS(49) = TSC(385)                                 TSCH0980
 2270                     TSC(381) = DC(3)                                   TSCH0990
 2271                     GO TO 655                                          TSCH1000
 2272          C                                                             TSCH1010
 2273          C          ** PL, MP.  NO B/T TEST --- SETUP TSKIN **         TSCH1020
 2274           656       TSS(57) = TSC(385) - TDC(19%)*TSEC(232)/TSC(2)     TSCH1030
 2275                     GO TO 501                                          TSCH1040
 2276          C                                                             TSCH1050
 2277          C          *******DELETE CARDS --275-370 FOR STRGO SUBR.(4-05-69)******* TSCH1060
 2278          C                                                             TSCH1070
 2279          C          ****SETUP STR DATA WITH SUBR STRGO =F(IFCCR(1)) ****  TSCH1080
 2280          C          *** K = D(455) OR D(456)  *** CHANGED ON 11/13/72 NEXT 31-CARDSTSCH1081
 2281          C          *** CHANGING MIN GAGE OF STRINGER  T(STR)= F(K*TSKIN) ***  TSCH1082
 2282          C          *** 1ST TEST TO SEE TSTR = CONSTANT ***            TSCH1083
 2283           5010 IF (STRSK) 700,700,701                                  TSCH1085
 2284          C          *** SAVE INPUT MIN. STG. GAGE  ***                 TSCH1086
 2285             701 TMT(325) = STRMN                                       TSCH1087
 2286                 IROO1= ND(1)                                           TSCH1088
 2287          C          *** CALC. NEW MIN. STG. GAGE BASED STRSK AND BULKING CRITICAL  TSCH1089
 2288          C              SKIN ***                                       TSCH1090
 2289                 TMT(326) = STRSK*TSS(57)                               TSCH1090
 2290                 TMT(327) = D(1)                                        TSCH1091
 2291                 IF ( TMT(326) -STRMN) 702,702,703                      TSCH1092
 2292             702 TMT(326)= STRMN                                        TSCH1093
 2293                 GO TO 700                                              TSCH1094
 2294             703 STRMN = TMT(326)                                       TSCH1095
 2295                 TMT (327) = TMT(326)/TMT(325)                          TSCH1096
 2296             707 TMT(304) = TMT(304)*TMT(327)                           TSCH1097
 2297                 TMT(307) = TMT(307)/ TMT(327)                          TSCH1098
 2298                 DO 709 I=1,2                                           TSCH1099
 2299                 TSS (I+42) = TSS(I+42)*TMT(327)                        TSCH1110
 2300                 TMT (I+307) = TMT(I+307)/TMT(327)                      TSCH1111
 2301                 TMT (I+309) = TMT(I+309)/TMT(327)                      TSCH1112
 2302             709 CONTINUE                                               TSCH1113
 2303             700 CALL STRGO                                             TSCH1114
 2304                 IF (DBUP(1)) 1503,1503,1502                            TSCH1115
 2305            1502 IK = ND(1)                                             TSCH1116
 2306                 IF(IP(33))5105,5105,1503
 2307            5105 CALL PRTBK
 2308            1503 CONTINUE                                               TSCH1118
 2309          C          *** IF IRGO2 =2 STR. DATA HAS JUST BEEN RESET EXIT  TSCH1119
 2310                 IF (IR002 - ND(1)) 711,711,5991                        TSCH1120
 2311             711 IF (ND(2)-IDSK) 503,600,504                            TSCH1121
 2312          C          SETUP SEARCH -- TEST TYPE 1=SEARCH, 2=TWF, 3=INPUT  TSCH1110
 2313          C          ID=3  INPUT TSK=CONSTANT. NO KSK RESTRICTIONS. TEST TSK(B/T)  TSCH1130
 2314           503       TSS(49)=SKMN                                       TSCH1140
 2315                     IF (TSS(57)- TSS(49)) 8/1,601,500                  TSCH1150
 2316          C                                                             TSCH1160
 2317          C          TSK= TWF  OR INPUT TSK=CONSTANT                    TSCH1170
 2318           601       TSS(41)=TSS(49)                                    TSCH1200
 2319                     TSS(42)=TSS(49)                                    TSCH1210
 2320                     TSS(48)=DC(3)                                      TSCH1220
 2321                     GO TO 514                                          TSCH1230
 2322          C                                                             TSCH1231
 2323          C     REVISION 11-20-72  RELOCATED THE NEXT 2 CARDS FROM IN FRONT OF  TSCH1232
 2324          C               STATEMENT 601 TO BEHIND THE GO TO 514 CARD    TSCH1233
 2325          C               KSMIN*TBAR .LE. TWF .LE. KSMAX*TBAR           TSCH1234
 2326          C                                                             TSCH1235
 2327           600       TSS(57)=TSS(99)                                    TSCH1236
 2328                     TSS(48)=TSS(99)                                    TSCH1237
 2329          C                                                             TSCH1240
 2330          C          OPT SEARCH FOR TSK  -- ID=1                        TSCH1250
 2331           504       TSS(42) = TSC(385)*1000K                           TSCH1260
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CARD NO	****	CONTENTS	****
2272	505	TSS(41) = TSC(385)*TKKMN	TSCH1270
2273		IF (TSS(41)-SKMN) 506,507,507	TSCH1280
2274	506	TSS(41) = SKMN	TSCH1290
2275	507	IF (TSS(41)- TSS(57)) 508,509,509	TSCH1300
2276	508	TSS(41) = TSS(57)	TSCH1310
2277	509	TSS(49) = TSS(41)	TSCH1320
2278		TSS(48) = TSS(42)-TSS(41)	TSCH1330
2279		IF (TSS(48)) 500,514,514	TSCH1340
2280	C		TSCH1350
2281	C		TSCH1360
2282	C	START SEARCH TSS(45)= TSK(0)	TSCH1370
2283	514	IL1=ND(1)	TSCH1380
2284	C		TSCH1381
2285	C	SET ID FOR STBAR TRACE ISTB = 2	TSCH1382
2286	C		TSCH1383
2287		ISTB = ND(2)	TSCH1384
2288		CALL STBAR (TSS(49))	TSCH1390
2289		ISK1 = ND(2)	TSCH1400
2290		IF (IL2-ND(3)) 5130,516,515	TSCH1410
2291	5130	IF(IL2-ND(2)) 513,517,513	TSCH1420
2292	C		TSCH1430
2293	C	TSKO OK SET UP ID. 513=L LESSTHAN LMAX ID=1, 517=L1=LMAX ID=3	TSCH1440
2294	513	ISK1=ND(1)	TSCH1450
2295		GO TO 518	TSCH1460
2296	C		TSCH1470
2297	C	L1 LESS THAN LMIN, ID=3	TSCH1480
2298	516	ISK2 =ND(3)	TSCH1490
2299		GO TO 599	TSCH1500
2300	C	ASTR 100 SMALL, ID=4	TSCH1510
2301	515	ISK2 =ND(2)	TSCH1520
2302		GO TO 599	TSCH1530
2303	C		TSCH1540
2304	C	ID=2. L=LMAX	TSCH1550
2305	517	ISK1=ND(3)	TSCH1560
2306	C	TEST FOR CONDITION OF SEARCH EPS= 1 PER CENT 518=DELTA TSKO.	TSCH1570
2307	C	518=LMIN, 520=TWO PI0, 521=HMIN, 522=ASTRMIN	TSCH1580
2308	518	IF (TSS(49)*D(31)-TSS(42)) 519,599,599	TSCH1590
2309	519	IF (STLMN*D(31) - TSC(397)) 520,599,599	TSCH1600
2310	C	NO TEST ON T(RIB WEB)	TSCH1610
2311	520	IF (TSS(46)*D(31) - TSC(395)) 522,599,599	TSCH1620
2312	522	IF (TSC(391)*D(31) - TSC(392)) 526,599,599	TSCH1630
2313	C	OK, SEARCH SAVE TSKO,T1 DATA AND SETUP TO TEST SLOPE	TSCH1640
2314	526	DO 527 I=1,30	TSCH1650
2315		TSC(I+290)=TSC(I+382)	TSCH1660
2316	527	TSS(I+68) =TSC(I+382)	TSCH1670
2317		ISK1=ND(1)	TSCH1680
2318		TSS(50)=TSC(383)	TSCH1700
2319		TSC(411)=TSS(49)+D(34)*TSS(48)	TSCH1710
2320	C		TSCH1711
2321	C	SET ID FOR STBAR TRACE ISTB = 3	TSCH1712
2322	C		TSCH1713
2323		ISTB = ND(3)	TSCH1714
2324		CALL STBAR (TSC(411))	TSCH1720
2325		IF (ND(2) - IL2) 523,525,525	TSCH1730
2326	C	TSK2 NO, USE TSKO	TSCH1740
2327	523	DO 524 I=1,30	TSCH1750
2328	524	TSC(I+382) =TSS(I+ 68)	TSCH1760
2329		GO TO 599	TSCH1780
2330	C	TEST SLOPE OF SUM TBARS	TSCH1790
2331	525	IF (TSC(383)-TSS(50))530,523,523	TSCH1800
2332	C	TBAR2 LESS THAN TBARO, SEARCH TSKO TO TSKMAX	TSCH1810
2333	530	TSS(2)= TSS(50)	TSCH1820
2334		TSS(5)= TSS(49)	TSCH1830
2335		TSS(51)= TSS(48)/D(33)	TSCH1840
2336		TSS(52)= TSS(42)	TSCH1850
2337		IL3 =ND(1)	TSCH1860
2338		LT1 = ND(1)	TSCH1870
2339		LT2 = ND(18)	TSCH1880
2340		LT3 = ND(17)	TSCH1890
2341		TSS(6)= TSS(5)+ TSS(51)	TSCH1900
2342	C		TSCH1910

CARD NO	**** CONTENTS ****	
2343	C SET ID FOR STBAR TRACE ISTB = 4	TSCH1911
2344	C	TSCH1912
2345	ISTB = ND(4)	TSCH1913
2346	CALL STBAR (TSS(6))	TSCH1920
2347	IF (ND(2) - IL2) 531,532,532	TSCH1930
2348	C T3 TOO LARGE, TMAX=T3	TSCH1940
2349	531 TS6(52) = TSS(6)	TSCH1950
2350	TSS(6) = TSS(6) - D(35)*TSS(51)	TSCH1960
2351	C	TSCH1970
2352	C SET ID FOR STBAR TRACE ISTB = 5	TSCH1971
2353	C	TSCH1972
2354	ISTB = ND(5)	TSCH1973
2355	CALL STBAR (TSS(6))	TSCH1980
2356	IF (ND(2) - IL2) 533,549,549	TSCH1990
2357	C	TSCH1997
2358	C **END SEARCH ON TEST WITH D(32)=.06 VS PT(3-2)/DEL(T)**	TSCH1998
2359	C *DEL(T)=TSS(48)+(TSKMX - TSKMN)/D(33)*	TSCH1999
2360	533 IF (((TSS(6) - TSS(51))/TSS(48) - D(32)) 535,535,531	TSCH2000
2361	C	TSCH2010
2362	C RESET T2 DATA AS OPT N=3)	TSCH2020
2363	535 N= LT2	TSCH2030
2364	548 DO 538 I=1,30	TSCH2040
2365	IN=I+N+ND(10)	TSCH2050
2366	538 TSC(I+382)=TSC(IN)	TSCH2060
2367	GO TO 599	TSCH2080
2368	C T3 OK, SAVE	TSCH2090
2369	532 DO 537 I=1,30	TSCH2100
2370	537 TSC(I+320)= TSC(I+382)	TSCH2110
2371	TSS(3) = TSC(383)	TSCH2130
2372	IF (TSS(3)-TSS(2)) 538,534,534	TSCH2140
2373	C MOVE 2,3 TO 1,2	TSCH2150
2374	538 N=LT1	TSCH2160
2375	LT1=LT2	TSCH2170
2376	LT2=LT3	TSCH2180
2377	LT3 = N	TSCH2190
2378	DO 540 I=1,2	TSCH2200
2379	TSS(I)=TSS(I+1)	TSCH2210
2380	540 TSS(I+3)= TSS(I+4)	TSCH2220
2381	IL3=IL3+ND(1)	TSCH2240
2382	TSS(6)= TSS(5)+TSS(51)	TSCH2250
2383	C	TSCH2260
2384	C SET ID FOR STBAR TRACE ISTB = 6	TSCH2261
2385	C	TSCH2262
2386	ISTB = ND(6)	TSCH2263
2387	CALL STBAR (TSS(6))	TSCH2270
2388	IF (IL2 - ND(3)) 541,531,531	TSCH2280
2389	541 DO 539 I=1,30	TSCH2290
2390	IN=I+LT3+ND(10)	TSCH2300
2391	539 TSC(IN)=TSC(I+382)	TSCH2310
2392	TSS(3) = TSC(383)	TSCH2320
2393	C	TSCH2330
2394	C *** TEST DIFF OF T-BARS***	TSCH2330
2395	TSS(55) = TSS(2) - TSS(3)	TSCH2340
2396	IF (TSS(55)) 550,550,542	TSCH2341
2397	542 IF (D(84)/D(10) - TSS(55)) 5420,547,547	TSCH2345
2398	5420 IF (TSS(55) - D(84)) 5421,5421,5424	TSCH2346
2399	5421 TSS(55) = (TSS(2) - TSS(1))/TSS(55)	TSCH2350
2400	IF (TSS(55) - D(10)) 5422,550,550	TSCH2351
2401	5422 IF (D(2) - TSS(55)) 5424,547,547	TSCH2352
2402	5424 IF (IL3 - ND(10)) 538,5426,5426	TSCH2355
2403	5426 TS6(6) = TSS(52)	TSCH2356
2404	GO TO 534	TSCH2357
2405	C	TSCH2358
2406	C SAVE T3 DATA	TSCH2359
2407	549 DO 548 I=1,30	TSCH2370
2408	IN=LT3+I+ND(10)	TSCH2380
2409	548 TSC(IN)=TSC(I+382)	TSCH2390
2410	TSS(3)=TSC(383)	TSCH2410
2411	TS6(52)= (TSS(6) + TSS(52))/D(2)	TSCH2420
2412	C T3 IS OK, T1=T2	TSCH2430
2413	534 TSS(1)=TSS(2)	TSCH2440

CARD NO	****	COMMENTS	****
2N14		TSS(4)=TSS(5)	TSCHE450
2N15		N=LT1	TSCHE460
2N16		LT1=LT2	TSCHE470
2N17		LT2=N	TSCHE480
2N18		TSS(5) = (TSS(4) + TSS(6))/D(2)	TSCHE490
2N19	C		TSCHE500
2N20	C	SET ID FOR STBAR TRACE ISTB = 7	TSCHE501
2N21	C		TSCHE502
2N22		ISTB = ND(7)	TSCHE503
2N23		CALL STBAR (TSS(5))	TSCHE510
2N24		IF (IL2 - ND(3)) 943,945,945	TSCHE520
2N25	943	TSS(2)= TSC(283)	TSCHE530
2N26		DO 944 I=1,30	TSCHE540
2N27		IN=I+LT2+ND(10)	TSCHE550
2N28	944	TSC(IN)=TSC(I+382)	TSCHE560
2N29	C	TO INTERP. NO 1	TSCHE580
2N30		GO TO 950	TSCHE590
2N31	C	T2 IS NO TEST I WITH 3	TSCHE600
2N32	945	N = LT1	TSCHE610
2N33		IF (TSS(3)-TSS(1)) 947,947,946	TSCHE620
2N34	C	USE T3 DATA	TSCHE630
2N35	947	N = LT3	TSCHE640
2N36		GO TO 946	TSCHE650
2N37	C		TSCHE660
2N38	C	INTERPOLATE FOR FIRST MIN	TSCHE670
2N39	950	IK= ND(1)	TSCHE680
2N40	9500	CALL COMP (TSS(4),TSS(1))	TSCHE690
2N41		IF (IL - ND(2)) 951,570,560	TSCHE700
2N42	C	IL=1, LEFT, TEST T1	TSCHE710
2N43	951	IF (TSS(4)-TSS(49))952,952,953	TSCHE720
2N44	952	IF (TSS(1)-TSS(2)) 945,935,935	TSCHE730
2N45	C	MOVE 2 TO 3, 1 TO 2	TSCHE740
2N46	953	TSS(3)=TSS(2)	TSCHE750
2N47		TSS(2)=TSS(1)	TSCHE760
2N48		TSS(6)=TSS(5)	TSCHE770
2N49		TSS(5)=TSS(4)	TSCHE780
2N50		N=LT3	TSCHE790
2N51		LT3=LT2	TSCHE800
2N52		LT2=LT1	TSCHE810
2N53		LT1=N	TSCHE820
2N54		IF (TSS(4) - TSS(49) - D(8)) 952,952,9530	TSCHE825
2N55	9530	TSS(4) = TSS(5) - D(3))*(TSS(6) - TSS(5))	TSCHE830
2N56		IF (TSS(4) - TSS(49)) 954,954,955	TSCHE835
2N57	954	TSS(4)= TSS(49)	TSCHE840
2N58		TSS(1)= TSS(50)	TSCHE850
2N59		DO 956 I=1,30	TSCHE860
2N60		IN=I+LT1+ND(10)	TSCHE870
2N61	956	TSC(IN)=TSS(I+60)	TSCHE880
2N62		GO TO 950	TSCHE890
2N63	955	TSS(4) = (TSS(5) + TSS(49))/D(2)	TSCHE910
2N64	C		TSCHE920
2N65	C	SET ID FOR STBAR TRACE ISTB = 8	TSCHE921
2N66	C		TSCHE922
2N67		ISTB = ND(8)	TSCHE923
2N68		CALL STBAR (TSS(4))	TSCHE930
2N69		IF (IL2 - ND(3)) 957,954,954	TSCHE940
2N70	957	DO 958 I=1,30	TSCHE950
2N71		IN=I+LT1+ND(10)	TSCHE960
2N72	958	TSC(IN)=TSC(I+382)	TSCHE970
2N73		TSS(1) = TSC(383)	TSCHE980
2N74		GO TO 950	TSCHE990
2N75	C		TSCH3000
2N76	C	IL=3, RIGHT	TSCH3010
2N77	880	IF (TSS(6)-TSS(52)) 961,947,947	TSCH3020
2N78	C	SET 1 TO 2, 2 TO 3	TSCH3030
2N79	961	DO 962 I=1,2	TSCH3040
2N80		TSS(I) = TSS(I+1)	TSCH3050
2N81	962	TSS(I+3)= TSS(I+4)	TSCH3060
2N82		N=LT1	TSCH3080
2N83		LT1=LT2	TSCH3090
2N84		LT2=LT3	TSCH3100

CARD NO	**** CONTENTS ****	
2485	LT.>N	TSCH3110
2486	TSS(6)= TSS(5)+TSS(5)-TSS(4)	TSCH3120
2487	IF (TSS(6) - TS.(52)) 584,584,563	TSCH3130
2488	563 IF (TSS(52) - TSS(5) - D(84)) 560,560,5630	TSCH3135
2489	5630 TSS(6) = TSS(52)	TSCH3140
2490	C	TSCH3150
2491	C SET ID FOR STBAR TRACE ISTB = 8	TSCH3151
2492	C	TSCH3152
2493	ISTB = ND(8)	TSCH3153
2494	584 CALL STBAR (TSS(6))	TSCH3160
2495	IF (IL2 - ND(3)) 585,587,587	TSCH3170
2496	585 TSS(3)= TSC(383)	TSCH3180
2497	DO 586 I=1,30	TSCH3190
2498	IN=I+LT3+ND(10)	TSCH3200
2499	586 TSC(IN)=TSC(I+382)	TSCH3210
2500	GO TO 950	TSCH3230
2501	C	TSCH3230
2502	587 TSS(52) = TSS(6)	TSCH3240
2503	IF (TSS(1) - TSS(2) - D(84)/D(10)) 535,535,5870	TSCH3241
2504	5870 TSS(6) = TSS(6) - (TSS(6) - TSS(5))/D(4)	TSCH3242
2505	GO TO 563	TSCH3245
2506	C	TSCH3240
2507	588 IF (TSS(1)-TSS(2))545,535,535	TSCH3250
2508	C	TSCH3260
2509	C FIRST MINIMUM FOUND, ID = 2	TSCH3270
2510	C	TSCH3280
2511	570 TSS(53) = TUC(47)	TSCH3290
2512	C TEST TM1 WITH T1,T3	TSCH3300
2513	IF (TSS(4)-TSS(53)) 588,545,545	TSCH3310
2514	588 IF (TSS(53)-TSS(6))5701,547,547	TSCH3320
2515	C	TSCH3321
2516	C SET ID FOR STBAR TRACE ISTB = 10	TSCH3325
2517	C	TSCH3327
2518	5701 ISTB = ND(10)	TSCH3325
2519	CALL STBAR (TSS(53))	TSCH3326
2520	IF (ND(2) - IL2) 571,570,570	TSCH3340
2521	571 IF (TSS(2)-TSS(1))572,572,575	TSCH3350
2522	572 IF (TSS(3)-TSS(2))573,573,574	TSCH3360
2523	573 IF (TSS(3) -TSS(50))547,547,523	TSCH3370
2524	574 IF (TSS(2) -TSS(50))535,535,523	TSCH3380
2525	575 IF (TSS(1) -TSS(3))576,573,573	TSCH3390
2526	576 IF (TSS(1) -TSS(50))545,577,523	TSCH3400
2527	577 IF (TSS(4) -TSS(48))523,523,545	TSCH3410
2528	C	TSCH3420
2529	C TRM1 OK, SAVE DATA	TSCH3430
2530	578 DO 579 I=1,30	TSCH3440
2531	579 TSC(I+350) = TSC(I+382)	TSCH3450
2532	TSS(54)= TSC(383)	TSCH3470
2533	IF (TSS(54) - TSS(2))580,580,585	TSCH3480
2534	580 IF (TSS(53) - TSS(5))581,580,584	TSCH3490
2535	581 TSS(3)= TSS(2)	TSCH3500
2536	TSS(8)= TSS(5)	TSCH3510
2537	N=LT3	TSCH3520
2538	LT3=LT2	TSCH3530
2539	582 LT2=N	TSCH3540
2540	TSS(2) =TSS(54)	TSCH3550
2541	T.S(5) =TSS(53)	TSCH3560
2542	GO TO 587	TSCH3570
2543	C	TSCH3580
2544	C	TSCH3600
2545	C	TSCH3600
2546	584 TSS(1)= TSS(2)	TSCH3610
2547	TSS(4)= TSS(5)	TSCH3620
2548	N=LT1	TSCH3630
2549	LT1=LT2	TSCH3640
2550	GO TO 582	TSCH3650
2551	C	TSCH3660
2552	C TBAR M1 GREATER THAN TBAR2	TSCH3670
2553	C TEST TRM1 AND TM2	TSCH3680
2554	585 IF (TSS(53) - TSS(5)) 588,671,688	TSCH3690
2555	C MOVE TM1 DATA TO T1 LOC, T2 DATA TO TM1 LOC	TSCH3700

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CARD NO  ****                          CONTENTS                          ****
2556      588  TSS(1)=SS(54)                                              TSCH3710
2557           TSS(41)=SS(53)                                             TSCH3720
2558           N=LT1                                                      TSCH3730
2559           GO TO 583                                                  TSCH3740
2560      C    MOVE TH1 DATA TO T3 LOC, T2 DATA TO TH1 LOC                TSCH3750
2561      589  TSS(3)=TSS(54)                                             TSCH3760
2562           TSS(6)=TSS(53)                                             TSCH3770
2563           N=LT3                                                      TSCH3780
2564      583  DO 5831 I=1,30                                             TSCH3790
2565           IN=N+I+ND(18)                                              TSCH3800
2566      5831 TSC(IN)=TSC(I+350)                                         TSCH3810
2567      C    MOVE T2 DATA TO TH1                                        TSCH3830
2568           DO 5832 I=1,30                                             TSCH3840
2569           IN=LT2+I+ND(18)                                            TSCH3850
2570      5832 TSC(I+350)=TSC(IN)                                         TSCH3860
2571           TSS(53)=TSS(5)                                             TSCH3870
2572           TSS(54)=TSS(2)                                             TSCH3890
2573           GO TO 590                                                  TSCH3900
2574      587  DO 589 I=1,30                                              TSCH3910
2575           IN=I+N+ND(18)                                              TSCH3920
2576      588  TSC(IN)=TSC(I+350)                                         TSCH3930
2577      C                                                               TSCH3950
2578      C                                                               TSCH3960
2579      C     INTERPOLATE FOR MIN 2                                     TSCH3970
2580      590  IK=ND(1)                                                   TSCH3980
2581           CALL CO3P (TSS(4),TSS(1))                                  TSCH3990
2582           N = LT1                                                    TSCH4000
2583           IF (IL - ND(2)) 5900,593,5901                              TSCH4005
2584      5900 N = LT3                                                    TSCH4007
2585      5901 DO 5902 I=1,30                                             TSCH4010
2586           IN = N + I + ND(18)                                        TSCH4011
2587           TSC(IN) = TSC(I+350)                                       TSCH4012
2588      5902 CONTINUE                                                   TSCH4015
2589           GO TO 571                                                  TSCH4018
2590      C                                                               TSCH4019
2591      591  DO 592  I=1,30                                             TSCH4020
2592      592  TSC(I+382)=TSC(I+350)                                      TSCH4030
2593      C                                                               TSCH4038
2594      C              **TEST MIN WITH PT(1,2,3)**                      TSCH4039
2595      598  IF (TSC(383) - TSS(1)) 5980,5985,571                       TSCH4040
2596      5980 IF (TSC(383) - TSS(2)) 5981,5983,572                       TSCH4041
2597      5981 IF (TSC(383) - TS6(3)) 599,5982,573                        TSCH4045
2598      5982 IF (TSS(6) - TSC(411)) 598,599,547                         TSCH4050
2599      5983 IF (TSC(383) - TSS(3)) 5984,547,547                        TSCH4051
2600      5984 IF (TSS(5) - TSC(411)) 599,599,535                         TSCH4055
2601      5985 IF (TSC(383) - TSS(2)) 5986,5983,572                       TSCH4060
2602      5986 IF (TSC(283) - TSS(3)) 5987,5982,573                       TSCH4061
2603      5987 IF (TSS(4) - TSC(411)) 599,599,545                         TSCH4065
2604      C                                                               TSCH4069
2605      C                                                               TSCH4070
2606      C     SET ID FOR STBAR TRACE                    ISTB = 11       TSCH4071
2607      C                                                               TSCH4072
2608        583 ISTB = ND(11)                                             TSCH4073
2609           CALL STBAR  ( TOC(47) )                                    TSCH4074
2610           TSS(95) = TOC(47)                                          TSCH4080
2611           IF (IL2 - ND(3)) 594,591,591                               TSCH4090
2612      594  IF (TSS(54) - TSC(383)) 591,595,588                        TSCH4100
2613      595  IF (TSS(53) - TSC(411)) 598,598,591                        TSCH4110
2614      C                                                               TSCH4120
2615      C                                                               TSCH4130
2616      C     SETUP EXIT                                                TSCH4140
2617      588  IF (ISK1 - ND(2)) 587,5990,5990                            10019020
2618      587  IF (TSC(397) - STLM0)  5980,596,596                        TSCH4150
2619      586  ISK1= ND(3)                                                TSCH4170
2620      C                                                               CR019050
2621      C            ***RESET SAVED DATA***                             CR019051
2622      C       *** CHANGED NEXT 8 CARDS 11/13/72                       TSCH4171
2623      C       *** RESET STR MIN GADE AND B/T FOR MIN GADE ***         TSCH4172
2624      5990 IF (CHSID)  705,705,5991                                   TSCH4173
2625      705  IF (IRGO) .EQ. 0 )    GO TO 5991
2626           IRGO1= ND(2)                                               TSCH4174
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CARD NO  ****                          CONTENTS                          ****
   8627        IF (TNT(325)-STRMN) 706,706,5981                          TSCHN175
   8628      706 STRMN = TNT(325)                                        TSCHN176
   8629        TNT(327)= TNT(325)/TNT(326)                               TSCHN177
   8630        GO TO 707                                                 TSCHN178
   8631      5981 IMX =IMHD                                              TSCHN179
   8632        IBT = IBTO                                                CR019053
   8633        TSEC(221) = TSEC(256)                                     CR019054
   8634        TSEC(224) = TSEC(256)                                     CR019055
   8635        TNT(305) = TSEC(257)                                      CR019056
   8636        TNT(307) = TSEC(258)                                      CR019057
   8637        TDC(194) = TSEC(259)                                      CR019058
   8638  C                                                               CR019059
   8639  C                                                               TSCHN180
   8640  C     EXIT                                                      TSCHN190
   8641       9999 RETURN                                                TSCHN200
   8642        END                                                       TSCHN210
   8643  C*********************************.*****************************
   8644  C
   8645  C       *****SUBROUTINE STBAR*****
   8646  C   ***T-BAR EVALUATION FOR TOTAL COVER/SUPT STRUCTURES***
   8647  C
   8648  C*************************************************************************
   8649  C
   8650        SUBROUTINE STBAR (ST1)                                    STBA0010
   8651  C     SUM TBAR SUBR --                                          STBA0020
   8652  C                                                               STBA0030
   8653  C     ***REVISION -08-28-72--REVISE SAVE DATA. SAVE B/TIH,F)***  08000016
   8654  C     *** REVISION --07-10-68-- ADD FDH, LHR COVER DESIGN FOR STR,PL,HPSTBA0040
   8655  C           *** REVISION -- 06-03-68 -- PLATES AND HC ***       STBA0050
   8656  C     REVISION -- 01-10-68 -- NEW FORMAT, NEW LINKAGES.         STBA0060
   8657  C                                                               STBA0070
   8658  C     LINK TO  STR0, STRIL, STRI0                               STBA0080
   8659  C                                                               STBA0090
   8660  C     INPUT IL, I= COMPLETE, 2 = DO TRIB                        STBA0100
   8661  C       OUTPUT IMD.  1=TSK OK,  2=L>LMAX,  3= L NG,  4= ASTR NG. STBA0110
   8662  C                                                               STBA0120
   8663  C                                                               STBA0140
   8664        COMMON T(2060),D(2060),CD(2000),ND(100)                   STBA0150
   8665  C                                                               STBA0160
   8666        DIMENSION                                DC(100),         STBA0170
   8667       1TDC(200),TSC(420),TSS(100),TSEC(300),TNT(400)             STBA0180
   8668  C                                                               STBA0190
   8669        EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1981))  STBA0200
   8670        EQUIVALENCE (TNT(1),CD(1101)),(TSEC(1),CD(1501))          STBA0220
   8671        EQUIVALENCE (DC(1),D(1401)),(STAFN,D(381)),(STLMN,D(375)),  STBA0210
   8672       1(STLMX,D(376)),(TRVT,D(397)),(DRVT,D(398)),(CNSID,D(481)),  STBA0211
   8673       2(BOTHC,TSEC(256)),  (BOTFC,TSEC(251)),                     08000087
   8674       3(DTC,D(462)),(DCRHO,D(463)),(DBRHO,D(464))                 STBA0212
   8675        EQUIVALENCE (IMN,ND(35)),(IL,ND(34)),(IMD,ND(33))         STBA0230
   8676  C                                                               STBA0270
   8677    100 TSC(411)=ST1                                              STBA0280
   8678        IF (IL - ND(2)) 105,99,105                                STBA0290
   8679  C                                                               STBA0300
   8680    105 IMD=ND(4)                                                 STBA0310
   8681        CALL STR0                                                 STBA0320
   8682        IF (IMN - ND(2)) 107,110,107                              STBA0330
   8683  C                                                               STBA0340
   8684  C     DO  COLUMN LENGTH                                         STBA0350
   8685    107 CALL STRIL                                                STBA0360
   8686  C     SAVE Y(BAR), TEST LENGTH (L)                              STBA0370
   8687        TSC(408)= TSC(413)                                        STBA0380
   8688  C                                                               STBA0390
   8689  C           *** TEST FOR PLATES/HC                              STBAP+00
   8690        IF (CNSID - D(1)) 1070,99,99                              STBAP+10
   8691    1070 IMD = ND(3)                                              STBAP+20
   8692        TSC(416) =  TSC(397)/STLMN                                STBAP+30
   8693        TSC(405) = TSC(416)                                       STBAP+40
   8694        IF (STLMN - TSC(397)) 10%,108,110                         STBAP+50
   8695    108 IMD = ND(1)                                               STBAP+60
   8696  C                                                               STBAP+70
   8697        IF (STLMX - TSC(397)) 100,100,131                         STBAP+80
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CARD NO  ****                          CONTENTS                          ****
2698      100  TSC(387) = STLMK                                          STBA0490
2699           IMD = MD(2)                                               STBA0500
2700      C     SETUP  RIB DATA                                          STBA0510
2701           GO TO 131                                                 STBA0520
2702      C           *** TEST FOR FDH ***                               STBA0530
2703       90  IF (D(3) - CMSID) 130,130,131                             STBA0540
2704      C           *** FDH *** -- TBAR(RIB) = TBAR(CORE)              STBA0550
2705      130  TSC(388) = TSEC(227)*TDC(73)                              STBA0560
2706           TSC(390) = DC(3)                                          STBA0570
2707           TSC(408) = TSC(386)                                       STBA0580
2708           TSC(403) = TSC(381)                                       STBA0590
2709           TSC(407) = D(1)                                           STBA0600
2710           TSC(387) = DC(3)                                          STBA0610
2711           TSC(388) = DC(3)                                          STBA0620
2712           TSC(389) = DC(3)                                          STBA0630
2713           TSC(383) = TSC(385) + TSC(386) + TSC(387)                 STBA0640
2714           GO TO 110                                                 STBA0650
2715      C                                                              STBA0660
2716      C      STR, PL, HP TEST FOR UPR/LWR COVER                      STBA0670
2717      131  TSC(386) = TDC(89)                                        STBA0680
2718           TSC(389) = TDC(92)                                        STBA0690
2719           TSC(390) = TDC(93)                                        STBA0700
2720      C                                                              STBA0710
2721      133  TSC(384) = DC(3)                                          STBA0720
2722      C                                                              STBA0730
2723      132  CALL STRIB                                                STBA0740
2724      C                                                              STBA0750
2725      C                                                              STBA0760
2726      C       ****ADJUST T(BAR RIB) ****                             STBA0770
2727           TSC(389) = TSC(389)*TSEC(233)                             STBA0780
2728           TSC(390) = TSC(390)*TSEC(233)                             STBA0790
2729           TSC(386) = TSC(386)*TSEC(233)                             STBA0800
2730      C                                                              STBA0810
2731      C                                                              STBA0820
2732      C            ***SAVE F(L) IN ER(RIB), B/T(H(REQD)) IN  R(CORR),  09000160
2733      C              B/T(F(REQD)) IN FC(RIB)                         09000180
2734           TSC(404) = TSC(415)                                       STBA0840
2735           TSC(407) = BOTHC                                          09000171
2736           TSC(403) = BOTFC                                          09000172
2737      C                                                              09000178
2738      C                                                              STBA0850
2739      C       SUM T(BAR)                                             STBA0860
2740           TSC(384) = DC(3)                                          STBA0870
2741      C                                                              09000189
2742      C     SETUP MISC SK AND STR ATT.                               STBA0880
2743           IF (STRFW - D(1)) 98,98,101                               STBA0890
2744       98  TSC(420) = D(27)                                          STBA0900
2745           IF (TSC(394) - TSC(420)) 97,97,96                         STBA0910
2746       97  TSC(420) = TSC(394)                                       STBA0920
2747       96  TSC(387) = TSC(420)*TSC(420)/TSC(2)*D(28)                 STBA0930
2748           TSC(388) = DC(3)                                          STBA0940
2749           GO TO 104                                                 STBA0950
2750      C         T ATT -- 2 STR. --                                   STBA0960
2751      101  TSC(388) = TSC(411) + D(23)*D(23)*D(30)                   STBA0970
2752           TSC(388) = TSC(388)*DRVT/D(29)*DRVT/TSC(2)                STBA0980
2753      C              MISC. SK.                                       STBA0990
2754           TSC(387) = DC(3)                                          STBA1000
2755           TSC(420) = D(24) - D(1)                                   STBA1010
2756           IF (TSC(420)) 1030,1030,1031                              STBA1020
2757      1030 TSC(420) = D(1)/D(12)                                     STBA1030
2758      1031 TSC(420) = TSC(420)*TSC(411)                              STBA1040
2759           IF (TRVT) 103,103,102                                     STBA1050
2760       103  TSC(387) = (TSC(386)*D(30)+TSC(389))*TSC(420)/TSC(2)     STBA1060
2761           GO TO 104                                                 STBA1070
2762      C            INPUT T                                          STBA1080
2763       102  TSC(420) = TRVT - TSC(411)                               STBA1090
2764           IF (TSC(420)) 104,104,103                                 STBA1100
2765       104  TSC(383) = TSC(385) + TSC(384) + TSC(386) + TSC(387) + TSC(388) + STBA1110
2766          1TSC(389) + TSC(390)                                       STBA1120
2767      C                                                              STBA1130
2768      C                                                              STBA1140
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CARD NO  ****                          CONTENTS                          ****
 2760      C            TEST CONST. FOR PLATES, HC, STR.                    STBAI150
 2770           IF (D(1) - CNSID) 120,110,110                               STBAI160
 2771      C       *** HP. CORE=THSK(STRI+TSC(387), BOND=THSK(RIB)+TSC(390)  STBAI170
 2772       120  TSC(387) = TSEC(227) + TSC(387)                            STBAI180
 2773           TSC(390) = TSEC(220) + TSC(390)                             STBAI190
 2774           TSC(383) = TSC(383) + TSEC(220) + TSEC(227)                 STBAI200
 2775      C                                                                STBAI210
 2776      C                                                                STBAI220
 2777      C     EXIT                                                       STBAI230
 2778       110  RETURN                                                     STBAI240
 2779           END                                                         STBAI250
 2780      C*************************************  ************************************
 2781      C
 2782      C       *****SUBROUTINE STRG*****
 2783      C   ***OPTIMUM STRINGER MATL DIST - GEOMETRY EVALUATION***
 2784      C
 2785      C*************************************************************************
 2786      C
 2787           SUBROUTINE STRG                                             STRG0010
 2788      C      STRINGER GEOMETRY SUBROUTINE                             STRG0020
 2789      C                                                               STRG0030
 2790      C    REVISION- 11-30-72- ADD SOLUTION EQUATION ID NO-STATEMENT NO.*** STRG0039
 2791      C    ***REVISION--05-14-70--ADD DETAIL SECTION SEARCH PRINT. ID=D(157)***STRG0040
 2792      C    ***REVISION--11-13-69--CORRECT K(STRI LOGIC. SU=D(455),P2=D(456)***STRG0050
 2793      C    ***REVISION--04-05-69--REVISE T(STRI MIN LOGIC T(15K) ***    STRG0060
 2794      C     *** REVISION -- 07-10-68 -- ADD FDH ***                     STRG0070
 2795      C              REVISION--05-17-68-- TEMP FIX FOR PLATES (METHOD A) STRG0080
 2796      C       ID=D(461)=CNSID.  NO PAD AT SPAR LINE, CONSTANT CAP AREA  STRG0090
 2797      C    - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 2798      C
 2799      C     ***ISTRG NO  TYPE  REGION  T-STR   H-STR   F-UPR   F-LWR    STRG0095
 2800      C       (1)  98   Z1,Z2    1,3     OPT     OPT     OPT     OPT    STRG0096
 2801      C       (2)  96   Z1,Z2    1,3     OPT     OPT     MAX     MAX    STRG0097
 2802      C       (3) 129   Z1,Z2    1,3     OPT     MAX     OPT     OPT    STRG0098
 2803      C       (4) 112   Z1,Z2    1,3     OPT     OPT     MIN     OPT    STRG0099
 2804      C       (5) 123     Z2    1,3     OPT     MAX     MIN     OPT    STRG0100
 2805      C            85     Z1    1,3   FMAT/T    T+H/T    0      FMAX   STRG0101
 2806      C           110     Z1    1,3   HMAX/T    HMAX     0      T+F/T  STRG0102
 2807      C           122   Z1,Z2   1,3   FMAT/T    HMAX    FMIN    FMIN   STRG0103
 2808      C    /T     125     Z2    1,3    FMAT      T+H/T   FMAX    FMAX   STRG0104
 2809      C    /T     127     Z2    1,3    HMAX      HMAX    -FL     T+F/T  STRG0105
 2810      C           141   Z1,Z2   1,3   FMAT/T    T+H/T    FMIN    FMIN   STRG0106
 2811      C           102     Z1    2,3     TMG      MIN     0       L-H    STRG0107
 2812      C           104   Z1,Z2   2,3     TMG      MIN     -FL     -FU    STRG0108
 2813      C           105   Z1,Z2   2,3     TMG      MIN     MIN    L-H-FU  STRG0109
 2814      C           106   Z1,Z2   2,3     TMG    L-FU-FL   MAX     MAX    STRG0110
 2815      C            73     ALL     ALL  **STR AREA TOO SMALL**            STRG0111
 2816      C            78     ALL     ALL     TMG      MIN     MIN     MIN   STRG0112
 2817      C           100   Z1,Z2   1,2,3   A/L,MAX    MAX     MAX     MAX   STRG0113
 2818      C           107   Z1,Z2   1,2,3    AMIN2     AMIN2   AMIN2   AMIN2 STRG0114
 2819      C            83       1     1,3     OPT      OPT      0       0     STRG0115
 2820      C            85       1     1,2,3   A/H      MAX      0       0     STRG0116
 2821      C            87       1     1,2,3   TMG      A/T      0       0     STRG0117
 2822      C                                                                STRG0118
 2823      C    - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 2824      C
 2825      C     REVISION -- 01-10-66 -- NEW FORMAT, NEW LINKAGE             STRG0120
 2826      C                                                                STRG0130
 2827      C     T SKIN = VARIABLE, FC=CONSTANT                             STRG0140
 2828      C     IM=1 OK                                                    STRG0150
 2829      C     IM=2 NG                                                    STRG0160
 2830      C                                                                STRG0170
 2831      C                                                                STRG0180
 2832           COMMON T(2060),D(2060),CD(20(8),ND(100)                     STRG0200
 2833           COMMON /IPRINT/ IP(100)
 2834      C                                                                STRG0210
 2835           DIMENSION                          BC(100),                 STRG0220
 2836          1TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),              STRG0230
 2837          2DBOP(4)                                                     STRG0240
 2838      C                                                                STRG0250
 2839           EQUIVALENCE (TDC(1),T(1391)),(TSC(1),T(1591)),(TSS(1),T(1981))  STRG0260
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CARD NO  ****                          CONTENTS                          ****
  2040        EQUIVALENCE (DC(1),D(1401)),(STRFN,D(136)),(STRMN,D(137)),    STRG0270
  2041       1(HSTMN,D(377)),(HSTMX,D(378)),(STFMX,D(379)),(STFMN,D(380)),   STRG0271
  2042       2(STRRO,D(456)),              (STRSK,D(455)),(CNSID,D(463)),    STRG0272
  2043       3(DBKP(1),D(574))                                               STRG0273
  2044        EQUIVALENCE (TMT(1),CD(110)),(TSCC(1),CD(150))                 STRG0280
  2045        EQUIVALENCE (IM,ND(35)),(IBT,ND(72)),(IMX,ND(71)),(IRG,ND(70)), STRG0290
  2046       1(IK,ND(39))                                                    STRG0291
  2047       2,   (ISTRG,ND(88))                                             STRG0292
  2048  C                                                                    STRG0330
  2049  C            ***PRINT TISK), ASTRMIN DATA. IK=2. BLOCK 2 **          STRG0340
  2050     50 IF(IP(33))51,51,60
  2051   51  IK = ND(2)                                                      STRG0360
  2052       CALL PRTBK                                                      STRG0370
  2053  C                                                                    STRG0380
  2054  C                                                                    STRG0390
  2055  C       ****SAVE BASIC STR DATA, STR ONLY. IRGO=1 SETUP, 2=RESET***  STRG0400
  2056   60  IF (CNSID) 70,61,70                                            STRG0410
  2057  C       ***SETUP EXIT ID 1=OK, 2=NO***                               STRG0420
  2058   70  IM=ND(1)                                                       STRG0430
  2059       TSC(413)=DC(3)                                                  STRG0440
  2060       TSC(414) = DC(3)                                                STRG0450
  2061  C                                                                    STRG0460
  2062  C           ***TEST FOR BLOCK 3 PRINT. IK=3 ***                      STRG0470
  2063       IF(IP(33))52,52,71
  2064   52  IK = ND(3)                                                      STRG0490
  2065       CALL PRTBK                                                      STRG0500
  2066  C                                                                    STRG0510
  2067  C                                                                    STRG0520
  2068  C       ASK, ASTR                                                    STRG0530
  2069   71  TSC(412)= TSC(2)*TSC(411)                                       STRG0540
  2070       TSC(382)= TSC(382)-TSC(412)                                     STRG0550
  2071       TSC(387) =DC(3)                                                 STRG0560
  2072  C                                                                    STRG0570
  2073  C        *** TEST FOR PLATES--TEMP ***                               STRG0580
  2074       IF (D(1) - CNSID) 720,720,729                                   STRG0590
  2075  C       *** TEST FOR FDH -- TBAR(STR)=TBAR(BOND)                     STRG0600
  2076   720 IF (CNSID - D(2)) 722,722,723                                   STRG0610
  2077   722 TSC(393) = TSC(382)/TSC(2)                                      STRG0620
  2078       IF (TSC(382)) 721,721,76                                        STRG0630
  2079   721 TSC(382) = TSS(43)*TSEC(232)                                    STRG0640
  2080       TSC(383) = TSC(382)/TSC(2)                                      STRG0650
  2081       GO TO 76                                                        STRG0660
  2082  C                                                                    STRG0670
  2083   729 IF (TSC(382)) 72,72,74                                          STRG0680
  2084  C       SET ASTR=0, IM=2, EXIT                                       STRG0690
  2085   72  TSC(388)= DC(3)                                                STRG0700
  2086   73  IM=ND(2)                                                       STRG0710
  2087       ISTRG = 73                                                      STRG0711
  2088       GO TO 90                                                        STRG0720
  2089  C                                                                    STRG0730
  2090  C       SETUP DATA -- R, T-BAR(STR)                                  STRG0740
  2091   74  TSC(414)= TSC(382)/TSC(381)                                     STRG0750
  2092       TSC(383)= TSC(382)/TSC(2)                                       STRG0760
  2093  C      TEST FOR MIN                                                  STRG0770
  2094       IF (TSC(381)- TSC(382)*1.001)  75,76,73                         STRG0780
  2095  C                                                                    STRG0790
  2096  C                                                                    STRG0800
  2097   75  IF (TSC(382) - TSC(381)*1.001) 76,76,80                         STRG0810
  2098  C       USE ASTR(MIN) PROPERTIES                                     STRG0820
  2099   76  DO 77 I=1,4                                                    STRG0830
  2100       TSC(I+383)= TSS(I+43)                                           STRG0840
  2101   77  CONTINUE                                                       STRG0850
  2102       ISTRG = 76                                                      STRG0851
  2103       GO TO 90                                                        STRG0860
  2104  C                                                                    STRG0870
  2105  C            *** FDH ***                                             STRG0880
  2106   723 TSC(381) = TSEC(280)/D(2)                                       STRG0890
  2107       TSC(382) = TSC(381)                                             STRG0900
  2108       TSC(383) = TSC(381)                                             STRG0910
  2109       TSC(384) = TSC(381)                                             STRG0920
  2110       TSC(385) = TSC(385) + TSC(382)                                  STRG0930
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CARD NO	****	CONTENTS	****
2911		GO TO 99	STR00940
2912	C		STR00950
2913	C		STR00960
2914	C	COMPUTE STR GEOMETRY	STR00970
2915	80	TSC(394)= STRMN	STR00980
2916	800	TSC(388) =DC(3)	STR00990
2917		TWT(301) = TSC(392)/STRMN	STR01000
2918		IF (STRFN - D(1... 81,90,90	STR01010
2919	C	'-STR TEST REGION	STR01020
2920	81	IF (ND(2)-IRG) 82,84,83	STR01030
2921	C	REGION 3 -- COMPUTE H AT THIN, (B/T)	STR01040
2922	82	TSC(395) = TSC(394)*TSC(410)	STR01050
2923		IF (TSC(394)*TSC(395)- TSC(392)) 83,87,87	STR01060
2924	C	REGION 1,3 =F(B/T)	STR01070
2925	83	TSC(395) =SQRT (TSC(392)*TSC(410))	STR01080
2926		ISTRG = 83	STR01081
2927		IF (HSTMX - TSC(395)) 85,85,86	STR01090
2928	C	REGION 2 TEST AMAX(10)	STR01160
2929	84	IF (TWT(304)-TSC(392)) 85,85,87	STR01110
2930	C	H=HMAX	STR01120
2931	85	TSC(395) = HSTMX	STR01130
2932		ISTRG = 85	STR01131
2933	C	T= A/H	STR01140
2934	86	TSC(394)= TSC(392)/TSC(395)	STR01150
2935		GO TO 99	STR01160
2936	C	T=TMO, H=A/T	STR01170
2937	87	TSC(395) = TSC(392)/TSC(394)	STR01180
2938		ISTRG = 87	STR01181
2939		GO TO 99	STR01190
2940	C		STR01200
2941	C	Z(1,2) TYPE TEST REGION	STR01210
2942	90	IF (ND(2)-IRG) 91,100,92	STR01220
2943	C		STR01230
2944	C	REGION 3 TEST WITH AMIN(2)	STR01240
2945	91	IF (TWT(313)-TSC(392)) 92,107,130	STR01250
2946	C		STR01260
2947	C	REGION 1,3 --T NOT MO. Z(1),Z(2)	STR01270
2948	C	TEST WITH MAX T(B/T)	STR01280
2949	92	IF (TSC(392)-TWT(317)) 93,100,100	STR01290
2950	C		STR01300
2951	C	A(I) LESS THAN AMAX	STR01310
2952	C	TEST FOR TYPE	STR01320
2953	93	IF (STRFN - D(1))94,94,120	STR01330
2954	C		STR01340
2955	C	Z(1) TYPE - TEST FOR MAX POINT.	STR01350
2956	94	IF (ND(1) - IMX) 95,110,110	STR01360
2957	C		STR01370
2958	C	IMX=2 MAX(B/T)=F(HMAX)	STR01380
2959	C	COMPUTE AREA AT F=FMAX	STR01390
2960	95	TSC(394) = STFMX/TWT(312)	STR01400
2961		TSC(395) = TSC(410)*TSC(39...	STR01410
2962		TSC(387) = STFMX	STR01420
2963		TWT(319) = TSC(394)*(TSC(395)+TSC(397)	STR01430
2964		ISTRG = 95	STR01431
2965		IF (TWT(319)-TSC(392)) 98,99,98	STR01440
2966	C		STR01450
2967	C	EQUATION NO 2. T=F(A(I),(B/T)H,(FU,FL(MAX))	STR01460
2968	C	F=FMAX,H=OPT, T=OPT SETUP GENERAL EQU FOR Z(1),Z(2)	STR01470
2969	98	TWT(320)= STRFN*STFMX	STR01480
2970		ISTRG = 98	STR01481
2971		TSC(394) = (SQRT (TWT(320)*TWT(320) + TSC(392)*TSC(410)/D(50))-TWT	STR01490
2972		(320))/TSC(410)*D(19)	STR01500
2973		TSC(387)= STFMX	STR01510
2974	97	TSC(385)= TSC(410)*TSC(394)	STR01520
2975	970	TSC(388) = TSC(387)*TSEC(223)	STR01530
2976		GO TO 99	STR01540
2977	C		STR01550
2978	C	EQUATION NO 1. OPT T,FU,FL,H	STR01560
2979	C	H,F(L),F(U) = OPT FU=FL	STR01570
2980	99	TSC(394)= SQRT (TSC(392)/(TSC(410)* STRFN*TWT(312)))	STR01580
2981		TSC(387)= TWT(312)*TSC(394)	STR01590

CARD NO	**** CONTENTS ****	
2982	ISTRG = 98	STRG1591
2983	GO TO 97	STRG1600
2984	C	STRG1610
2985	C MMX=1 MAX(B/T) =F(FMAX)	STRG1620
2986	C COMPUTE AREA AT M=MMAX	STRG1630
2987	C M=MMAX Z(1) ONLY	STRG1640
2990	110 TSC(394)= HSTMX/TSC(410)	STRG1650
2989	TSC(395)= HSTMX	STRG1660
2990	TSC(397)= TWT(312)*TSC(394)	STRG1670
2991	TWT(319) = TSC(394)*(TSC(395)+TSC(397))	STRG1680
2992	ISTRG = 110	STRG1681
2993	IF (TWT(319)-TSC(392)) 112,99,98	STRG1690
2994	C	STRG1700
2995	C EQUATION NO 4. T=F(A(I),MMAX,(B/T)F)	STRG1710
2996	C M=MMAX, T=OPT, FU=FL=OPT -- GENERAL EQU FOR Z(1), Z(2)	STRG1720
2997	C	STRG1730
2998	112 TSC(394)= (SORT (TSC(395)*TSC(395)+ TSC(392)*STRFN/D(50)*TWT(312))STRG1740
2999	1 - TSC(395))/TWT(312)*D(19)/STRFN	STRG1750
3000	TSC(397)= TWT(312)*TSC(394)	STRG1760
3001	ISTRG = 112	STRG1761
3002	GO TO 970	STRG1770
3003	C	STRG1780
3004	C Z(2) TYPE - TEST FOR EQU IN REGION 1,3	STRG1790
3005	120 IF (HSTMX-HSTMN) 121,121,124	STRG1800
3006	C MMX=MMN TEST AT FU=FL	STRG1810
3007	121 TSC(394)= STFMN/TWT(312)	STRG1820
3008	TSC(395)= HSTMX	STRG1830
3009	122 TSC(396)= STFMN	STRG1840
3010	TSC(397)= STFMN	STRG1850
3011	ISTRG = 122	STRG1851
3012	IF (TSC(392)-TSC(394)*(TSC(395)+ TSC(396)+ TSC(397))) 123,99,112	STRG1860
3013	C	STRG1870
3014	C EQUATION NO 5. T=F(A(I),MMAX,FUMIN,(B/T)F)	STRG1880
3015	C FU=FMIN M=MMAX FL=OPT	STRG1890
3016	123 TWT(320)= TSC(395)+TSC(396)	STRG1900
3017	TSC(394)= (SORT (TWT(320)*TWT(320)+TSC(392)*TWT(312)/D(50)) - TWT(STRG1910
3018	1320))/TWT(312)*D(19)	STRG1920
3019	ISTRG = 123	STRG1921
3020	GO TO 1290	STRG1930
3021	C	STRG1940
3022	C	STRG1950
3023	C TEST FOR MAX(B/T)	STRG1960
3024	124 IF (ND(1)-MX) 125,127,127	STRG1970
3025	C ID=2 M=MMAX	STRG1980
3026	125)SC(396)=STFMX	STRG1990
3027	TSC(397)=STFMX	STRG2000
3028	TSC(394)= TSC(396)/TWT(312)	STRG2010
3029	TSC(395)= TSC(410)*TSC(394)	STRG2020
3030	ISTRG = 125	STRG2021
3031	IF (TSC(392)- TSC(394)*(TSC(395)+TSC(396)+TSC(397))) 141,99,98	STRG2030
3032	C	STRG2040
3033	C	STRG2050
3034	C	STRG2060
3035	C	STRG2070
3036	C	STRG2080
3037	C F=FMAX ID=1 TEST B/T(FUMIN), B/T(MMAX)---DETERMINE LOC	STRG2090
3038	127 TSC(395)=HSTMX	STRG2100
3039	TSC(394)= TSC(395)/TSC(410)	STRG2110
3040	TSC(396)= TWT(312)*TSC(394)	STRG2120
3041	TSC(397)=TSC(396)	STRG2130
3042	ISTRG = 127	STRG2131
3043	IF (TSC(396)-STFMN) 128,122,140	STRG2140
3044	C FU=FMIN, EQU 3 OR 4-5	STRG2150
3045	128 TSC(396)= STFMN	STRG2160
3046	IF (TSC(392) - TSC(394)*(TSC(395) +TSC(396)+TSC(397))) 129,129,121STRG2170
3047	C	STRG2180
3048	C EQUATION NO 3. T=F(A(I),FUMIN,(B/T)M,(B/T)F)	STRG2190
3049	C FU=FMIN, FL,M=OPT	STRG2200
3050	129 TWT(320) = TSC(410)*TWT(312)	STRG2210
3051	ISTRG = 129	STRG2211
3052	TSC(394) = (SORT (TSC(396)*TSC(396) + TWT(320)/D(50)*TSC(392)) - TSTRG2220

CARD NO	**** CONTENTS ****	
3053	TSC(396))/TWT(320)*D(19)	STRG2230
3054	TSC(395)=TSC(394)*TSC(410)	STRG2240
3055	1290 TSC(397)= TWT(312)*TSC(394)	STRG2250
3056	GO TO 99	STRG2260
3057	C	STRG2270
3058	C FU-FL=OPT AT M=MMAX	STRG2280
3059	140 IF (TSC(392)-TSC(394)*(TSC(395)+TSC(396)+T[illegible]397))) 141,99,112	STRG2290
3060	C TEST FOR OPT FU,FL,M OR FU=FMIN	STRG2300
3061	141 TSC(396)= STFMN	STRG2310
3062	TSC(397)= STFMN	STRG2320
3063	TSC(394)= TSC(396)/TWT(312)	STRG2330
3064	TSC(395)= TSC(394)*TSC(410)	STRG2340
3065	ISTRG = 141	STRG2341
3066	IF (TSC(394)*(TSC(395)+TSC(396)+ TSC(397)) - TSC(392)) 99,99,129	STRG2350
3067	C	STRG2360
3068	C	STRG2370
3069	C Z(1), Z(2)	STRG2380
3070	C REGION 2 T=TMG TEST WITH AMAXG	STRG2390
3071	100 TSC(394)= TSC(392)/TWT(308)	STRG2400
3072	TSC(395)=HSTMX	STRG2410
3073	TSC(397)=STFMX	STRG2420
3074	TSC(396)= TSC(397)*TSEC(223)	STRG2430
3075	ISTRG = 100	STRG2431
3076	IF (TSC(392) - TWT(304)) 101,99,99	STRG2440
3077	C L= A/TMG	STRG2450
3078	101 TSC(394)= STRMN	STRG2460
3079	IF (TWT(301)-TWT(303)) 102,105,105	STRG2470
3080	C M=MMIN	STRG2480
3081	102 TSC(395)=HSTMN	STRG2490
3082	TSC(397)= TWT(301)-TSC(395)	STRG2500
3083	ISTRG = 102	STRG2501
3084	IF (D(1)-STFMN) 103,99,99	STRG2510
3085	C Z(2) TYPE	STRG2520
3086	103 TSC(396) = STFMN	STRG2530
3087	ISTRG = 103	STRG2531
3088	IF (TWT(302)-TSC(397)) 104,104,105	STRG2540
3089	104 TSC(396) = TSC(397)*D(19)	STRG2550
3090	ISTRG = 104	STRG2551
3091	105 TSC(397) = TSC(397)-TSC(396)	STRG2560
3092	GO TO 99	STRG2570
3093	C M= L-FU - FL	STRG2580
3094	106 TSC(395)= TWT(301)-TSC(396)-TSC(397)	STRG2590
3095	ISTRG = 106	STRG2591
3096	GO TO 99	STRG2600
3097	C	STRG2610
3098	C REGION 3. A(1)=AMIN2	STRG2620
3099	107 TSC(395) = TWT(314)	STRG2630
3100	TSC(396) = TWT(315)	STRG2640
3101	TSC(397) = TWT(316)	STRG2650
3102	ISTRG = 107	STRG2651
3103	GO TO 99	STRG2660
3104	C	STRG2670
3105	C REGION 3. A(1) LESS THAN AMIN2 T=TMG. TEST FOR Z(1),Z(2)	STRG2680
3106	130 TSC(395)=HSTMN	STRG2690
3107	TSC(397)= TWT(312)*TSC(394)	STRG2700
3108	IF (STRMN - D(1)) 131,131,134	STRG2710
3109	C Z(1)	STRG2720
3110	131 IF (STFMX - TSC(397)) 132,133,133	STRG2730
3111	132 TSC(397)=STFMX	STRG2740
3112	133 IF (TSC(395)+TSC(396) + TSC(397)-TWT(301)) 106,102,102	STRG2750
3113	C	STRG2760
3114	C Z(2)	STRG2770
3115	134 IF (STFMX - TSC(397)) 135,135,137	STRG2780
3116	135 TSC(397)= STFMX	STRG2790
3117	136 TSC(396)= TSEC(223)*TSC(397)	STRG2800
3118	GO TO 133	STRG2810
3119	137 IF (TSC(397) - STFMN) 138,136,136	STRG2820
3120	138 TSC(396)= STFMN	STRG2830
3121	GO TO 133	STRG2840
3122	C	STRG2850
3123	C	STRG2860

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CARD NO  ****                          CONTENTS                          ****
3124      C       ****DATA SETUP FOR STR SEARCH.  T(STR)=F(K*TSKIN)****          STRG2870
3125      C       *** INPUT SETUP -- TEST FOR TSTR = CONSTANT ***                 STRG2880
3126       61   IF (STRSK) 70,70,610                                             STRG2890
3127       610  IRGO = ND(1)                                                     STRG2900
3128            TWT(322) = STRMN                                                 STRG2910
3129            TWT(324) = TSC(409)*TSC(411) / TSC(2)                            STRG2920
3130            TWT(321) = STRSK*TSC(411)                                        STRG2930
3131            IF (D(1) - TWT(324)) 611,613,613                                 STRG2940
3132       611  TWT(324) = STRSK/SQRT (TWT(324))                                STRG2950
3133            TWT(321) = TWT(324)*TSC(411)                                     STRG2960
3134            IF (TWT(324) - STRRO) 612,613,613                                STRG2970
3135       612  TWT(321) = STRRO*TSC(411)                                       STRG2980
3136       613  TWT(323) = D(1)                                                  STRG2990
3137            IF (TWT(321) - STRMN)  614,614,62                                STRG3000
3138       614  TWT(321) = STRMN                                                 STRG3010
3139            GO TO 70                                                         STRG3020
3140      C                                                                      STRG3030
3141      C                                                                      STRG3040
3142      C        ****SCALE BASIC STR CONTROL DATA ****                         STRG3050
3143       62   STRMN = TWT(321)                                                 STRG3060
3144            TWT(323) = TWT(321)/TWT(322)                                     STRG3070
3145       63   TWT(304) = TWT(304)*TWT(323)                                     STRG3080
3146            TWT(307) = TWT(307)/TWT(323)                                     STRG3090
3147            DO 639 I=1,2                                                     STRG3100
3148            TSS(I+42) = TSS(I+42)*TWT(323)                                   STRG3110
3149            TWT(I+307) = TWT(I+307)/TWT(323)                                 STRG3120
3150            TWT(I+309) = TWT(I+309)/TWT(323)                                 STRG3130
3151       639  CONTINUE                                                         STRG3140
3152      C                                                                      STRG3150
3153      C       *** SETUP MIN STR=F(FCCR) DATA ***                             STRG3160
3154            CALL STRGO                                                       STRG3170
3155      C            **** TEST FOR SETUP OR EXIT ON IRGO ****                  STRG3180
3156            IF (IRGO - ND(1)) 70,70,999                                      STRG3190
3157      C                                                                      STRG3200
3158      C       **** EXIT PHASE.  TEST FOR RESET OR STR DATA. IRGO=2.***       STRG3210
3159       99   IF (CNSID) 64,64,999                                             STRG3220
3160       64   IRGO = ND(2)                                                     STRG3230
3161            IF (TWT(322) - STRMN) 640,640,999                                STRG3240
3162       640  STRMN = TWT(322)                                                 STRG3250
3163            TWT(323) = TWT(322)/TWT(321)                                     STRG3260
3164            GO TO 63                                                         STRG3270
3165      C                                                                      STRG3280
3166      C                                                                      STRG3290
3167      C            ****TEST FOR BLOCK 4 PRINT.  IK=4 ****                    STRG3300
3168        999 IF(IP(33))53,53,9999
3169       53   IK = ND(4)                                                       STRG3320
3170            CALL PRTBK                                                       STRG3330
3171      C                                                                      STRG3340
3172      C                                                                      STRG3350
3173       9999 RETURN                                                          STRG3360
3174            END                                                              STRG3370
3175      C--------------------------------------------------------- ----------------
3176      C
3177      C       *****SUBROUTINE STRGO*****
3178      C   ***STRINGER GEOMETRY - BOUNDARY INITIALIZATION***
3179      C
3180      C------------------------------------------    ------------------------
3181      C
3182            SUBROUTINE STRGO                                                 STR00010
3183      C     *** STR GEOM. DATA FOR GIVEN FCCR.  BASIC TSK SEARCH. ***        STR00020
3184      C                                                                      STR00030
3185      C     ** NEW SUBR. 04-65-69 -- PART OF TSCH ***                        STR00040
3186      C                                                                      STR00050
3187      C                                                                      STR00070
3188            COMMON T(2060),D(2060),CD(2000),ND(100)                          STR00080
3189      C                                                                      STR00090
3190            DIMENSION                                    QC(100),            STR00100
3191           1TQC(200),TSC(420),TSS(100),TWT(400),TSEC(300)                    STR00110
3192      C                                                                      STR00120
3193            EQUIVALENCE (TQC(1),T(1394)),(TSC(1),T(1594)),(TSS(1),T(1981)),  STR00130
3194           1(TW04,T(1405)),(TW09,T(1404))                                    STR00131
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CARD NO	**** CONTENTS ****	
3195	EQUIVALENCE (DC(1),D(1401)),(STRFN,D(361)),(SFMN,D(370)),	STR00140
3196	1(STRMN,D(371)),(RBMG,D(372)),(STLMN,D(375)),(STLMX,D(376)),	STR00141
3197	2(HSTMN,D(377)),(HSTMX,D(378)),(STFMX,D(379)),(STFMN,D(380)),	STR00142
3198	3(CNSID,D(461))	STR00143
3199	EQUIVALENCE (TWT(1),CD(1101)),(TSEC(1),CD(1501))	STR00150
3200	EQUIVALENCE (IDSK,ND(5)),(ISK2,ND(46)),(ISK1,ND(45)),(IL,ND(40)),STR00160	
3201	1(IK,ND(39)),(ILT,ND(34)),(IL2,ND(33)),(IL3,ND(32)),(N,ND(31)),	STR00161
3202	2(IN,ND(30)),(I,ND(29)),(LT3,ND(28)),(LT2,ND(27)),(LT1,ND(26)),	STR00162
3203	3(IBT,ND(72)),(IMX,ND(71)),(IRG,ND(70))	STR00163
3204	C	STR00220
3205	5010 IRG=ND(1)	STR00230
3206	C TEST LOC OF B/T(I) B/T(MAX)	STR00240
3207	IF (TSC(410) - TWT(307)) 610,620,620	STR00250
3208	C REGION 1 OR 3 TEST MIN B/T	STR00260
3209	610 IF (TSC(410) - TWT(308)) 611,621,621	STR00270
3210	C REGION 1 COMPUTE ASTRMIN(1) = ASTR MIN(2)	STR00280
3211	611 TSS(44)=TSS(45)/TSC(410)	STR00290
3212	613 TSS(43) = TSS(44)*(TSS(45)+TSS(46) + TSS(47))	STR00300
3213	TWT(313) = TSS(43)	STR00310
3214	TWT(314) = TSS(45)	STR00320
3215	TWT(315) = TSS(46)	STR00330
3216	TWT(316) = TSS(47)	STR00340
3217	C	STR00350
3218	IF (STRFN) 622,622,640	STR00360
3219	C B/T(I) GREATER THAN B/T(MX) REGION 2	STR00370
3220	620 IRG=ND(2)	STR00380
3221	TWT(317)=TWT(304)	STR00390
3222	TWT(313)= TWT(304)	STR00400
3223	TWT(314)= HSTMX	STR00410
3224	TWT(316)= STFMX*TSEC(222)	STR00420
3225	TWT(315)= STFMX*TSEC(223)	STR00430
3226	GO TO 502	STR00440
3227	C	STR00450
3228	C REGION 3. CALC AMIN(2).(NOT REQ FOR 1.)	STR00460
3229	621 IRG= ND(3)	STR00470
3230	TWT(314) = TSC(410)*STRMN	STR00480
3231	TWT(316) = TWT(312)*STRMN	STR00490
3232	IF (STRFN - D(1)) 622,623,630	STR00500
3233	C	STR00510
3234	C I-STR. - AMAX	STR00520
3235	622 TWT(317) = HSTMX*HSTMX/TSC(410)	STR00530
3236	GO TO 502	STR00540
3237	C	STR00550
3238	C Z(1) TYPE	STR00560
3239	623 IF (HSTMX - TWT(314)) 624,625,625	STR00570
3240	624 TWT(314) = HSTMX	STR00580
3241	625 IF (STFMX - TWT(316)) 626,627,627	STR00590
3242	626 TWT(316) = STFMX	STR00600
3243	627 TWT(313)= STRMN*(TWT(314)+TWT(316))	STR00610
3244	GO TO 640	STR00620
3245	C	STR00630
3246	C Z(2) TYPE	STR00640
3247	630 TWT(315) = STFMN	STR00650
3248	IF (HSTMX - TWT(314)) 631,631,632	STR00660
3249	631 TWT(314) = HSTMX	STR00670
3250	632 IF (TWT(316) - STFMX) 633,633,634	STR00680
3251	633 IF (STFMN - TWT(316)) 635,636,636	STR00690
3252	634 TWT(316) = STFMX	STR00700
3253	635 TWT(315) = TWT(316)	STR00710
3254	C	STR00720
3255	C CALC AREA	STR00730
3256	636 TWT(313) = STRMN*(TWT(314)+TWT(315) + TWT(316))	STR00740
3257	C	STR00750
3258	C MAX AREA -- Z(1), Z(2)	STR00760
3259	640 TWT(320)= HSTMX/TSC(410)	STR00770
3260	IF (IMX - ND(1)) 641,641,642	STR00780
3261	641 TWT(320)= STFMX/TWT(312)	STR00790
3262	642 TWT(317)= TWT(320)*TWT(308)	STR00800
3263	C	STR00810
3264	C SET AMIN1	STR00820
3265	502 TSC(391)= TSS(43)	STR00830

CARD NO **** CONTENTS ****

```
C                                                                  STR00840
C                                                                  STR00850
C                                                                  STR00860
C     ****EXIT ****                                                STR00870
  990 RETURN                                                       STR00880
      END                                                          STR00890
C**************************************************************.******
C
C         *****SUBROUTINE STRIL*****
C    ***STRINGER COLUMN LENGTH EVALUATION***
C
C**********************************************.  **************
C
      SUBROUTINE  STRIL                                            STR10010
C                                                                  STR10011
C      STRINGER INERTIA, RADIUS OF GYRATION, COLUMN LENGTH SUBROUTINE  STR10020
C                                                                  STR10030
C                                                                  STR10110
C                                                                  STR10130
      COMMON T(2060),D(2060),CD(2000),ND(100)                      STR10140
C                                                                  STR10150
      DIMENSION DC(100),TDC(200),TSC(420),TSS(100),                STR10160
     1DMTLB(17),                                                   STR10161
     9TSEC(300)                                                    STR10169
C                                                                  STR10170
C                                                                  STR10180
      EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),  STR10190
     1(DC(1),D(1401)),(TSEC(1),CD(1501)),                          STR10191
     2(PI,D(15)),                                                  STR10192
     3(STRFN,D(361)),(CNSID,D(461)),                               STR10193
     4(COLID,D(393)),(CFIX,D(407)),                                STR10194
     5(DMTLB(1),T(201)),(SDMU,DMTLB(2)),                           STR10195
     9(CKSTZ,D(364)),(STLMN,D(375)),(DTC,D(462))                   STR10199
C                                                                  STR10200
C                                                                  STR10240
 6000 TSC(413)= TSC(412)                                           STR10250
C                                                                  STR10260
C        **** TEST FOR CONST ****                                  STR10270
      IF (CNSID) 6001,60,6001                                      STR10280
 6001 TSC(416) = DC(3)                                             STR10290
      TSC(420) = D(1)                                              STR10300
      IF (D(2) - CNSID) 6002,6003,6004                             STR10310
C                                                                  STR10320
C           *** FDH *** L=B, YBAR=T/2                              STR10330
 6002 TSC(398) = TSC(411)*TSC(411)/D(12)*TSC(411)                  STR10340
      TSC(399) = SQRT (TSC(309)/TSC(411))                          STR10350
      TSC(413) = TSC(411)/D(2)                                     STR10360
      GO TO 602                                                    STR10370
C                                                                  STR10380
C                                                                  STR10390
C        *** HP ***                                                STR10400
 6003 TSC(416) = DTC                                               STR10410
      TSC(420) = D(4)                                              STR10420
C                                                                  STR10429
C        ** SETUP COMMON DATA FOR PL AND HP **                     STR10430
 6004 TSC(415) = TSEC(225)                                         STR10440
      TSC(414) = TSC(392) - TSC(415)                               STR10450
      TSC(417) = TSC(411) + TSC(416)                               STR10460
      TSC(418) = TSC(394)*D(19) + TSC(417)                         STR10470
      TSC(417) = TSC(417)*D(19)                                    STR10480
      TSC(419) = TSC(417)                                          STR10490
      TSC(398) = TSC(414)*TSC(394)*TSC(394)                        STR10500
C                                                                  STR10509
C              COMPUTE MOM(A) FOR PL AND HP                        STR10510
      TSC(399)=TSC(413)*TSC(417) +TSC(414)*TSC(418) +TSC(415)*TSC(419)  STR10520
      GO TO 62                                                     STR10530
C                                                                  STR10540
C      Y(1,2,3,4)= TSK, H, F(U), F(L)                              STR10550
 60   TSC(419) = TSC(394)*D(19) + TSC(411)                         STR10560
      TSC(417) = TSC(394)                                          STR10570
      TSC(420) = TSC(419)                                          STR10580
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CARD NO	**** CONTENTS	****
3337	IF (STRFN - D(1)) 601,600,602	STRI0580
3338	C	STRI0590
3339	C ****ANGLE OR INT. Z-STR.****	STRI0600
3340	600 IF (CKSIZ - D(1)) 603,601,601	STRI0610
3341	C	STRI0619
3342	C **** I-STR AND INT. Z-STR.****	STRI0620
3343	601 TSC(417) = DC(3)	STRI0630
3344	602 TSC(420) = TSC(419) + TSC(417) + TSC(395)	STRI0640
3345	603 TSC(418) = TSC(395)*D(19) + TSC(417) + TSC(411)	STRI0650
3346	TSC(417) = TSC(411)*D(19)	STRI0660
3347	C	STRI0670
3348	C MOM(ASX)	STRI0680
3349	TSC(399)= TSC(412)*TSC(417)	STRI0690
3350	C	STRI0700
3351	C A2= A(H), A3=(A(F)U), A4=(A(F)L)	STRI0710
3352	C COMPUTE MOM(A) FOR SECTION	STRI0720
3353	DO 61 I=1,3	STRI0730
3354	TSC(I+413)= TSC(394)*TSC(I+394)	STRI0740
3355	TSC(399)=TSC(399) + TSC(I+413)*TSC(I+417)	STRI0750
3356	61 CONTINUE	STRI0760
3357	TSC(398) = TSC(414)*TSC(395)*TSC(395)	STRI0770
3358	C	STRI0780
3359	C	STRI0790
3360	C Y(BAR), I(O) FOR ELEMENTS	STRI0800
3361	62 TSC(399)=TSC(399)/TSC(382)	STRI0810
3362	C	STRI0820
3363	C	STRI0830
3364	C	STRI0840
3365	C	STRI0850
3366	C **** TEST FOR STR OR PL/HP ****	STRI0860
3367	IF (CNSID) 621,620,621	STRI0870
3368	C	STRI0879
3369	C I(O) FOR PL, HC. CLEAR TSC(416) AND TSC(420)	STRI0880
3370	621 TSC(398) = (TSC(398) + TSC(415)*TSC(416)*TSC(416) + (TSC(412)*TSC(STRI0890
3371	1411)/TSC(420)*TSC(411)))/D(12)	STRI0900
3372	TSC(416) = DC(3)	STRI0910
3373	TSC(420) = DC(3)	STRI0920
3374	GO TO 63	STRI0930
3375	C	STRI0940
3376	C I(O) FOR STR	STRI0950
3377	620 TSC(398)=(TSC(412)*TSC(411)*TSC(411) + TSC(394)*TSC(394)*(TSC(415)STRI0960
3378	1+TSC(416)) + TSC(398))/D(12)	STRI0970
3379	C	STRI0980
3380	C I(SECT)	STRI0990
3381	63 DO 64 I=1,4	STRI1000
3382	TSC(I+416) = TSC(399) - TSC(I+416)	STRI1010
3383	TSC(I+416)= TSC(I+416)*TSC(I+416)	STRI1020
3384	TSC(398)= TSC(398)+ TSC(I+412)*TSC(I+416)	STRI1030
3385	64 CONTINUE	STRI1040
3386	C	STRI1050
3387	C RESET Y(BAR), SAVE F(L). CALC RHO, L(RIB)	STRI1060
3388	65 TSC(413)=TSC(399)	STRI1070
3389	TSC(415) = TSC(397)	STRI1080
3390	TSC(398)= SQRT (TSC(398)/TSC(382))	STRI1090
3391	C	STRI1095
3392	C ***TEST FOR TYPE OF COL EQUATION **	STRI1085
3393	C **COLID=0(393). 0=SHORT COL, 1=LONG COL EQUA.**	STRI1097
3394	C *L(SHORT COL) = SQRT(C*ET*PI*PI*RHO*RHO/FCOL)*	STRI1098
3395	C *L(LONG COL) = SQRT(C*ES*PI*PI*RHO*RHO/(FCOL*(U-MU*MU)))	STRI1099
3396	650 IF (COLID) 651,651,652	STRI1100
3397	C	STRI1108
3398	C *SHORT COL EQU*	STRI1109
3399	651 TSC(387) = SQRT(CFIX*TSC(401)/TSC(381))*PI*TSC(399)	STRI1110
3400	GO TO 653	STRI1115
3401	C	STRI1118
3402	C *LONG COL EQU*	STRI1119
3403	652 TSC(387) = SQRT(CFIX*TSC(381)/TSC(400)/((D(1) - SOMU*SOMU)*TSC(381)STRI1120
3404	1))*PI*TSC(399)	STRI1121
3405	C	STRI1129
3406	C TEMP B(SPAR) = L(RIB) FOR PLATES	STRI1130
3407	C PLATES--SET ALPHA=1.0	STRI1140

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CARD NO  ****                          CONTENTS                          ****
 3N00     053  TSC(414) = D(1)                                            $TRI1150
 3N09          IF(D(1) - CNSID) 660,661,66                               $TRI1160
 3N10     C                                                              $TRI1169
 3N11     C              MC, TIC) IN D(462)                              $TRI1170
 3N12     C       B(SPAR)=F1K,ER,FC,TSK,ALPHA)                           $TRI1180
 3N13      060  (S.. 15) = DTC/TSC(411) + D(1)                           $TRI1190
 3N14          TSC(414) = SQRT (D(3)**(TSC(415) + D(1))*TSC(415) + D(1)) $TRI1200
 3N15     C                                                              $TRI1209
 3N16     C         *** COMPUTE B, SET L/L=B(ACTUAL)  ***                $TRI1210
 3N17      061  TSC(397) = TDC(45)*TSC(414)*TSC(411)                      $TRI1220
 3N18          TSC(405) = TSC(397)                                       $TRI1230
 3N19      062  TSC(387) = TSC(2)                                         $TRI1240
 3N20     C                                                              $TRI1250
 3N21     C        I(0)=I(STR)/B(STR) = IN(4)/IN                         $TRI1260
 3N22      06   TSC(398) = TSC(398)/TSC(2)                               $TRI1270
 3N23     C                                                              $TRI1280
 3N24     C                                                              $TRI1290
 3N25     C     EXIT                                                     $TRI1300
 3N26      09   RETURN                                                   $TRI1310
 3N27          END                                                       $TRI1320
 3N28     C***************************************************************
 3N29     C
 3N30     C       *****SUBROUTINE STRIB*****
 3N31     C   **RIB SYNTHESIS CONTROL - RIB T-BAR EVALUATION***
 3N32     C
 3N33     C***************************************************************
 3N34     C
          SUBROUTINE  STRIB                                              $TRB0010
 3N36     C     RIB SUBROUTINE                                           $TRB0020
 3N37     C                                                              $TRB0030
 3N38     C     ***REVISION--03-23-70--ADD SKIP FOR I/SPAR WEB STIFF ***  $TRB0040
 3N39     C     REVISION -- 03-10-69 -- REVISE T(K,I8) FOR RIB/SPAR      $TRB0050
 3N40     C     REVISION -- 01-10-68    FOR FORMAT, REVISE LINKAGES.     $TRB0060
 3N41     C                                                              $TRB0070
 3N42     C     COMPUTE OPT TRIR, RRIB                                   $TRB0080
 3N43     C                                                              $TRB0090
 3N44     C                                                              $TRB0100
 3N45     C                                                              $TRB0120
          COMMON T(2060),D(2760),CD(2000),ND(100)                        $TRB0130
 3N47     C                                                              $TRB0140
          DIMENSION                                                      $TRB0150
         1TDC(200),TSC(420),TSS(100),DC(100)                             $TRB0160
 3N50     C                                                              $TRB0170
          EQUIVALENCE (TDC(1),T(1391)),(TSC(1),T(1591)),(TSS(1),T(1981)) $TRB0180
 3N52     EQUIVALENCE (DC(1),D(1401)),(PI,D(15)),(RBMD,D(372)),          $TRB0190
         1(CFRIB,D(400)),(DELTH,D(406)),(RBLCP,D(405)),(TRVT,D(397)),    $TRB0191
         2(CNSID,D(461))                                                 $TRB0192
 3N55     EQUIVALENCE (L1,ND(40)),(K1,ND(39)),(N1,ND(38)),(N,ND(31)),    $TRB0200
         1(NDI,ND(1))                                                    $TRB0201
 3N57     C                                                              $TRB0230
 3N58     C     SETUP CONSTANT DATA                                      $TRB0240
 3N59     C       D= D(TB) - 1.75 X H                                    $TRB0250
 3N60      100  TSS(31) = TDC(78) - D(25)*TSC(395)                       $TRB0260
 3N61     C      TEST FOR ZERO OR NEG DEPTH--USE 0.50 D IF 0,-           $TRB0270
          IF (TSS(31)) 1100,1100,1101                                    $TRB0280
 3N63     1100 TSS(31) = TDC(78)/D(2)                                    $TRB0290
 3N64     1101 TSS(25) = TDC(72)/CFRIB*TSC(400)/TSS(31)*TSC(397)*D(2)    $TRB0300
          TSS(26) = TDC(62)*TSS(31)/TDC(63)*TSS(31)                      $TRB0310
 3N66     TSS(27) = TDC(63)/TSS(31)/TSS(31)                              $TRB0320
          TSS(28) = RBMD                                                 $TRB0330
          TSS(30) = TSS(25)/TDC(12)                                      $TRB0340
 3N69     C              K(STIFF)                                        $TRB0350
 3N70     TSS(32) = D(2)*PI/CFRIB*TDC(72)/TSC(397)*TSS(31)               $TRB0360
 3N71     C                                                              $TRB0370
 3N72     C       SETUP T(P/A) AND T(ST) AT F(CP)                        $TRB0380
          TSS(29) = TSS(32)/TDC(29)                                      $TRB0390
          TSS(33) = TSS(25)/TDC(5)                                       $TRB0400
 3N75     C       TEST T(P/A) AND T(ST) FOR INTERSECTION REGION          $TRB0410
          IF (TSS(29) - TSS(33)) 1102,111,111                            $TRB0420
 3N77     1102 IF (TSS(29) - TSS(33)) 1103,121,121                       $TRB0430
 3N78     C                                                              $TRB0440
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CARD NO	**** CONTENTS ****	
3478	C ****TEST FOR M/SPAR****	STRB0450
3480	1103 IF (CMSID) 110,110,121	STRB0460
3481	C	STRB0470
3482	C T(P/A) GREATER - INTERESTION BETWEEN F(CP)-F(CY)	STRB0480
3483	110 TSS(13) = TSS(25)/TDC(12)	STRB0490
3484	TSS(35) = TSS(32)/TDC(38)	STRB0500
3485	C TEST AT FCY	STRB0510
3486	IF (TSS(13) - TSS(35)) 113,112,112	STRB0520
3487	C TEST MAG. OF T(ST) AT F(CY)	STRB0530
3488	C	STRB0540
3489	113 IF (TSS(20) - TSS(35)) 114,121,121	STRB0550
3490	C	STRB0560
3491	C SETUP FOR INTERPOLATION BETWEEN F(CP) AND F(CY)	STRB0570
3492	114 TSS(18) = TSS(33)/TSS(20)	STRB0580
3493	TSS(13) = TDC(5)	STRB0590
3494	C SETUP INTERPOLATION LOOP	STRB0600
3495	DO 1140 N=ND1,7	STRB0610
3496	TSS(15)=TDC(N+5)	STRB0620
3497	TSS(36) = TSS(25)/TSS(15)	STRB0630
3498	TSS(37) = TSS(32)/TDC(N+29)	STRB0640
3499	TSS(18) = TSS(36)/TSS(37)	STRB0650
3500	TSS(17) = D(1) - TSS(18)	STRB0660
3501	IF (TSS(17)) 115,116,117	STRB0670
3502	115 IF (D(8%) - TSS(17)) 1141,116,116	STRB0680
3503	1141 TSS(13) = TSS(15)	STRB0690
3504	TSS(18) = TSS(18)	STRB0700
3505	1140 CONTINUE	STRB0710
3506	116 TSS(20) = TSS(36)	STRB0720
3507	GO TO 111	STRB0730
3508	C TEST WITH EPSILON	STRB0740
3509	C INTERPOLATE FOR TH STIFF	STRB0750
3510	117 IF (D(8%) - TSS(17)) 1170,118,116	STRB0760
3511	1170 TSS(14) = TSS(18) - TSS(16)	STRB0770
3512	TSS(17) = TSS(15) - TSS(13)	STRB0780
3513	TSS(14) = TSS(13) + TSS(17)/TSS(14)*(TSS(18) - D(1))	STRB0790
3514	TSS(36) = TSS(25)/TSS(14)	STRB0800
3515	C	STRB0810
3516	CALL SS (TSS(14))	STRB0820
3517	TSS(37) = TSS(32)/TDC(38)	STRB0830
3518	TSS(17) = TSS(36)/TSS(37)	STRB0840
3519	C TEST RATIO	STRB0850
3520	IF (D(8%) - ABS (TSS(17)-D(1)))171,118,116	STRB0860
3521	117 K1=ND(2)	STRB0870
3522	C INTERPOLATE	STRB0880
3523	CALL COSP (TSS(13),TSS(18))	STRB0890
3524	TSS(20) = TSS(25)/TDC(47)	STRB0900
3525	C SETUP MINIMUM THEB FROM TMG, TMAX, TST(P)	STRB0910
3526	111 TSS(13) = TSS(20)	STRB0920
3527	112 IF (TSS(13) - TSS(30)) 119,118,118	STRB0930
3528	119 TSS(13) = TSS(30)	STRB0940
3529	118 IF (TSS(13) - TSS(20))121,120,120	STRB0950
3530	121 TSS(13) = TSS(20)	STRB0960
3531	120 DO 123 I =ND1,5	STRB0970
3532	123 TSS(I +13) = DC(3)	STRB0980
3533	C THEB SEARCH SETUP DELTA T	STRB1000
3534	TSS(24) = DELTH	STRB1010
3535	IF (TSS(13) - TSS(24)) 125,124,124	STRB1020
3536	125 TSS(24) = TSS(13)	STRB1030
3537	124 CALL SARIB (TSS(13))	STRB1040
3538	IF (ND(2) - N1) 120,126,126	STRB1050
3539	C	STRB1060
3540	C	STRB1070
3541	C	STRB1080
3542	C SEARCH LARGER T	STRB1090
3543	120 TSS(18) = TSS(40)	STRB1100
3544	TSS(15) = TSS(13) + TSS(24)	STRB1110
3545	CALL SARIB (TSS(15))	STRB1120
3546	IF (ND(2) - N1) 129,126,130	STRB1130
3547	129 TSS(13) = TSS(15)	STRB1140
3548	GO TO 120	STRB1150
3549	C R3 LESS THAN 1, INTERPOLATE, SET CID = 2	STRB1160

CARD NO **** CONTENTS ****

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  130 TSS(18) = TSS(40)                                              STRB1170
      TSS(14) = TSS(13)+ TSS(24)*(TSS(16)-D(1))/(TSS(16) - TSS(18))  STRB1180
      CALL SRRIB (TSS(14))                                           STRB1190
      IF (NI - ND(2)) 131,126,131                                    STRB1200
  131 TSS(17) = TSS(40)                                              STRB1210
      KI=ND(2)                                                       STRB1220
      CALL CO3P (TSS(13),TSS(16))                                    STRB1230
      TSS(23) = TOC(47)                                              STRB1240
C                                                                    STRB1250
C                                                                    STRB1260
C     OPT R, TW FOUND  COMPUTE TBAR-RIB                              STRB1270
C     TWEB = T1, EXIT SEARCH                                         STRB1280
  126 TSC(408) = TSS(23)                                             STRB1290
      CALL SRRIB (TSS(23))                                           STRB1300
  132 TSC(403) = TSS(21)                                             STRB1310
      TSC(404) = TSS(20)                                             STRB1320
C                                                                    STRB1330
C         **** CALC T(RIB) FOR RIB/SPAR, T(ATT), T(MISC SKIN) ****   STRB1340
      TSC(407) = TSS(22)                                             STRB1350
      TSC(420) = D(24) - D(1)                                        STRB1360
      IF (TSC(420)) 140,140,141                                      STRB1370
  140 TSC(420) = D(1)/D(12)                                          STRB1380
  141 TSC(386) = TSC(408)*CFRIB/TSC(397)*TOC(78)                     STRB1390
C                                                                    STRB1400
C        ** TEST FOR SPARS **                                        STRB1410
      TSC(389) = DC(3)                                               STRB1420
      IF (CNSID) 142,142,143                                         STRB1430
C            *** RIBS, COV MISC ATT ***                              STRB1440
  142 TSC(386) = TSC(386)+ RBLCP*TSC(408)/TSC(397)                   STRB1450
      TSC(389) = TSC(408)*D(24)/TSC(2)*D(2)/TSC(397)*(TSC(396) + D(23))*STRU1460
     1TSC(395)*D(25)                                                 STRB1470
C                                                                    STRB1480
C             *** RIB/SPAR MISC ***                                  STRB1490
  143 TSC(389) = TSC(389) + TSC(420)*TSC(386)                        STRB1500
C                                                                    STRB1510
C        **(MISC SKINS)**                                            STRB1520
      IF (TRVT) 145,145,144                                          STRB1530
  144 TSC(390) = DC(3)                                               STRB1540
      TSC(420) = TRVT - TSC(411)                                     STRB1550
      IF (TSC(420)) 199,199,145                                      STRB1560
  145 TSC(390) = TSC(420)/TSC(2)*RBLCP/TSC(397)*D(19)                STRB1570
C                                                                    STRB1580
C                                                                    STRB1590
  199 RETURN                                                         STRB1603
      END                                                            STRB1610
C*******************************************************************
C
C        *****SUBROUTINE SRRIB*****
C   ***RIB T-WEB EVALUATION***
C
C*******************************************************************
C
      SUBROUTINE SRRIB (TRBI)                                        SRRI0010
C       R, FC/FCCR, FCCR SUBR FOR TWEB                               SRRI0020
C                                                                    SRRI0030
C      REVISION -- 01-10-66 -- NEW FORMAT, REVISE LINKAGE.           SRRI0040
C                                                                    SRRI0050
C      NN, 1  R LESS THAN 1, 2 R = 1,   3 R GREATER THAN 1           SRRI00( .
C                                                                    SRRI0070
C                                                                    SRRI0090
      COMMON T(2060),D(2060),CD(2000),ND(100)                        SRRI0100
C                                                                    SRRI0110
      DIMENSION                                                      SRRI0120
     1TOC(200),TSC(420),TSS(100)                                     SRRI0130
C                                                                    SRRI0140
      EQUIVALENCE (TOC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T( 951)) SRRI0150
      EQUIVALENCE (CORMN,D(403)),(CORMX,D(404))                      SRRI0160
      EQUIVALENCE (NI,ND(38))                                        SRRI0180
C                                                                    SRRI0190
      TSS(23)= TRE'                                                  SRRI0200
      TSS(18)= TSS(25)/TSS(23)                                       SRRI0210
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CARD NO  ****                          CONTENTS                          ****
3621     C                                                                $WR10220
3622           CALL SS (TSS(19))                                          $WR10230
3623           TSS(20) = TDC(38)                                          $WR10240
3624           TSS(22) = (TSS(26)*TSS(23))**0.33                          $WR10250
3625           IF (TSS(22) - CORMN)  198,198,197                          $WR10260
3626     C      RI = RMIN                                                 $WR10270
3627      198  TSS(22) = CORMN                                            $WR10280
3628           GO TO 198                                                  $WR10290
3629      197  IF (TSS(22) - CORMX) 198,198,196                          $WR10300
3630     C      RI = RMAX, FCCR = GEN.                                    $WR10310
3631      196  TSS(22) = CORMX                                            $WR10320
3632     C                                                                $WR10330
3633     C      FCCR = LOCAL                                              $WR10340
3634      198  TSS(38) = TSS(20)*TDC(61)*TSS(23)/TSS(22)                 $WR10350
3635           TSS(39) = TSS(27)*TSS(20)*TSS(22)*TSS(22)                  $WR10360
3636     C     SETUP RATIO  R AND NN                                      $WR10370
3637           TSS(21) = TSS(38)                                          $WR10380
3638           IF (TSS(38) - TSS(39)) 195,195,191                         $WR10390
3639      191  TSS(21) = TSS(39)                                          $WR10400
3640      195  TSS(40) = TSS(19)/TSS(21)                                  $WR10410
3641           NI = ND(1)                                                 $WR10420
3642           IF (TSS(40) -D(1))194,193,192                              $WR10430
3643      193  NI = ND(2)                                                 $WR10440
3644           GO TO 194                                                  $WR10450
3645      192  NI = ND(3)                                                 $WR10460
3646     C                                                                $WR10470
3647     C     EXIT                                                       $WR10480
3648      194  RETURN                                                     $WR10490
3649           END                                                        $WR10500
3650     C.....                                                           .....
3651     C
3652     C        *****SUBROUTINE STMEB*****
3653     C   ***FRONT/REAR SPAR CAP/MEB EVALUATION***
3654     C
3655     C.....
3656     C
3657           SUBROUTINE  STMEB(VO,DEPTH)                                STME0010
3658     C                                                                STME0011
3659     C      SPAR MEB SUBR.                                            STME0020
3660     C                                                                STME0030
3661     C                                                                STME0070
3662     C               GIVEN--V,H                                       STME0080
3663     C      RETD  A(MEB), TMEB                                        STME0090
3664     C               IMEB=1 FOR FS, 2 FOR RS                          STME0100
3665     C                                                                STME0110
3666     C                                                                STME0130
3667           COMMON T(2060),D(2060),CD(2000),ND(100)                    STME0140
3668     C                                                                STME0150
3669           DIMENSION TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),DC(100),  STME0160
3670          1SWAST(2),SWBST(2),SWCPS(2),                                STME0161
3671          2SWBMO(2),SWBCP(2),SWAST(2),                                STME0162
3672          3DKS(2),SLOFS(5)                                            STME0169
3673     C                                                                STME0170
3674     C                                                                STME0180
3675           EQUIVALENCE (TDC(1),T(1361)),(TSC(1),T(1561)),(TSS(1),T(1981)),  STME0190
3676          1(DC(1),D(1401)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),      STME0191
3677          2(SWAST(1),D(1410)),(SWBST(1),D(1420)),(SWBMO(1),D(1431)),  STME0192
3678          3(SWBCP(1),D(1423)),(SWAST(1),D(1425)),(SWCPS(1),D(1413)),  STME0193
3679          4(DKS(1),D(1550)),(SLOFS(1),D(1470)),                       STME0194
3680          5(DELTM,D(1422)),                                           STME0195
3681          6(ISEC,ND(195)),(IK,ND(39)),(IMEB,ND(37)),(N,ND(30))        STME0199
3682     C                                                                STME0200
3683     C                                                                STME0210
3684     C                                                                STME0320
3685     C                                                                STME0330
3686      200  TSS(1) = ABS(VO)                                           STME0340
3687           TSS(3) =DEPTH                                              STME0350
3688     C     SETUP 0 FOR MEB AREA CALC                                  STME0360
3689           TSS(1) = TSS(3) - TDC(112) - TDC(114)                      STME0370
3690           IF (TSS(1)) 201,201,202                                    STME0380
3691      201  TSS(1) = TSS(3)                                            STME0390
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CARD NO	**** CONTENTS	****
3692	202 N = IWEB	$TWE0400
3693	C	$TWE0410
3694	C **MOVE DATA ON N**	$TWE0420
3695	TSS(10) = TWT(N+170)	$TWE0430
3696	TSS(29) = SWBMO(N)	$TWE0440
3697	TSS(12) = TDC(54)*TDC(N+65)	$TWE0450
3698	TSS(7) = SWBST(N)	$TWE0460
3699	C	$TWE0470
3700	C **TEST FOR SHEAR=0.0**	$TWE0480
3701	IF (TSS(11)) 210,210,240	$TWE0490
3702	C	$TWE0500
3703	C **SHEAR=0.0. TEST SECTION**	$TWE0510
3704	210 IF (ISEC - ND(1)) 211,211,212	$TWE0520
3705	C	$TWE0530
3706	C *TIP. USE MIN DATA*	$TWE0540
3707	211 TSS(5) = TSS(29)	$TWE0550
3708	GO TO 213	$TWE0560
3709	C	$TWE0570
3710	C **SECT I-10, USE SECT(I-1 TIN)**	$TWE0580
3711	212 I = N*ND(7)	$TWE0590
3712	TSS(5) = TDC(I+173)	$TWE0600
3713	213 TSS(9) = TSS(10)	$TWE0610
3714	TSS(8) = DC(3)	$TWE0620
3715	GO TO 260	$TWE0630
3716	C	$TWE0640
3717	240 TSS(25) = TSS(11)/TSS(3)	$TWE1550
3718	TSS(30) = TSS(25)/TSS(15)	$TWE1570
3719	C	$TWE1580
3720	C USE LARGE TIN OF MG OR TIQ,FSPO()	$TWE1590
3721	TSS(28) = TSS(29)	$TWE1600
3722	IF (TSS(28) - TSS(30)) 241,241,250	$TWE1610
3723	241 TSS(28) = TSS(30)	$TWE1620
3724	C	$TWE1630
3725	C	$TWE1640
3726	C ***SETUP FOR PLATE STIFFENED, SHEAR RESIST. WEB ANALYSIS**	$TWE1650
3727	250 TSS(31) = TSS(1)	$TWE1660
3728	TSS(35) = TSS(7)	$TWE1670
3729	IF (TSS(35) - TSS(31)) 251,251,2510	$TWE1680
3730	251 TSS(31) = TSS(7)	$TWE1690
3731	TSS(35) = TSS(1)	$TWE1700
3732	2510 TSS(36) = TSS(31)/TSS(35)	$TWE1710
3733	TSS(33) = TSS(12)/TSS(31)/TSS(31)	$TWE1720
3734	TSS(34) = DKS(24)/TSS(1)*TSS(12)/TSS(1)	$TWE1730
3735	TSS(32) = TSS(1)/TDC(73)*TDC(84)	$TWE1740
3736	C	$TWE1750
3737	C **** INTERPOLATE FOR KS(O) ****	$TWE1760
3738	252 I = ND(1)	$TWE1770
3739	2520 IF (DKS(I+1) - TSS(36)) 2521,2523,2524	$TWE1780
3740	2521 I = I + ND(1)	$TWE1790
3741	IF (ND(10) - I) 2522,2520,2520	$TWE1800
3742	2522 I = ND(10)	$TWE1810
3743	2523 TSS(28) = DKS(I+12)	$TWE1820
3744	GO TO 253	$TWE1830
3745	2524 TSS(13) = DKS(I+1) - DKS(I)	$TWE1840
3746	TSS(14) = DKS(I+12) - DKS(I+11)	$TWE1850
3747	TSS(15) = TSS(36) - DKS(I)	$TWE1860
3748	TSS(28) = DKS(I+11) + TSS(15)*TSS(14)/TSS(13)	$TWE1870
3749	C	$TWE1880
3750	C **** COMPUTE BASIC FSCR ****	$TWE1890
3751	253 TSS(23) = (TSS(25)/TSS(26)/TSS(33))**0.3333	$TWE1900
3752	TSS(21) = TSS(25)/TSS(23)	$TWE1910
3753	IF (TSS(28) - TSS(23)) 2530,254,254	$TWE1920
3754	2530 TSS(28) = TSS(23)	$TWE1930
3755	C	$TWE1940
3756	C *** SETUP SEARCH ***	$TWE1950
3757	254 TSS(24) = TSS(28)/D(2)	$TWE1960
3758	TSS(13) = TSS(28)/D(5)	$TWE1970
3759	IF (TSS(24) - TSS(13)) 2540,2541,2541	$TWE1980
3760	2540 TSS(24) = TSS(13)	$TWE1990
3761	2541 IF (TSS(24) - DELTW) 2542,2543,2543	$TWE2000
3762	2542 TSS(24) = DELTW	$TWE2010

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CARD NO  ****                          CONTENTS                          ****
  3783   C                                                                $TWE2020
  3784   C            *** POINTS 1 AND 3 ***                              $TWE2030
  3785    2543 TSS(13) = TSS(20)                                          $TWE2040
         CALL SWEB (TSS(13))                                              $TWE2050
         TSS(16) = TSS(22)                                                $TWE2060
         IF (D(1) - TSS(16)) 255,256,256                                  $TWE2070
  3788    255 TSS(15) = TSS(13) + TSS(24)                                 $TWE2080
         CALL SWEB (TSS(15))                                              $TWE2090
  3791   TSS(18) = TSS(22)                                                $TWE2100
         IF (D(1) - TSS(18)) 2550,2[illegible],255                        $TWE2110
  3793    2550 TSS(13) = TSS(15)                                          $TWE2120
         TSS(16) = TSS(18)                                                $TWE2130
         GO TO 255                                                        $TWE2140
  3796   C                                                                $TWE2150
  3797   C          *** POINT 2 ***                                       $TWE2160
  3798    2551 TSS(14) = (TSS(13) + TSS(15))/D(2)                         $TWE2170
         CALL SWEB (TSS(14))                                              $TWE2180
  3800   TSS(17) = TSS(22)                                                $TWE2190
         IF (D(1) - TSS(17)) 2552,256,2553                                $TWE2200
  3802    2552 TSS(13) = TSS(14)                                          $TWE2210
         TSS(16) = TSS(17)                                                $TWE2220
         GO TO 2554                                                       $TWE2230
  3805    2553 TSS(15) = TSS(14)                                          $TWE2240
         TSS(18) = TSS(17)                                                $TWE2250
  3807    2554 TSS(14) = (TSS(13) + TSS(15))/D(2)                         $TWE2260
         CALL SWEB (TSS(14))                                              $TWE2270
  3809   TSS(17) = TSS(22)                                                $TWE2280
  3810   C                                                                $TWE2290
  3811   C          **** INTERPOLATE AT R=1.0 FOR T(WEB).  IK=2 ****      $TWE2300
  3812    2555 IK = ND(2)                                                 $TWE2310
         CALL COSP (TSS(13),TSS(16))                                      $TWE2320
  3814   TSS(23) = TDC(47)                                                $TWE2330
         CALL SWEB(TSS(23))                                               $TWE2340
  3816   IF (TSS(22) - D(1)) 2556,257,2556                                $TWE2350
  3817    2556 TSS(19) = (TSS(19) + TSS(21))/D(2)                         $TWE2360
         TSS(23) = TSS(25)/TSS(19)                                        $TWE2370
  3820    256 CALL SWEB (TSS(23))                                         $TWE2380
  3821   C                                                                $TWE2390
  3822   C                ******SETUP EXIT******                          $TWE2400
  3823    257 TSS(18) = TSS(25)/TSS(23)                                   $TWE2410
         IF (TSS(10) - TSS(19)) 2570,2571,2571                            $TWE2420
  3825    2570 TSS(19) = TSS(10)                                          $TWE2430
         TSS(21) = TSS(10)                                                $TWE2440
         TSS(23) = TSS(25)/TSS(10)                                        $TWE2450
  3828    2571 TSS(5) = TSS(23)                                           $TWE2460
         TSS(9) = TSS(21)                                                 $TWE2470
         TSS(8) = TSS(19)                                                 $TWE2480
  3831   C                                                                $TWE2490
  3832   C            ***OFF WEB X-SECT AREA AND A(CAPS)***               $TWE2500
  3833    260 TSS(2) = TSS(1)+TSS(5)/TSS(7)*(TSS(7) + SWAST(N)*SWAST(N))  $TWE2510
         TSS(20) = (TDC(87) + TDC(88))/D(2)*SLCFS(4)                      $TWE2520
         IF (TSS(20) - SLCFS(3)) 261,261,262                              $TWE2530
  3836    261 TSS(20) = SLCFS(3)                                          $TWE2540
  3837    262 TSS(6) = TSS(5)*SWBCP(N)/D(2) + TSS(20)*SWBCP(N)            $TWE2550
         TSS(4) = TSS(2) + TSS(6)                                         $TWE2560
         TSS(4) = SWDMS(N)*TSS(4)                                         $TWE2570
  3840   C                                                                $TWE2580
  3841   C                                                                $TWE9000
  3842   C            ***EXIT***                                          $TWE9990
  3843    290 RETURN                                                      $TWE9998
  3844        END                                                         $TWE9999
  3845   C*************************************************************************
  3846   C
  3847   C       *****SUBROUTINE SWEB*****
  3848   C   ***SPAR WEB CRITICAL STRESS EVALUATION***
  3849   C
  3850   C*************************************************************************
  3851   C
  3852        SUBROUTINE SWEB(TX)                                          SWE0010
  3853   C                                                                 SWE0011
  3854   C       ****CALC. FSCR = F(FS,FC) FOR SPAR WEBS.****              SWE0020
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CARD NO **** CONTENTS ****

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C                                                                       SWOE0040
C                                                                       SWOE0060
      COMMON T(2060),D(2060),CD(2000),ND(100)                           SWOE0070
C                                                                       SWOE0080
      DIMENSION                                   DC(100),              SWOE0090
     1TDC(200),TSC(420),TSS(100),                                       SWOE0100
     8DKS(23)                                                           SWOE0110
C                                                                       SWOE0120
      EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),   SWOE0130
     1(DC(1),D(1401)),(DKS(1),D(1550)),                                 SWOE0131
     8(TI,TSS(23)),(RI,TSS(22))                                         SWOE0132
C                                                                       SWOE0140
C                                                                       SWOE0150
C                                                                       SWOE0160
  100 TI = TX                                                           SWOE0170
      TSS(19) = TSS(25)/TI                                              SWOE0180
      TSS(27) = DKS(23)*TSS(32)/TSS(19)*TSS(32)/TSS(19) + D(1)          SWOE0190
  101 TSS(27) = SQRT (D(1) /TSS(27))*TSS(28)                            SWOE0200
      TSS(21) = TI*TSS(27)*TI*TSS(34)                                   SWOE0210
      RI = TSS(19)/TSS(21)                                              SWOE0220
   99 RETURN                                                            SWOE0230
      END                                                               SWOE0240
C************************************************************************
C
C       *****SUBROUTINE EIGJC*****
C   ***SECTION EI AND GJ STIFFNESS EVALUATION***
C
C************************************************************************
C
      SUBROUTINE EIGJC                                                  EIGJ0010
C                                                                       EIGJ0011
C      EI, GJ CALC. SUBR -- STRENGTH AND COMPOSITE                      EIGJ0020
C                                                                       EIGJ0030
C       ID=2, CALC. FINAL COMPOSITE EI,GJ AND RATIOS                    EIGJ0150
C                                                                       EIGJ0160
C      CALC AT SEC(I)                                                   EIGJ0170
C                                                                       EIGJ0180
C                                                                       EIGJ0200
C                                                                       EIGJ0210
      COMMON T(2060),D(2060),CD(2000),ND(100)                           EIGJ0220
C                                                                       EIGJ0230
      DIMENSION                                   DC(100),              EIGJ0240
     1TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),                    EIGJ0250
     2TC(340),YSTRC(1),                                                 EIGJ0260
     3GJROD(1),DEL(30),                                                 EIGJ0270
     4YBUD(1),YBLD(1),                                                  EIGJ0271
     8DNAU(1),DNAL(1)                                                   EIGJ0280
C                                                                       EIGJ0290
      EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),   EIGJ0300
     1(DC(1),D(1401)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),             EIGJ0301
     2(TC(1),T(980)),(DNAU(1),D(931)),(DNAL(1),D(942)),                 EIGJ0302
     3(YBUD(1),T(679)),(YBLD(1),T(690)),(YSTRC(1),TSEC(166)),           EIGJ0303
     4(GJROD(1),T(668)),                                                EIGJ0304
     5(DEL(1),TWT(251)),                                                EIGJ0305
     6(DLFSC,DEL(14)),(DLRSC,DEL(18)),(DLSTU,DEL(3)),(DLSTL,DEL(6)),    EIGJ0306
     9(ISEC,ND(55)),(IWF,ND(51)),(I,ND(30))                             EIGJ0309
C                                                                       EIGJ0310
C                                                                       EIGJ0390
C                                                                       EIGJ0400
C      EI,GJ CALC -- 9-22-65                                            EIGJ0410
C                                                                       EIGJ0420
C       CHECK FOR ZERO COEFF.   NO CALC IF ANY OF FOLLOWING IS ZERO    EIGJ0430
C       UPR,LOW(COV,SK,STR), FS,RS(COMP.,CAP,WEB)                       EIGJ0440
C      COMPUTE I AND J IN EQUIV. UPR COVER E AND G  CONVERT AREAS AND T EIGJ0450
C      TO T(EQU) = F(G(I),E(I),G(UPR),G(LWR))                           EIGJ0460
C     EI=E(A(U)X(YCG-YBU)**2)+EL(ALX(YCG-YBL)**2)+ E.XAC(DELY)**2(FS,RS)EIGJ0470
C      J = 4(A X A /(SUM((DS/T)(U,L,FS,RS)))                            EIGJ0480
C                                                                       EIGJ0490
C      ALL T TO HAVE ELEMENT AND SUB-COMPONENT COEFF. APPLIED FOR CALC. EIGJ0500
C                                                                       EIGJ0510
C       TEST FOR ZERO COEFF.                                            EIGJ0530
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CARD NO      ****                          CONTENTS                          ****
 3005              TSS(7)=D(1)                                                EIGJ0940
 3006              DO 800 J=1,3                                               EIGJ0950
 3007              TSS(7) = TSS(7)+DEL(J)+DEL(J+3)+DEL(J+12)+DEL(J+16)        EIGJ0960
 3008          800 CONTINUE                                                   EIGJ0970
 3009              TSS(8)=D(1)                                                EIGJ0980
 3010              IF (TSS(7)) 850,850,810                                    EIGJ0990
 3011          C                                                              EIGJ1000
 3012          C     TEST FOR TYPE, CLEAR WORKING DATA REGION FIRST --TSS(1-6) EIGJ1010
 3013          810 DO 811 J=1,6                                               EIGJ1020
 3014              TSS(J)=DC(3)                                               EIGJ1030
 3015          811 CONTINUE                                                   EIGJ1040
 3016          C                                                              EIGJ1050
 3017          C     TEST FOR TYPE  ID=1,STRUCT.  ID=2, COMPOSITE             EIGJ1060
 3018              IF (ND(1) - 1HF) 820,830,820                               EIGJ1070
 3019          -                                                              EIGJ1080
 3020          C     COMPUTE  SECTION GJ --- J(1) IN TMT(206)                 EIGJ1090
 3021          C     TMT(202)=A(SECT), 203=(W/TU+W/TL), 204=(DF/TMF+DR/TMR), 205=SUPDSEIGJ1100
 3022          C                                                              EIGJ1110
 3023          C                                                              EIGJ1120
 3024          C     SETUP TMF DATA FOR COMPOSITE CALC.                       EIGJ1130
 3025          820 DO 821 J=1,2                                               EIGJ1140
 3026              TSS(J)= TDC(J+115)                                         EIGJ1150
 3027              TSS(J+2)= TDC(J+117)                                       EIGJ1160
 3028              TSS(J+4)= TDC(J+174)                                       EIGJ1170
 3029          821 CONTINUE                                                   EIGJ1180
 3030          C                                                              EIGJ1190
 3031          830 TSS(14)=(TMT(152)+TMT(153))/D(2)                           EIGJ0800
 3032              TSS(15)=(TMT(150)+TMT(151))/D(2)                           EIGJ0810
 3033              TSS(12)=TDC(77)-TSS(14)                                    EIGJ0820
 3034              TSS(13)=TDC(69)-TSS(15)                                    EIGJ0830
 3035              TSS(14)=TDC(70)-TSS(15)                                    EIGJ0840
 3036              TSS(16)=TDC(78)-TSS(15)                                    EIGJ0850
 3037              TMT(202)= TSS(12)+TSS(16)                                  EIGJ0860
 3038          C                                                              EIGJ0870
 3039          C     UPR AND LWR SKINS (DS/T) --- USE K=1/C(G)                EIGJ0880
 3040              TMT(203)= (TSS(12)/(TMT(150)+TSS(13)) +(TSS(12)*TMT(176)/(TMT(151)EIGJ0890
 3041             1 + TSS(2)))                                                EIGJ0900
 3042          C                                                              EIGJ0910
 3043          C     FS AND RS WEBS (DS/T)                                    EIGJ0920
 3044              TMT(204)=(TSS(13)*TMT(177)/(TMT(152) + TSS(5))) + (TSS(14)*TMT(178EIGJ0930
 3045             1)/(TMT(153) + TSS(6)))                                     EIGJ0940
 3046          C                                                              EIGJ0950
 3047          C     SUM DS/T                                                 EIGJ0960
 3048              TMT(205) = TMT(203) + TMT(204)                             EIGJ0970
 3049          C                                                              EIGJ0980
 3050          C     COMPUTE J(EQUIV) UPR.                                    EIGJ0990
 3051              TMT(206) =D(4)*(TMT(202)*TMT(202)/TMT(205))                EIGJ1000
 3052          C                                                              EIGJ1009
 3053          C     GJ SECTION -- G(UPR) AT ROOM TEMP.                       EIGJ1010
 3054          831 TSS(7) = TMT(206)*TMT(174)                                 EIGJ1020
 3055          C                                                              EIGJ1030
 3056          C     COMPUTE SECTION EI --- E(I)EQUIV IN TMT(290) =SUM(EI)/E(UPR)EIGJ1040
 3057          C     207= YCG(SECT.), 208=Y(LWR), 293=A(UPR), 294=A(LWR,EQUIV),  EIGJ1050
 3058          C     295= A(FS,EQUIV), 296=A(RS,EQUIV), 297=SUM(A)              EIGJ1060
 3059          C                                                              EIGJ1070
 3060          C     YBAR(LWR)EQUIV =(YUXAL/AU)                               EIGJ1080
 3061              TMT(208) = YBLD(1SEC)                                      EIGJ1090
 3062          C                                                              EIGJ1100
 3063          C     UPR, LWR COVER AREAS                                     EIGJ1110
 3064          832 TMT(293) = TDC(77)*((TMT(150) + TSS(1))*TSEC(240) + TSS(3) + DLSTUEIGJ1120
 3065             1*TDC(96))                                                  EIGJ1130
 3066              TMT(294) = TDC(77)*((TMT(151) + TSS(2))*TSEC(242) + TSS(4) + DLSTLEIGJ1140
 3067             1*(TDC(87) - TDC(112)))                                     EIGJ1150
 3068          C                                                              EIGJ1160
 3069          C                                                              EIGJ1170
 3070          C     FS, RS CAPS - DC(1)=D(1401) = K FOR E1 CALC WITH CAPS    EIGJ1180
 3071              TMT(295)=DLFSC*TDC(179)*DC(4)                              EIGJ1190
 3072              TMT(296)=DLRSC*TDC(180)*DC(4)                              EIGJ1200
 3073          C                                                              EIGJ1210
 3074          C     SETUP Z COORD.  OF FS/RS CAPS                            EIGJ1220
 3075              TSS(25)=D(28)+TDC(114)                                     EIGJ1230
```

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CARD NO   ****                          CONTENTS                                      ****
                TSS(26)=D(20)*TDC(112)                                            E10J1240
                DO 835 J=1,2                                                      E10J1250
                TSS(J+16)= (TDC(78)-TDC(J+68))/D(2)                               E10J1260
                TSS(J+18)= TSS(J+16)+TSS(25)                                      E10J1270
                TSS(J+20)= TDC(78) -TSS(J+16) -TSS(26)                            E10J1280
                TSS(23)=TSS(J+20)-TSS(J+18)                                       E10J1290
                IF (TSS(23)-TSS(25)-TSS(26)) 834,835,835                          E10J1300
          834   TSS(24)=TSS(23)/D(2)                                              E10J1310
                TSS(J+18)= TSS(J+18)+TSS(24)-TSS(25)                              E10J1320
                TSS(J+20)= TSS(J+20)-TSS(24)+TSS(26)                              E10J1330
          835   CONTINUE                                                          E10J1340
        C                                                                         E10J1350
        C        SUM COVER + CAP AREAS                                            E10J1360
                THT(297)= THT(293)+THT(294)+THT(295)+THT(296)                     E10J1370
        C                                                                         E10J1380
        C        YBAR U,L FOR FS,RS = YU,YL                                       E10J1390
        C        CG OF AREAS FROM ML OF UPR COV.  -- TAKE MOM(A) ABOUT UPR ML     E10J1400
          836   THT(289) = YOUD(ISEC)*THT(293) + (TDC(78) - THT(288))*THT(294) +  E10J1410
               1 THT(295)*(TSS(19)+TSS(21))/D(2)+ THT(296)*(TSS(20)+TSS(22))/D(2) E10J1420
        C                                                                         E10J1430
        C        YCG SECTION -- LESS FS,RS WEBS                                   E10J1440
                THT(287)= THT(289)/THT(297)                                       E10J1450
        C                                                                         E10J1460
        C        COMPUTE EI  --  SUM IN THT(290)                                  E10J1470
        C                                                                         E10J1480
        C        9-22-65--- ADD I(0) UPR,LWR  I(0) LWR (TEMP) = I(0)UPR X (AU/AL) E10J1490
        C         NO COEFF. OR K(E) IN I(0) CALC.                                 E10J1500
        C                                                                         E10J1510
        C        I(0) TEST FOR VF                                                 E10J1520
                THT(184) = TDC(101)                                               E10J1530
                IF (IVF - ND(2)) 842,840,842                                      E10J1540
          840   IF (TDC(116)) 842,842,841                                         E10J1550
          841   THT(184)=TSC(61)                                                  E10J1560
        C                                                                         E10J1570
        C        (SUM IO UPR,LWR ) X W X E                                        E10J1580
          842   THT(290) = TDC(77)*(THT(184) + THT(184)*THT(179)*SQRT (TDC(87)/TDCE10J1590
               1(88)))                                                            E10J1600
        C                                                                         E10J1610
        C        UPR, LWR  TRANSFER TERMS                                         E10J1620
                THT(291)=THT(287) - YBUD(ISEC)                                    E10J1630
                THT(291)=THT(293)*THT(291)*THT(291)                               E10J1640
                THT(292)=TDC(70)-THT(288)-THT(287)                                E10J1650
                THT(292)=THT(294)*THT(292)*THT(179)*THT(292)                      E10J1660
                THT(290)=THT(290)+THT(291)+THT(292)                               E10J1670
        C                                                                         E10J1680
        C        FS, RS TRANSFER TERM                                             E10J1690
        C        DO CALC IN LOOP                                                  E10J1700
                DO 843 J=1,2                                                      E10J1710
                TSS(23)=THT(J+294)/D(2)                                           E10J1720
                TSS(24)=THT(287)-TSS(J+18)                                        E10J1730
                TSS(25)= TSS(J+20)-THT(287)                                       E10J1740
                THT(J+290) = TSS(23)*THT(J+178)*(TSS(24)*TSS(24) + TSS(25)*TSS(25 E10J1750
               1))                                                                E10J1760
          843   CONTINUE                                                          E10J1770
        C                                                                         E10J1780
        C        SUM EQUIV. I,  COMPUTE  EI(SECT)                                 E10J1790
          844   THT(292)=THT(292)+THT(291)+THT(290)                               E10J1800
                TSS(8) = THT(173)*THT(292)                                        E10J1810
        C                                                                         E10J1820
        C        GJ/EI RATIO                                                      E10J1830
          850   TSS(9)=TSS(7)/TSS(8)                                              E10J1840
        C                                                                         E10J1850
        C        GJ(VF REQD) IN TSEC(67-77) --OLD T(VF) LOC.                      E10J1860
        C         STORE ALL DATA FROM ROOT TO TIP  STORE IN COMPOSITE SECTION     E10J1870
        C                                                                         E10J1880
                I=ND(12)-ISEC                                                     E10J1890
                TSS(10)= D(1)                                                     E10J1900
                IF (TDC(74)) 852,852,851                                          E10J1910
          851   TSS(10) = DC(3)                                                   E10J1915
                IF (GJROD(I)) 852,852,8510                                        E10J1920
          8510  TSS(10) = TSS(7)/GJROD(I)                                         E10J1925
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CARD NO  ****                          CONTENTS                          ****
 4047     C                                                                E1GJ1930
 4048     C      TEST FOR STORAGE --MAKE UP TABLE IN CD(1 - 132)            E1GJ1940
 4049     C            ***SAVE TSS(7-24), TWT(282-299) IN CD(1836-1872) FOR PRTB*E1GJ1950
 4050     C            ***SAVE ON STRUCT CALC ONLY.  IVF=1***              E1GJ1951
 4051      852  IF (IVF - ND(1)) 8520,8520,853                              E1GJ1960
 4052      8520 DO 8521 J=1,18                                              E1GJ1965
 4053           CD(J+1836) = TSS(J+6)                                       E1GJ1970
 4054           CD(J+1854) = TWT(J+281)                                     E1GJ1980
 4055      8521 CONTINUE                                                    E1GJ1990
 4056     C                                                                 E1GJ2000
 4057     C                                                                 E1GJ2010
 4058      853  CD(1+22) = TSS(7)                                           E1GJ2020
 4059           CD(1+33)=TSS(8)                                             E1GJ2030
 4060           CD(1+55)=TSS(9)                                             E1GJ2040
 4061           CD(1+77) = TSS(10)                                          E1GJ2050
 4062           CD(1+88) =(TWT(150)+TSS(1))/TWT(150)                        E1GJ2060
 4063           CD(1+99) =(TWT(151)+TSS(2))/TWT(151)                        E1GJ2070
 4064           CD(1+110)=(TWT(152)+TSS(5))/TWT(152)                        E1GJ2080
 4065           CD(1+121)=(TWT(153)+TSS(6))/TWT(153)                        E1GJ2090
 4066     C                                                                 E1GJ2100
 4067     C      SETUP FOR SECT. PROP. STORAGE  -- TEST FOR SIFC OR COMP.   E1GJ2110
 4068     C       ST=1, COMP=2                                              E1GJ2120
 4069      854  IF (IVF- ND(2)) 855,856,855                                 E1GJ2130
 4070      855  CD(1)= TSS(7)                                               E1GJ2140
 4071     C      SAVE  ST. DATA                                             E1GJ2150
 4072           CD(1+11)=TSS(8)                                             E1GJ2160
 4073           CD(1+44)=TSS(9)                                             E1GJ2170
 4074           CD(1+66)=TSS(10)                                            E1GJ2180
 4075     C                                                                 E1GJ2190
 4076     C      TSK(U,L),TBAR(U,L),TSTR,L,B,NOS,WSTR,TWIFS,RS)              E1GJ2200
 4077           TWT(338)=TDC(114)                                           E1GJ2210
 4078           TWT(339)=TDC(112)                                           E1GJ2220
 4079           TWT(340)=TDC(88)                                            E1GJ2230
 4080           TWT(341)=TDC(87)                                            E1GJ2240
 4081           TWT(342)=TDC(97)                                            E1GJ2250
 4082           TWT(343)=TDC(100)                                           E1GJ2260
 4083           TWT(344)=TDC(82)                                            E1GJ2270
 4084           TWT(345)=TDC(81)                                            E1GJ2280
 4085           TWT(346)=TDC(98)                                            E1GJ2290
 4086           TWT(347)= TDC(180)                                          E1GJ2300
 4087           TWT(348)= TDC(187)                                          E1GJ2310
 4088           GO TO 857                                                   E1GJ2320
 4089     C                                                                 E1GJ2330
 4090     C      COMPOSITE DATA                                             E1GJ2340
 4091      856  TWT(338)= TWT(150)+TSS(1)                                   E1GJ2350
 4092           TWT(339)= TWT(151)+TSS(2)                                   E1GJ2360
 4093           TWT(340)= TSC(48)                                           E1GJ2370
 4094           TWT(341)= TDC(87)+TSS(2)+TDC(119)                           E1GJ2380
 4095           TWT(342)= TSC(57)                                           E1GJ2390
 4096           TWT(343)= TSC(60)                                           E1GJ2400
 4097           TWT(344)= TSC(42)                                           E1GJ2410
 4098           TWT(345)= TSC(41)                                           E1GJ2420
 4099           TWT(346)= TSC(58)                                           E1GJ2430
 4100           TWT(347)= TWT(152)+TSS(5)                                   E1GJ2440
 4101           TWT(348)= TWT(153)+ TSS(6)                                  E1GJ2450
 4102     C                                                                 E1GJ2460
 4103     C      COMMON ST,COMP. DATA                                       E1GJ2470
 4104     C      Y(1),+NX,-NX (KIPS)                                        E1GJ2480
 4105     C        ***PRINT COMPRESSION NX FOR UPR AND LWR.****             E1GJ2490
 4106      857  TWT(331)=YSTRC(1)                                           E1GJ2500
 4107           TWT(332)=TDC(72)/D(14)                                      E1GJ2510
 4108           TWT(333)=TDC(71)/D(14)                                      E1GJ2520
 4109     C      FCU,FCL,FTU,FTL (KSI)                                      E1GJ2530
 4110     C          ****COMPUTE TRUE AVERAGE STRESSES.****                 E1GJ2540
 4111          TWT(334)= TWT(332)/TWT(340)                                  E1GJ2550
 4112          TWT(335)= TWT(333)/TWT(341)                                  E1GJ2560
 4113          TWT(336) = TWT(333)*TSEC(244)/TWT(340)*DN0U(1)/DN0L(1)       E1GJ2570
 4114          TWT(337) = TWT(332)*TSEC(244)/TWT(341)*DN0L(1)/DN0U(1)       E1GJ2580
 4115     C                                                                 E1GJ2590
 4116     C      MOVE DATA - TC AND CD REGION                               E1GJ2600
 4117      858  N=1+ND(19)-ND(19)                                           E1GJ2610
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CARD NO      ****                          CONTENTS                          ****
 0118              DO 899 J=1,18                                              E1GJ2620
 0119              I=N+J                                                      E1GJ2630
 0120              CD(I+201)=TWT(J+330)                                       E1GJ2640
 0121       899    CONTINUE                                                   E1GJ2650
 0122       C                                                                 E1GJ2660
 0123       C       TEST FOR 1,2                                              E1GJ2670
 0124        860   IF (IVF-ND(2)) 861,899,861                                E1GJ2680
 0125        861   DO 862 J=1,18                                             E1GJ2690
 0126              I=N+J                                                      E1GJP700
 0127              TC(I)=TWT(J+330)                                           E1GJ2710
 0128        862   CONTINUE                                                  E1GJ2720
 0129       C                                                                 E1GJ2730
 0130       C       EXIT                                                      E1GJ2740
 0131        899   RETURN                                                    E1GJ2750
 0132              END                                                        E1GJ2760
 0133       C*****************************************************************
 0134       C
 0135       C        *****SUBROUTINE VFCAL*****
 0136       C   ***SECTION TORSIONAL STIFFNESS REQMT EVALUATION***
 0137       C
 0138       C*****************************************************************
 0139       C
 0140              SUBROUTINE VFCAL                                           VFCA0010
 0141       C       VF SUBR -- J OR TVF COMPARISON                            VFCA0020
 0142       C                                                                 VFCA0030
 0143       C      REVISION -- 01-11-66 -- NEW LINKAGES.                      VFCA0040
 0144       C      REVISION -- 12-7-65 -- NEW STORAGE FORMAT  REF. TO T,D,CD BLOCKS VFCA0050
 0145       C      10-26-65 -- J OR TVF LOGIC                                 VFCA0060
 0146       C                                                                 VFCA0070
 0147       C                                                                 VFCA0080
 0148       C      GJUF(I) REQD IN TDC(74)                                    VFCA0090
 0149       C       FOR EQUIV. TVF, CALC. TVF AND SET TDC(74)=TVF(I) REQD.    VFCA0100
 0150       C         IE1GJ = E1GJ CALC ID.  1 = STRUCT., 2=COMPOSITE.  SET AT 1 VFCA0110
 0151       C                                                                 VFCA0120
 0152       C                                                                 VFCA0140
 0153       C                                                                 VFCA0150
 0154              COMMON T(2060),D(2060),CD(2000),ND(100)                    VFCA0160
 0155       C                                                                 VFCA0170
 0156              DIMENSION                                DC(100),          VFCA0180
 0157             1TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),YSTAC(11),  VFCA0190
 0158             2SWBID(23),GW(3),SWRHO(2),SWBE(2)                          VFCA0200
 0159       C                                                                 VFCA0210
 0160              EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)) VFCA0220
 0161              EQUIVALENCE (GW(1),D(80)),(SDRHO,D(330)),(SDMU,D(321)),   VFCA0230
 0162             1(SWBID(1),D(401)),(SWRHO(1),D(424)),(SWBE(1),D(416)),     VFCA0231
 0163             2(SOFWB,D(422)),(DC(1),D(140))                             VFCA0232
 0164              EQUIVALENCE (TWT(1),CD(1101)),(TSEC(1),CD(1501)),         VFCA0240
 0165             1(YSTAC(1),CD(1668))                                       VFCA0241
 0166              EQUIVALENCE (IGW,ND(57)),(NODW,ND(56)),(ISEC,ND(55)),     VFCA0250
 0167             1(IVFJT,ND(53)),(IB,ND(52)),(IVF,ND(51)),(IVF2,ND(50)),(NN,ND(49)),VFCA0251
 0168             2(N3,ND(43)), N2,ND(42)),(N1,ND(41)),(N,ND(31)),(J,ND(30)),VFCA0252
 0169             3(IDRS,ND(24)),(IDFS,ND(23)),(ND1,ND(1))                   VFCA0253
 0170       C      GJ STRUCT IN TSS(7), E1 IN TSS(8),                        VFCA0290
 0171       C      X-SEC A(I) IN TWT(282), P(I) MUST BE CALC.                VFCA0300
 0172       C      COMPUTE J(VF), J(STRUCT) -- EQUIV. UPR COVER G.           VFCA0310
 0173       C                                                                VFCA0320
 0174        700   TSS(1)= TSS(7)/TWT(174)                                   VFCA0330
 0175              TSS(2)= TDC(74)/TWT(174)                                  VFCA0340
 0176              TWT(184)= TWT(282)/D(150)*TWT(282)                        VFCA0350
 0177       C      DS(U,L,FS,RS)                                            VFCA0360
 0178              TSS(4)=(TWT(150)+TWT(151))/D(2)                           VFCA0370
 0179              TSS(5)=(TWT(152)+TWT(153))/D(2)                           VFCA0380
 0180              TWT(81)=TDC(77)-TSS(5)                                    VFCA0390
 0181              TWT(82)=TWT(81)                                           VFCA0400
 0182              TWT(83)=TDC(88)-TSS(4)                                    VFCA0410
 0183              TWT(84)=TDC(70)-TSS(4)                                    VFCA0420
 0184              IF (ND(1)-IVFJT) 300,200,300                              VFCA0430
 0185       C                                                                VFCA0440
 0186       C                                                                VFCA0450
 0187       C       ID=2 -- EQUIV. TVF COMPARISON   -- COMPUTE TVF           VFCA0460
 0188       C                                                                VFCA0470
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CARD NO  ****                          CONTENTS                          ****
 0189      300  TSS(3)= TWT(61)+TWT(62)+TWT(63)+TWT(64)                  WFCA0480
 0190           TDC(74)= TSS(2)*TSS(3)/TWT(164)                          WFCA0490
 0191      C                                                             WFCA0500
 0192      C      SETUP DELTA TWF IN TEST/MOVE BLOCK                     WFCA0510
 0193      C     UPPER SKINS                                             WFCA0520
 0194           TWT(65)=TDC(74)-TWT(150)                                 WFCA0530
 0195      C       LOWER SKINS                                           WFCA0540
 0196           TWT(66)= (TDC(74)*TWT(176)) - TWT(151)                   WFCA0550
 0197      C       FRONT SPAR WEB                                        WFCA0560
 0198           TWT(67)= (TDC(74)*TWT(177)) - TWT(152)                   WFCA0570
 0199      C       REAR SPAR WEB                                         WFCA0580
 0200           TWT(68)= (TDC(74)*TWT(178)) - TWT(153)                   WFCA0590
 0201      C                                                             WFCA0600
 0202      C     GO TO COMPUTE PENALTIES -- ASSUME NO REDUCTION IN X-SEC AREA OR PWFCA0610
 0203           GO TO 150                                                WFCA0620
 0204      C                                                             WFCA0630
 0205      C                                                             WFCA0640
 0206      C       ID=1 -- EQUIV. J COMPARISON -- COMPUTE DELTA J        WFCA0650
 0207      C      DELTA J REQD IN TWT(96)= JWF - J STRC                  WFCA0660
 0208      200  TWT(96)=TSS(2) - TSS(1)                                  WFCA0670
 0209           IF (TWT(96)) 199,199,201                                 WFCA0680
 0210      C                                                             WFCA0690
 0211      C     J REQD -- SET UP FOR CALC.       RESOLVE TO DS/T(I) COMPARISON WFCA0700
 0212      C     (DS/T)REQD= %(A X A)/J(REQD), (DS/T)STRUCT.              WFCA0710
 0213      201  TWT(96)=TWT(164)/TSS(2)                                  WFCA0720
 0214           TWT(95)=TWT(164)/TSS(1)                                  WFCA0730
 0215           TWT(57)=0(1)                                             WFCA0740
 0216           TWT(58)=TWT(176)                                         WFCA0750
 0217           TWT(59)=TWT(177)                                         WFCA0760
 0218           TWT(60)=TWT(178)                                         WFCA0770
 0219           DO 202 I=ND1,4                                           WFCA0780
 0220           TWT(I+56)= TWT(I+56)*TWT(I+60)                           WFCA0790
 0221           TWT(I+60)=TWT(I+56)/TWT(I+149)                           WFCA0800
 0222      202  CONTINUE                                                 WFCA0810
 0223      C                                                             WFCA0820
 0224      C                                                             WFCA0830
 0225      C     DETERMINE AND TAG ORDER OF THICKNESS VARIATIONS FOR TU,TL,TF,TR WFCA0840
 0226      C     --- 1,2,3,4. N1=SMALLEST, N4=LARGEST                     WFCA0850
 0227      C     DELTA (DS/T) IN TWT(96)                                  WFCA0860
 0228           N1=ND(1)                                                 WFCA0870
 0229           N2=ND(2)                                                 WFCA0880
 0230           N3=ND(3)                                                 WFCA0890
 0231           N4=ND(4)                                                 WFCA0900
 0232           IF (TWT(N2+149)-TWT(N1+149)) 100,100,101                 WFCA0910
 0233      C     T2 LESS THAN T1                                          WFCA0920
 0234      100  N2=ND(1)                                                 WFCA0930
 0235           N1=ND(2)                                                 WFCA0940
 0236      101  IF (TWT(N4+149)-TWT(N3+149)) 102,102,103                 WFCA0950
 0237      C     T3 LESS THAN T4                                          WFCA0960
 0238      102  N3=ND(4)                                                 WFCA0970
 0239           N4=ND(3)                                                 WFCA0980
 0240      C                                                             WFCA0990
 0241      C     ORDER= (1,2,3,4), (2,1,3,4), (2,1,4,3), OR (1,2,4,3)    WFCA1000
 0242      C                                                             WFCA1010
 0243      C     TEST N1,N3. N1 LESS THAN N2, N3 LESS THAN N4             WFCA1020
 0244      103  IF (TWT(N3+149)-TWT(N1+149)) 104,104,105                 WFCA1030
 0245      C     N3 IS SMALLEST, SET ORDER= N3,N4,N1,N2 FROM N1,N2,N3,N4  WFCA1040
 0246      104  N=N1                                                     WFCA1050
 0247           N1=N3                                                    WFCA1060
 0248           N3=N                                                     WFCA1070
 0249           N=N4                                                     WFCA1080
 0250           N4=N2                                                    WFCA1090
 0251           N2=N                                                     WFCA1100
 0252      C     IF N1 IS LESS, ORDER IS N1,N2,N3,N4                      WFCA1110
 0253      C                                                             WFCA1120
 0254      C     ORDER IS CURRENT (N1,N2,N3,N4) OR (N3,N4,N1,N2). FIRST N IS SMALLWFCA1130
 0255      C     TEST N2-N3  OK IF (-,0), TEST N2-N4 IF (+)               WFCA1140
 0256      C                                                             WFCA1150
 0257      105  IF (TWT(N3+149) - TWT(N2+149)) 108,110,110               WFCA1160
 0258      C     N3 IS LESS THAN N2. SET ORDER TO N1,N3,N2,N4  AND TEST N3 N4 WFCA1170
 0259      108  N=N2                                                     WFCA1180
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CARD NO **** CONTENTS ****

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      N2=N3
      N3=N
      IF (TWT(N4+149) - TWT(N3+149)) 107,110,110
C
C      N4 LESS THAN N3.  SET ORDER TO N1,N2,N4,N3
  107 N=N4
      N4=N3
      N3=N
C
C      ORDER  G(DS/T), G(DS), T DATA ACCORDING TO N1,N2,N3,N4 VALUES
C
  110 DO 111 I=ND1,12
      TWT(I+64)=DC(3)
  111 CONTINUE
C      SETUP LOOP TO DO CALC.
      J=1
      N=N1
      TWT(77)=TWT(N2+149)
      TWT(90)=DC(3)
      TWT(78)=DC(3)
C     GO TO COMPUTE ON N1
      GO TO 120
C
C      SETUP FOR N2,N3,N4
  112 J=J+ND(1)
      GO TO (113,113,114,115),J
C      N2
  113 N=N2
      TWT(77)=TWT(N3+149)
      GO TO 120
C      N3
  114 N=N3
      TWT(77)=TWT(N4+149)
      GO TO 120
C      N4
  115 N=N4
C
C       SETUP AND COMPUTE -- DATA ON N, STORG ON I
C      TWT(96)= DS/T(REQD), TWT(95)=DS/T(STRUCT)
C       DS(I) X G(I)/G(U.C.) = DS(I)X K(G)
C
  120 TWT(J+78)=TWT(N+60)
C      ( DS(I) X K(G))/T(I)
      TWT(J+82)=TWT(N+56)
C      T(I)
      TWT(J+86)= TWT(N+149)
C       SUM DS/T  LESS  (DS/T(I)) - DS/T(I-1)
      TWT(95)= TWT(95) - TWT(J+78) - TWT(78)
C       SUM  DS(I) X K(G)
      TWT(J+90)= TWT(J+82)+TWT(J+89)
      GO TO (121,121,121,123),J
C
C      N1,N2,N3  -- COMPUTE SUM(DS/T)I/T(I+1)- SUM(DS/T)I/T(I)
  121 TWT(J+72) = TWT(77) - TWT(J+86)
C
C        DS/T(I)= DS(I)/T(I+1)
      TWT(78) = TWT(J+90)/TWT(77)
C
C     (DS/T)REQD IS POSITIVE
C       COMPUTE NEW (DS/T)STRUCT WITH T(I+1)
C      TEST DS/T(CALC) WITH DS/T(REQD)  +,0 OK, - DO NEXT N
      TWT(95)= TWT(95)+TWT(78)
      IF (TWT(95)-TWT(96)) 122,124,112
C
C      EXCESS T(I). RECOMPUTE DELTA T(I)
  122 TWT(95)=TWT(95) - TWT(78)
C
C      DELTA(DS/T(I)) = DS/T(REQD) - SUM DS/T(I+1 TO N)
  123 TWT(J+72)= (TWT(J+90)/(TWT(96)-TWT(95))) - TWT(J+86)
C
C
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CARD NO  ****                          CONTENTS                          ****
 4331    C     SUM TOTAL DELTA TWF FOR EACH COMPONENT  IN REVERSE ORDER NN-N1    WFCA1900
 4332     124  TWT(72)=TWT(76)                                                  WFCA1910
 4333          TWT(71)=TWT(75)+TWT(72)                                          WFCA1920
 4334          TWT(70)=TWT(74)+TWT(71)                                          WFCA1930
 4335          TWT(69)=TWT(73)+TWT(70)                                          WFCA1940
 4336    C                                                                      WFCA1950
 4337    C      STORE FINAL DELTA TWF FOR FINAL WEIGHT CALC.                    WFCA1960
 4338          TWT(N1+64)=TWT(69)                                               WFCA1970
 4339          TWT(N2+64)=TWT(70)                                               WFCA1980
 4340          TWT(N3+64)=TWT(71)                                               WFCA1990
 4341          TWT(NN+64)=TWT(72)                                               WFCA2000
 4342    C                                                                      WFCA2010
 4343    C      MOVE TO WORKING LOC                                             WFCA2020
 4344    C        TEST FOR 0.0 AND (-)                                          WFCA2030
 4345    C                                                                      WFCA2040
 4346    C       UPPER SKINS                                                    WFCA2050
 4347     150  IF (TWT(65)) 152,152,151                                         WFCA2060
 4348     151  TDC(116)=TWT(65)                                                 WFCA2070
 4349          IWF = ND(2)                                                      WFCA2080
 4350    C                                                                      WFCA2090
 4351    C         LOWER SKINS                                                  WFCA2100
 4352     152  IF (TWT(66)) 154,154,153                                         WFCA2110
 4353     153  TDC(117)=TWT(66)                                                 WFCA2120
 4354          IWF = ND(2)                                                      WFCA2130
 4355    C                                                                      WFCA2140
 4356    C         FRONT SPAR WEB                                               WFCA2150
 4357     154  IF (TWT(67)) 156,156,155                                         WFCA2160
 4358     155  TDC(175)=TWT(67)                                                 WFCA2170
 4359          IWF = ND(2)                                                      WFCA2180
 4360    C                                                                      WFCA2190
 4361    C         REAR SPAR WEB                                                WFCA2200
 4362     156  IF (TWT(68)) 199,199,157                                         WFCA2210
 4363     157  TDC(176)=TWT(68)                                                 WFCA2220
 4364          IWF = ND(2)                                                      WFCA2230
 4365    C       GO TO COMPUTE PENALTIES --- EXIT                               WFCA2240
 4366    C                                                                      WFCA2250
 4367    C                                                                      WFCA2260
 4368    C      EXIT FROM  SUBR                                                 WFCA2270
 4369     199  RETURN                                                           WFCA2280
 4370          END                                                              WFCA2290
 4371    C*************************************************************************
 4372    C
 4373    C         *****SUBROUTINE WTCAL*****
 4374    C    ***SECTION/PANEL WEIGHT EVALUATION***
 4375    C
 4376    C*************************************************************************
 4377    C
 4378          SUBROUTINE WTCAL                                                 WTCA0010
 4379    C                                                                      WTCA0011
 4380    C       PANEL WT CALC. SUBR -- INCL LINK TO WTPIN, RTRIB, BHOUT SUBR   WTCA0020
 4381    C                                                                      WTCA0030
 4382    C                                                                      WTCA0040
 4383    C                                                                      WTCA0160
 4384    C      IC=1 DO AREA ONLY                                               WTCA0170
 4385    C      IC=2 DO PNL WT TOO                                              WTCA0180
 4386    C                                                                      WTCA0190
 4387    C                                                                      WTCA0210
 4388          COMMON T(2060),D(2060),CD(2000),ND(100)                          WTCA0220
 4389    C                                                                      WTCA0230
 4390          DIMENSION DC(100),TDC(200),TSC(420),TSS(100),                    WTCA0240
 4391         1TWT(400),TSEC(300),TC(340),                                      WTCA0241
 4392         2YSTRC(11),DEL(30),DLPNL(10),                                     WTCA0242
 4393         3WPLLE(12),WPLTE(12),                                             WTCA0243
 4394         4WTIP(4),DTTRB(2),DPCOL(10),DTBX(32),                             WTCA0244
 4395         5WPNLS(11),TPNLW(11),TBCWT(11),                                   WTCA0245
 4396         6TBWPI(11),VTWPI(11),TWPI(11),                                    WTCA0246
 4397         7BAOYS(2),                                                        WTCA0247
 4398         8DWK11(11),DEFF1(11)                                              WTCA0248
 4399    C                                                                      WTCA0250
 4400    C                                                                      WTCA0260
 4401          EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1341)),(TSC(1),T(1541)),   WTCA0270
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CARD NO	**** CONTENTS ****	
0002	1(TSS(1),3(198)),(TWT(1),CD(110)),(TSEC(1),CD(150)),	MTCA0271
0003	2(SDRHO,TWT(175)),(DLPNL(1),T(177)),	MTCA0272
0004	3(YSTAC(1),TSEC(166)),(CNSID,D(168)),(NTIP(1),T(841)),	MTCA0273
0005	4(DIBX(1),D(1088)),(DTTAB(1),T(666)),(DPCOL(1),T(220)),	MTCA0274
0006	5(NPLLE(1),T(205)),(NPLTE(1),T(297)),(TC(1),T(960)),	MTCA0275
0007	6(NPNLS(1),T(645)),(TPNLW(1),T(856)),(TBCWT(1),T(789)),	MTCA0276
0008	7(TBWP(1),T(745)),(WFWPE(1),T(758)),(TNBP(1),T(778)),	MTCA0277
0009	8(DNX(1(1),T(723)),(DEFF(1)),T(800)),	MTCA0278
0010	9(1SEC,ND(55)),(IC,ND(48)),(ND1,ND(1)),(N,ND(20)),(I,ND(29))	MTCA0279
0011	C	MTCA0280
0012	C	MTCA0290
0013	EQUIVALENCE (DEL(1),TWT(251)),(DLLWG,T(197)),(DLTBX,T(188)),	MTCA0300
0014	1(DELLE,T(189)),(DELTE,T(190)),(DHISC,T(191)),	MTCA0301
0015	2(DLCWU,DEL(1)),(DLSTU,DEL(3)),	MTCA0302
0016	3(DLCWL,DEL(4)),(DLSTL,DEL(6)),	MTCA0303
0017	4(DISKH,DEL(7)),(DLATT,DEL(8)),	MTCA0304
0018	5(DLIRB,DEL(9)),(DLIRW,DEL(10)),(DLIRH,DEL(11)),	MTCA0305
0019	6(S4095(1),D(410)),	MTCA0306
0020	8(DELFS,DEL(13)),(DLFSC,DEL(14)),(DLFSH,DEL(16)),	MTCA0308
0021	9(DELRS,DEL(17)),(DLRSC,DEL(18)),(DLRSH,DEL(20))	MTCA0309
0022	C	MTCA0310
0023	C	MTCA0320
0024	C	MTCA0390
0025	C SETUP IC	MTCA0400
0026	C TIP, IC=1	MTCA0410
0027	C	MTCA0420
0028	700 N = ND(12) - ISEC	MTCA0430
0029	IF (IC - ND(1)) 701,701,710	MTCA0440
0030	C	MTCA0448
0031	C **CLEAR TWT(1-149, 215-226)**	MTCA0449
0032	701 DO 702 I=1,149	MTCA0450
0033	TWT(I) = DC(3)	MTCA0460
0034	702 CONTINUE	MTCA0470
0035	DO 703 I=1,12	MTCA0480
0036	TWT(I+214) = DC(3)	MTCA0490
0037	703 CONTINUE	MTCA0500
0038	GO TO 711	MTCA0510
0039	C	MTCA0520
0040	C COMPUTE AREAS FOR SEC(K) IN EQUIVALENT TBAR(UPR COVER)	MTCA0530
0041	C APPLY ELEMENT COEFF.	MTCA0540
0042	C DEL(I)=(TSKU,TSKL,TWFS,TWRS) IN TWT(150,151,152,153)	MTCA0550
0043	C DENSITY FACTORS RHO(I)/RHO(UPR) IN TWT(185,183,184)	MTCA0560
0044	C SUM TWF LWR,FS,RS ARE ALL IN EQU UPR(T)	MTCA0570
0045	C *** APPLY EFF WIDTH TO SKINS ***	MTCA0580
0046	710 TWT(186) = ABS(YSTAC(ISEC) - YSTAC(ISEC-1))	MTCA0585
0047	C	MTCA0590
0048	711 TWT(121) = TWT(150)*TSEC(240)	MTCA0600
0049	TWT(122) = TWT(185)*TWT(151)*TSEC(242)	MTCA0610
0050	TWT(123) = TDC(89)	MTCA0620
0051	TWT(124) = TDC(86)*DLSTU*TSEC(241)	MTCA0630
0052	TWT(125) = (TDC(87) - TDC(112))*TWT(185)*DLSTL*TSEC(243)	MTCA0640
0053	TWT(126)=(TDC(90)+TDC(93))*DLSKH	MTCA0650
0054	TWT(127)=(TDC(169)+TDC(171))*TWT(185)*DLSKH	MTCA0660
0055	TWT(128)=(TDC(91)+TDC(170)*TWT(185))*DLATT	MTCA0370
0056	TWT(129)= TDC(92)*DLIRH/TSEC(233)	MTCA0680
0057	C	MTCA0690
0058	C	MTCA0700
0059	C DELTA WF	MTCA0710
0060	TWT(130) = TDC(116)*TSEC(240)	MTCA0720
0061	TWT(131) = TWT(185)*TDC(117)*TSEC(242)	MTCA0730
0062	TWT(132) = TDC(118)*TSEC(241)	MTCA0740
0063	TWT(133) = TDC(119)*TWT(185)*TSEC(243)	MTCA0750
0064	TWT(140) = TDC(120)*TDC(77)	MTCA0760
0065	TWT(141)= TSC(36)*TDC(77)	MTCA0770
0066	TWT(142)= TSC(38)*TWT(185)*TDC(77)	MTCA0780
0067	TWT(143)= TSC(37)*TDC(77)	MTCA0790
0068	TWT(144)= TDC(77)*TSC(39)	MTCA0800
0069	C	MTCA0810
0070	C ***TEST FOR H/SPAR, HC, FDH.***	MTCA0820
0071	IF (CNSID) 712,713,712	MTCA0830
0072	712 TWT(124) = TWT(124)/TSEC(241)	MTCA0840

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CARD NO      ****                          CONTENTS                          ****
 9473            TWT(125) = TWT(125)/TSEC(243)                              MTCA0950
 9474            TWT(132) = TWT(132)/TSEC(243)                              MTCA0960
 9475            TWT(133) = TWT(133)/TSEC(243)                              MTCA0970
 9476      C                                                                 MTCA0980
 9477       713  DO 714 I=1,13                                              MTCA0990
 9478            TWT(I+120)=TWT(I+120)*TDC(77)                              MTCA0900
 9479       714  CONTINUE                                                   MTCA0910
 9480      C                                                                 MTCA0920
 9481      C           ***FS/RS AREAS.  APPLY LENGTH CORRECTION FACTORS***   MTCA0930
 9482       715  TWT(134) = TDC(79)*TWT(103)*TSEC(270)                      MTCA0940
 9483            TWT(135) = TDC(186)*TWT(104)*TSEC(271)                     MTCA0950
 9484            TWT(136) = TDC(181)*TWT(103)*TSEC(270)                     MTCA0960
 9485            TWT(137) = TDC(188)*TWT(104)*TSEC(271)                     MTCA0970
 9486            TWT(138)=TDC(177)*TSEC(270)                                MTCA0980
 9487            TWT(139)=TDC(178)*TSEC(271)                                MTCA0990
 9488      C                                                                 MTCA1000
 9489      C                                                                 MTCA1010
 9490      C                                                                 MTCA1020
 9491      C                                                                 MTCA1030
 9492      C     TEST FOR ROOT RIB  DO RR ON I=11  COMPUTE WT, STORE IN TWT(25)  MTCA1040
 9493            IF (ND(11) - ISEC) 718,716,717                             MTCA1050
 9494       718  CALL RIRIB                                                 MTCA1060
 9495      C                                                                 MTCA1070
 9496      C     DO BLHD AND JOINTS                                          MTCA1080
 9497       717  CALL BHOJT                                                 MTCA1090
 9498      C                                                                 MTCA1100
 9499            IF (TWT(190)) 710,710,7170                                 MTCA1110
 9500       7170 IF (TWT(190) - TWT(191)) 7171,710,710                      MTCA1115
 9501       7171 TWT(191) = TWT(190)                                        MTCA1120
 9502      C                                                                 MTCA1130
 9503      C      WT/IN                                                      MTCA1140
 9504       710  CALL WTPIN                                                 MTCA1150
 9505      C                                                                 MTCA1160
 9506      C              *CONC JT/BLHD TO INBD LOC**                        MTCA1170
 9507            TWT(216) = TWT(190)                                        MTCA1180
 9508            TWT(217) = TWT(187)                                        MTCA1190
 9509            TWT(218) = TWT(188)                                        MTCA1200
 9510            TWT(219) = TWT(189)                                        MTCA1210
 9511      C                                                                 MTCA1220
 9512            TWT(220) = TWT(191)                                        MTCA1230
 9513      C                                                                 MTCA1238
 9514      C             **INCL. DELTA COV(UPR,LWR) IN TOTALS**             MTCA1239
 9515            TWT(215) = TWT(216) + DLCVU*TWT(217) + DLCVL*TWT(218) + TWT(219) -MTCA1240
 9516           1 TWT(220)                                                  MTCA1241
 9517      C                                                                 MTCA1250
 9518      C                                                                 MTCA1260
 9519      C             **TEST FOR SECTION.  I=TIP, 11=ROOT**              MTCA1270
 9520       719  IF (ISEC - ND(10)) 720,720,722                             MTCA1280
 9521       720  IF (ISEC - ND(1))  721 721,723                             MTCA1290
 9522      C                                                                 MTCA1300
 9523      C             **PROCESS TIP DATA**                               MTCA1310
 9524      C            ***SETUP OBD PNL WT DATA***                         MTCA1320
 9525      C              *WOBD) = LE, TE, TIP, DTTRB(2), MISC*             MTCA1330
 9526       721  TWT(50) = WTIP(1)                                          MTCA1340
 9527            TWT(146) = DLTBX*DTTRB(2)                                  MTCA1350
 9528            TWT(147) = DELLE*WPLLE(12)                                 MTCA1360
 9529            TWT(148) = DELTE*WPLTE(12)                                 MTCA1370
 9530            TWT(145) = TWT(50) + TWT(146) + TWT(147) + TWT(148)        MTCA1380
 9531            TWT(149) = DMISC*TWT(145)                                  MTCA1390
 9532            TWT(145) = DELWD*(TWT(145) + TWT(149))                     MTCA1400
 9533            TWT(30) = DTTRB(2)                                         MTCA1410
 9534            TWT(39) = DTTRB(2)                                         MTCA1415
 9535            TWT(38) = TWT(146) + TWT(146)    SC                        MTCA1416
 9536            TWT(45) = TWT(145)                                         MTCA1420
 9537            TWT(40) = TWT(145)                                         MTCA1430
 9538            TWT(41) = TWT(145)                                         MTCA1440
 9539            TWT(48) = TWT(146)                                         MTCA1450
 9540            TWT(1) = TWT(146)                                          MTCA1460
 9541            TWT(47) = TWT(147)                                         MTCA1470
 9542            TWT(48) = TWT(148)                                         MTCA1480
 9543            TWT(49) = TWT(149)                                         MTCA1490
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CARD NO   ****                    CONTENTS                                   ****

4544     C                                                                  MTCA1500
4545     C              **PNL SUM-OBD**                                     MTCA1510
4546           TMT(60) = TMT(145)                                           MTCA1520
4547           TMT(61) = TMT(146)                                           MTCA1530
4548           TMT(62) = TMT(147)                                           MTCA1540
4549           TMT(63) = TMT(148)                                           MTCA1550
4550           TMT(64) = TMT(149)                                           MTCA1560
4551           GO TO 750                                                    MTCA1570
4552     C                                                                  MTCA1580
4553     C             ***PROCESS RT RIB--SECTION 1 AND 18D PNL DATA***     MTCA1590
4554     C               *W(18D) = LE, TE, DTRIB(2)*                        MTCA1600
4555       722 TMT(54) = DLTBX*TMT(35)                                      MTCA1610
4556           TMT(391) = DTTRB(1) + TMT(35)                                MTCA1615
4557           TMT(56) = DLTBX*DTTRB(1) + TMT(54)                           MTCA1620
4558           TMT(387) = TMT(56) + TMT(58)*DMISC                           MTCA1625
4559           TMT(57) = DELLE*WPLLE(1)                                     MTCA1630
4560           TMT(58) = DELTE*WPLTE(1)                                     MTCA1640
4561           TMT(55) = TMT(56) + T' (57) + TMT(58)                        MTCA1650
4562           TMT(58) = DMISC*TMT(55)                                      MTCA1660
4563           TMT(55) = DELWG*(TMT(55) + TMT(59))                          MTCA1670
4564     C                                                                  MTCA1680
4565     C              *TEMP T-TAIL*                                       MTCA1690
4566           TMT(67) = TMT(56) + TMT(146)                                 MTCA1700
4567           TMT(66) = TMT(67) + TMT(70)                                  MTCA1710
4568           TMT(51) = TMT(66)                                            MTCA1720
4569           GO TO 730                                                    MTCA1730
4570     C                                                                  MTCA1740
4571     C             ***PROCESS CONC WTS AT SECT(2-11)***                 MTCA1750
4572     C               *ASSUME .5 OF WT 18D FOR PNLS 2-9, 1.0 WT FOR SECT 1.*  MTCA1760
4573       723 DO 724 I=1,6                                                 MTCA1770
4574           TMT(I+214) = TMT(I+214)/D(2)                                 MTCA1780
4575       724 CONTINUE                                                     MTCA1790
4576     C                                                                  MTCA1800
4577     C              **PANELS 1-10. PROCESS DISTRIBUTED WEIGHTS          MTCA1810
4578       730 TMT(182) = TMT(166)*SORHD/D(2)                               MTCA1820
4579     C                                                                  MTCA1830
4580     C              **WT OF SPANWISE MISC. SKINS AT FS/RS**             MTCA1840
4581           TMT(185) = TMT(182)*DLSKM*TSEC(270)*(TMT(193) + TMT(198))    MTCA1850
4582           TMT(186) = TMT(182)*DLSKM*TSEC(271)*(TMT(194) + TMT(198))    MTCA1860
4583     C                                                                  MTCA1870
4584     C              **DIST. WTS(RAW) AT PNL(I)**                        MTCA1880
4585           DO 731 I=1,24                                                MTCA1890
4586           TMT(I+72) = TMT(182)*(TMT(I+120) + TMT(I+226))               MTCA1900
4587       731 CONTINUE                                                     MTCA1910
4588     C                                                                  MTCA1919
4589     C             ***PROCESS PNL(I) DIST. WTS***                       MTCA1920
4590     C               *UPR/LWR COV*                                      MTCA1930
4591           TMT(88) = DLCVU*(TMT(73) + TMT(76) + TMT(78) + TMT(185))     MTCA1940
4592           TMT(9) = TMT(9) + TMT(73)                                    MTCA1950
4593           TMT(10) = TMT(10) + TMT(76)                                  MTCA1960
4594           TMT(11) = TMT(11) + TMT(78) + TMT(185)                       MTCA1970
4595     C                                                                  MTCA1980
4596           TMT(89) = DLCVL*(TMT(74) + TMT(77) + TMT(79) + TMT(186))     MTCA1990
4597           TMT(12) = TMT(12) + TMT(74)                                  MTCA2000
4598           TMT(13) = TMT(13) + TMT(77)                                  MTCA2010
4599           TMT(14) = TMT(14) + TMT(79) + TMT(186)                       MTCA2020
4600     C                                                                  MTCA2030
4601     C              *INTERM. RIBS*                                      MTCA2040
4602           TMT(101) = TMT(75)*DLIRB*DLIRM                               MTCA2050
4603     C                                                                  MTCA2..0
4604     C              *FRONT/REAR SPARS                                   MTCA2070
4605           TMT(102) = TMT(86)/SWOWS(1)                                  MTCA2080
4606           TMT(156) = (TMT(86) - TMT(102))*DLFSM                        MTCA2090
4607           TMT(158) = (TMT(102) - TMT(88))*TMT(152)/TDC(188)            MTCA2100
4608           TMT(16) = TMT(16) + TMT(158)                                 MTCA2110
4609           TMT(157) = DLFSC*TMT(88)                                     MTCA2120
4610           TMT(15) = TMT(15) + TMT(157)                                 MTCA2130
4611           TMT(102) = DELFS*(TMT(157) + TMT(158))                       MTCA2140
4612     C                                                                  MTCA2150
4613           TMT(103) = TMT(87)/SWOWS(2)                                  MTCA2160
4614           TMT(162) = (TMT(87) - TMT(103))*DLRSM                        MTCA2170
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CARD NO  ****                          CONTENTS                                  ****
0615          TWT(161) = (TWT(103) - TWT(89))*TWT(153)/TOC(187)                  WTCA2180
0616          TWT(18) = TWT(18) + TWT(161)                                       WTCA2190
0617          TWT(160) = DLRSC*TWT(89)                                           WTCA2200
0618          TWT(17) = TWT(17) + TWT(160)                                       WTCA2210
0619          TWT(103) = DELRS*(TWT(160) + TWT(161))                             WTCA2220
0620     C                                                                       WTCA2230
0621     C              *MISC ATT                                                WTCA2240
0622          TWT(104) = TWT(80) + TWT(81) + TWT(158) + TWT(162)                 WTCA2250
0623     C                                                                       WTCA2260
0624     C              *DELTA VF*                                               WTCA2270
0625     C              *UPR COV*                                                WTCA2280
0626          TWT(115) = TWT(82) + TWT(84) + TWT(93)                             WTCA2290
0627          TWT(19) = TWT(19) + TWT(82)                                        WTCA2300
0628          TWT(20) = TWT(20) + TWT(84)                                        WTCA2310
0629          TWT(21) = TWT(21) + TWT(93)                                        WTCA2320
0630     C                                                                       WTCA2330
0631     C              *LWR COV*                                                WTCA2340
0632          TWT(116) = TWT(83) + TWT(85) + TWT(94)                             WTCA2250
0633          TWT(22) = TWT(22) + TWT(83)                                        WTCA2260
0634          TWT(23) = TWT(23) + TWT(85)                                        WTCA2270
0635          TWT(24) = TWT(24) + TWT(94)                                        WTCA2280
0636     C                                                                       WTCA2290
0637     C              *RIBS*                                                   WTCA2300
0638          TWT(117) = TWT(92)                                                 WTCA2310
0639          TWT(25) = TWT(25) + TWT(92)                                        WTCA2320
0640     C                                                                       WTCA2330
0641     C              *FS/RS*                                                  WTCA2340
0642          TWT(118) = TWT(90)                                                 WTCA2350
0643          TWT(26) = TWT(26) + TWT(90)                                        WTCA2360
0644          TWT(119) = TWT(91)                                                 WTCA2370
0645          TWT(27) = TWT(27) + TWT(91)                                        WTCA2380
0646     C                                                                       WTCA2390
0647     C              *MISC ATT*                                               WTCA2400
0648          TWT(120) = TWT(95) + TWT(96)                                       WTCA2410
0649          TWT(28) = TWT(28) + TWT(95)                                        WTCA2420
0650          TWT(29) = TWT(29) + TWT(96)                                        WTCA2430
0651     C                                                                       WTCA2440
0652               **TOTAL VF**                                                  WTCA2450
0653          TWT(100) = TWT(115) + TWT(116) + TWT(117) + TWT(118) + TWT(119) + WTCA2460
0654         1TWT(120)                                                          WTCA2470
0655     C                                                                       WTCA2480
0656     C              **TOTAL BOX, PNL(I)--ST. ONLY**                          WTCA2490
0657          TWT(97) = TWT(98) + TWT(99) + TWT(101) + TWT(102) + TWT(103) + TWTWTCA2500
0658         1(104)                                                             WTCA2510
0659     C                                                                       WTCA2520
0660     C              **PROCESS LOCAL PANEL DELTA WTS--INPUT WT, PNL DELTA,    WTCA2530
0661     C                CDL FTGS AND BLHD/JTS**                               WTCA2540
0662      732  TWT(107) = DTBX(N+10)                                            WTCA2550
0663          TWT(106) = DLPNL(N)*TWT(97) - TWT(97)                              WTCA2560
0664          TWT(108) = DPCDL(N)                                                WTCA2570
0665          DO 733 I=1,6                                                       WTCA2580
0666          TWT(I+100) = TWT(I+214) + TWT(I+220)                               WTCA2590
0667      733 CONTINUE                                                           WTCA2600
0668          TWT(105) = TWT(106) + TWT(107) + TWT(108) + TWT(109)               WTCA2610
0669     C                                                                       WTCA2620
0670     C              **APPLY DELTA BOX TO DIST. AND LOCAL WTS  ADD VF TO BOX*WTCA2630
0671          TWT(97) = DLTBX*TWT(97) + TWT(100)                                 WTCA2640
0672          TWT(105) = DLTBX*TWT(105)                                          WTCA2650
0673     C                                                                       WTCA2660
0674     C              **SUM INTO CUM WTS BLOCK**                               WTCA2670
0675          TWT(1) = TWT(1) + TWT(97) + TWT(105)                               WTCA2680
0676          DO 734 I=1,7                                                       WTCA2690
0677          TWT(I+1) = TWT(I+1) + TWT(I+97)                                    WTCA2700
0678      734 CONTINUE                                                           WTCA2710
0679          TWT(2) = TWT(2) + TWT(111)*DLCWU                                   WTCA2720
0680          TWT(3) = TWT(3) + TWT(112)*DLCWL                                   WTCA2730
0681          TWT(8) = TWT(8) + TWT(113)                                         WTCA2740
0682          TWT(5) = TWT(5) - TWT(114)                                         WTCA2750
0683          TWT(53) = TWT(53) + TWT(108)                                       WTCA2765
0684          TWT(11) = TWT(11) + TWT(111)                                       WTCA2780
0685          TWT(14) = TWT(14) + TWT(112)                                       WTCA2781
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CARD NO  ****                          CONTENTS                          ****
 4686          DO 735 I=1,5                                              WTCA2770
 4687          TWT(I+29) = TWT(I+29) + TWT(I+109)                        WTCA2780
 4688   735    CONTINUE                                                  WTCA2790
 4689    C                                                               WTCA2800
 4690    C            ***TOTALS SUMMARY***                               WTCA2810
 4691    738   TWT(61) = TWT(97) + TWT(105)                              WTCA2820
 4692          TWT(65) = TWT(100)                                        WTCA2830
 4693          TWT(62) = WPLLE(N+1)*DELLE                                WTCA2840
 4694          TWT(63) = WPLTE(N+1)*DELTE                                WTCA2850
 4695          TWT(60) = TWT(61) + TWT(62) + TWT(63)                     WTCA2860
 4696          TWT(64) = DMISC*TWT(60)                                   WTCA2870
 4697          TWT(60) = DELWD*(TWT(60) + TWT(64))                       WTCA2880
 4698    C                                                               WTCA2890
 4699    C                                                               WTCA2900
 4700    C             **CUM TOTALS**                                    WTCA2910
 4701    740   DO 741 I=1,5                                              WTCA2920
 4702          TWT(I+44) = TWT(I+44) + TWT(I+59)                         WTCA2930
 4703    741   CONTINUE                                                  WTCA2940
 4704          TWT(52) = TWT(52) + TWT(65)                               WTCA2950
 4705          TWT(40) = TWT(40) + TWT(60)                               WTCA2960
 4706          TWT(41) = TWT(41) + TWT(60)                               WTCA2970
 4707    C                                                               WTCA2980
 4708    C            ***SAVE SEC(I) DATA FOR NEXT SEC/PNL CALC.  DESIGN DATA***WTCA2990
 4709    750   DO 751 I=1,40                                             WTCA3000
 4710          TDC(I+120) = TDC(I+80)                                    WTCA3010
 4711    751   CONTINUE                                                  WTCA3020
 4712    C                                                               WTCA3030
 4713    C             *BOX SECTION COMPONENT AREAS*                     WTCA3040
 4714          DO 752 I=1,24                                             WTCA3050
 4715          TWT(I+228) = TWT(I+120)                                   WTCA3060
 4716    752   CONTINUE                                                  WTCA3070
 4717    C                                                               WTCA3080
 4718    C             *FS/RS MISC SKIN AREAS*                           WTCA3090
 4719          TWT(198) = TWT(193)                                       WTCA3100
 4720          TWT(199) = TWT(194)                                       WTCA3110
 4721    C                                                               WTCA3120
 4722    C             *NX(UPR,LWR)*                                     WTCA3130
 4723          TWT(170) = TDC(72)                                        WTCA3140
 4724          TWT(169) = TDC(71)                                        WTCA3150
 4725    C                                                               WTCA3160
 4726    C            **SEC(1-11) DELTA CONC WTS DUE TO JTS/BLHD FOR PRINT**WTCA3170
 4727    C             *11 BLOCKS OF DATA, 11 CELLS/BLOCK   TC(220-340)*  WTCA3180
 4728    C             *WT/IN(TOTAL,TB,LE,TE,MISC,VF),CONC AT SEC.,OBD,IBD.*WTCA3190
 4729    C             *PNLS(1-10), FTG WT. TOTAL DELTA WT IN PNL*        WTCA3200
 4730    C             *MOVE TWT(381-391)*                               WTCA3210
 4731          TWT(387) = TWT(387) + DLTBX*(DLCVU*TWT(187) + DLCVL*TWT(188) + TWTWTCA3220
 4732         1(189) + TW(190) - TWT(191))                               WTCA3230
 4733          TWT(388) = TWT(221)                                       WTCA3250
 4734          TWT(389) = TWT(215)                                       WTCA3260
 4735          TWT(390) = TWT(100)                                       WTCA3270
 4736          TWT(391) = TWT(391) + TWT(105)                            WTCA3280
 4737    C                                                               WTCA3340
 4738    C            **MOVE IBD DELTA JTS/BLHD TO OBD,  CLEAR IBD**    WTCA3350
 4739          DO 754 I=1,8                                              WTCA3360
 4740          TWT(I+220) = TWT(I+214)                                   WTCA3370
 4741          TWT(I+214) = DC(3)                                        WTCA3380
 4742    754   CONTINUE                                                  WTCA3390
 4743    C                                                               WTCA3400
 4744    C           ***SAVE REQD SECT/PNL DATA FOR DW/CG CALC-DEADW/MODATA***WTCA3410
 4745    C            **ALL WTS W/O DELTA WINS**                        WTCA3420
 4746    C             *1. WPNLS = BOX WT FOR ST ONLY X DELTA BOX FOR SCALING*WTCA3430
 4747    C             *2.  TPNLW = TOTAL DIST. WT. OF BOX FOR SCALING.  WIST)WTCA3440
 4748    C              * DWT FROM DLPNL, DELTA INPUT WT. (NO VF)*        WTCA3450
 4749    C             *3.  TBWPI = WT/IN FOR BOX W/O VF*                WTCA3460
 4750    C             *4.  VFWPI = WT/IN FOR DELTA VF*                  WTCA3470
 4751    C             *5. TWWPI = WT/IN FOR WING MISC*                  WTCA3480
 4752    C             *6.  TBCWT = WT OF DELTA JTS/BLHD AT STATION X DEL(BOX)*WTCA3490
 4753    C             *7.  DNX(I) = NX(UPR) FOR BOX WT/IN SCALING-NEXT PASS*WTCA3500
 4754    C             *8.  DEFFI = EFF. STRUCT. DEPTH FOR DW ITERATION*  WTCA3510
 4755    C                                                               WTCA3520
 4756    C            **MOVE PNL DATA ON ISEC=2-11, SECT DATA ON ISEC=1-11**WTCA3530
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CARD NO  ****                          CONTENTS                          ****
 4757          TBMPI(IN) = TWT(371) - TWT(380)                          MTCA3540
 4758          WMPI(IN) = TWT(380)                                      MTCA3550
 4759          TMMPI(IN) = TWT(389)                                     MTCA3560
 4760          TBCWT(IN) = TWT(387)                                     MTCA3570
 4761          BNX(I,IN) = TDC(72)                                      MTCA3580
 4762          DEFF(IN) = TDC(73)                                       MTCA3590
 4763     C                                                             MTCA3600
 4764      798 IF (ND(2) - ISEC) 755,755,799                            MTCA3610
 4765      755 MPNLS(IN) = TWT(97) - TWT(100)                           MTCA3620
 4766          TPNLW(IN) = MPNLS(IN) * DLTBX*(TWT(106) + TWT(107))      MTCA3630
 4767     C                                                             MTCA3640
 4768     C                                                             MTCA3750
 4769     C                                                             MTCA8900
 4770     C            ***EXIT***                                       MTCA8910
 4771      799 RETURN                                                   MTCA8990
 4772          END                                                      MTCA8999
 4773     C*************************************************************
 4774     C
 4775     C       *****SUBROUTINE BHDJT*****
 4776     C   ***BULKHEAD AND JOINT WEIGHT EVALUATION***
 4777     C
 4778     C*************************************************************
 4779     C
 4780          SUBROUTINE BHDJT                                         BHDJ0010
 4781     C                                                             BHDJ0011
 4782     C      JOINT AND BLHD CALC. SUBR                              BHDJ0020
 4783     C                                                             BHDJ0030
 4784     C                                                             BHDJ0040
 4785     C                                                             BHDJ0110
 4786     C                                                             BHDJ0130
 4787          COMMON T(2060),D(2060),CD(2000),ND(100)                  BHDJ0140
 4788     C                                                             BHDJ0150
 4789          DIMENSION DC(100),TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),  BHDJ0160
 4790         1TT(24),DEL(30),                                          BHDJ0161
 4791         2DSPR(9),DBLO(11),DSPLI(8),                               BHDJ0162
 4792         3SLCFS(4),                                                BHDJ0163
 4793         9DSPLO(7)                                                 BHDJ0169
 4794     C                                                             BHDJ0170
 4795          EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),  BHDJ0180
 4796         1(DC(1),D(1401)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),    BHDJ0181
 4797         2(TT(1),T(1317)),(DEL(1),TWT(251)),                       BHDJ0182
 4798         3(CJONT,TWT(201)),(CBLHD,TWT(200)),(CNSID,D(461)),(SKMN,D(370)),  BHDJ0183
 4799         4(DLARC,DEL(22)),                                         BHDJ0184
 4800         5(SDRHO,TWT(175)),                                        BHDJ0185
 4801         6(DLSKH,DEL(7)),(DBLAT,DEL(12)),(DLIRB,DEL(9)),(DLIRM,DEL(10)),  BHDJ0186
 4802         7(DSPLO(1),D(58)),(DSPR(1),D(462)),(SLCFS(1),D(470)),     BHDJ0187
 4803         8(DBLO(1),D(479)),(DSPLI(1),D(490)),                      BHDJ0188
 4804         9(IC,ND(48)),(ICB,ND(47)),(ISEC,ND(55))                   BHDJ0189
 4805     C                                                             BHDJ0280
 4806     C            **CLEAR TT REGION**                              BHDJ0290
 4807      700 DO 7000 I=1,24                                           BHDJ0300
 4808          TT(I) = DC(3)                                            BHDJ0310
 4809      7000 CONTINUE                                                BHDJ0320
 4810     C                                                             BHDJ0330
 4811     C       *****SETUP SECTION CONSTANTS *****                    BHDJ0350
 4812     C        *** SETUP CALC.  TEST IC FOR TIP=1, AND RT-10 = 2.***BHDJ0340
 4813      701 TT(1) = TDC(77)*SDRHO                                    BHDJ0360
 4814          TT(2) = TT(1)*DLSKH                                      BHDJ0370
 4815          TT(3) = TT(1)*DBLAT                                      BHDJ0380
 4816          TT(4) = TDC(77)*DBLAT                                    BHDJ0390
 4817          TWT(202) = C**(3)                                        BHDJ0400
 4818          IF (CNSID - D(2)) 702,7010,702                           BHDJ0410
 4819      7010 TWT(202) = TDC(77)*(TSEC(229) + TSEC(225))*DSPR(9)      BHDJ0420
 4820     C                                                             BHDJ0430
 4821     C            **CLEAR STORAGE.  TWT(185-197)**                 BHDJ0440
 4822      702 DO 703 I=1,13                                           BHDJ0450
 4823          TWT(I+184) = DC(3)                                       BHDJ0460
 4824          TWT(I+201) = DC(3)                                       BHDJ0470
 4825      703 CONTINUE                                                 BHDJ0480
 4826     C                                                             BHDJ0490
 4827     C                                                             BHDJ0570
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CARD NO      ****                          CONTENTS                          ****
 4828        C           ***** FS/WS MISC SKINS.  EQUAL T(SKIN), WITH MIN. AND MAX**BHDJ05A0
 4829         710  TT(8) = (SLCFS(1) + SLCFS(2))*DLSKN/D(2)                    BHDJ0590
 4830              TMT(193) = TOC(88)*SLCFS(5)                                 BHDJ0600
 4831              TMT(194) = TOC(87)*SLCFS(5)                                 BHDJ0610
 4832              DO 7109 I=1,2                                               BHDJ0620
 4833              IF (TMT(I+192) - SLCFS(3)) 7100,7100,7101                   BHDJ0630
 4834         7100 TMT(I+192) = SLCFS(3)                                       BHDJ0640
 4835         7101 TMT(I+192) = TMT(I+192) - TMT(I+49)                         BHDJ0650
 4836              IF (TMT(I+192)) 7102,7102,7103                              BHDJ0660
 4837         7102 TMT(I+192) = DC(3)                                          BHDJ0670
 4838         7103 TMT(I+192) = TMT(I+192)*TT(8) + TT(8)/D(2 *SKIN             BHDJ0680
 4839         7109 CONTINUE                                                    BHDJ0690
 4840              TMT(194) = TMT(194)*TMT(165)                                BHDJ0700
 4841        C                                                                 BHDJ0710
 4842        C                                                                 BHDJ0720
 4843        C            ***SLCTION 1-11 JOINT AND BLHD DATA AS REQD***       BHDJ0730
 4844        C             **SETUP BASIC RIB BLHD. TT(9) = W(RIB) FOR H/RIB ONLY** BHDJ07.0
 4845         711  TT(9) = DC(3)                                               BHDJ0750
 4846              IF (CNSID) 7110,7110,7111                                   BHDJ07X0
 4847         7110 TT(9) = TT(1)*TOC(89)/D(24)*TOC(100)*DLRB*DLRH              BHDJ0770
 4848        C                                                                 BHDJ0890
 4849        C      TEST FOR CALC.  ICB  1=JOINT,  2= NO JOINT                 BHDJ0900
 4850        C      SETUP TMT(192) AS BLHD  COEFF.                             BHDJ0910
 4851         7111 ICB = ND(1)                                                 BHDJ0920
 4852              TMT(192) = ABS (CBLHD)                                      BHDJ0930
 4853        C                                                                 BHDJ0938
 4854        C           *** TEST BLHD ***                                     BHDJ0948
 4855              IF (CBLHD) 712,713,712                                      BHDJ0958
 4856        C                                                                 BHDJ0968
 4857        C         **** DO BLHD.  TEST FOR JOINT ****                      BHDJ0978
 4858         712  IF (CJOINT) 717,716,717                                     BHDJ0988
 4859        C                                                                 BHDJ0998
 4860        C             ***** BLHD=0.0  TEST FOR JOINT *****                BHDJ1008
 4861         713  IF (CJOINT) 717,714,715                                     BHDJ1018
 4862        C                                                                 BHDJ1028
 4863        C       *** NO LOINT AND BLHD.  TEST FOR RT RIB **                BHDJ1038
 4864         714  IF (ND(11) - ISEC) 7140,7140,750                            BHDJ1048
 4865         7140 IF (TMT(35)) 7141,750,7141                                  BHDJ1058
 4866         7141 TMT(191) = TT(9)                                            BHDJ1068
 4867              GO TO 7111                                                  BHDJ1078
 4868        C                                                                 BHDJ1088
 4869        C        ***** BLHD = 0.0  DO JOINT.  TEST FOR RT RIB  *****      BHDJ1098
 4870         715  IF (ND(11) - ISEC) 7150,7150,730                            BHDJ1108
 4871         7150 IF (TMT(35)) 730,730,7151                                   BHDJ1118
 4872         7151 TMT(191) = TT(9)                                            BHDJ1115
 4873              GO TO 730                                                   BHDJ1116
 4874        C                                                                 BHDJ1119
 4875         716  ICB = ND(2)                                                 BHDJ1128
 4876         717  TMT(191) = TT(9)                                            BHDJ1125
 4877        C                                                                 BHDJ1138
 4878        C        *** SETUP BLHD THCB, TCAP ***                            BHDJ1148
 4879         723  TT(5) = D(56)*TOC(107)                                      BHDJ1158
 4880              TT(6) = D(57)*TMT(150)                                      BHDJ1168
 4881              TT(7) = D(57)*TMT(151)*TMT(185)                             BHDJ1178
 4882              IF (TT(5) - DBLO(1)) 724,724,7240                           BHDJ1188
 4883         724  TT(5) = DBLO(1)                                             BHDJ1198
 4884         7240 DO 7242 I=1,2                                               BHDJ1208
 4885              IF (TT(I+5) - DBLO(2)) 7241,7241,7242                       BHDJ1218
 4886         7241 TT(I+5) = DBLO(2)                                           BHDJ1228
 4887         7242 CONTINUE                                                    BHDJ1238
 4888        C                                                                 BHDJ1248
 4889        C         ***** CALC. BLHD WT. *****                              BHDJ1258
 4890              TMT(190) = DBLO(3)*TT(5)*TOC(73) + DBLO(4)*(TT(6) + TT(7))  BHDJ1268
 4891              TMT(190) = TT(9) + TMT(190)*TT(1)*DBLO(5)*TMT(192)          BHDJ1278
 4892        C                                                                 BHDJ1288
 4893        C                                                                 BHDJ1298
 4894        C .                                                               BHDJ1308
 4895        C      BLHD MISC. IF NO JOINT, ID WILL BE 2                       BHDJ1318
 4896         7230 IF (ND(11) - ICB) 721,730,721                               BHDJ1328
 4897        C                                                                 BHDJ1338
 4898        C                  **** REVISE DELTA SKINS AT BLHD ****           BHDJ1348
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CARD NO  ****                          CONTENTS                          ****
 4899    C                    SETUP T(REQD) AND T(REQD)                    BHDJ1350
 4900     721  TT(10) = D(4)*DBLO(7) + D(27) + D(2)*TDC(107)               BHDJ1360
              TT(11) = TT(10)*TT(2)*DBLO(11)                               BHDJ1370
              TT(12) = (DBLO(6) + D(3))/DBLO(8)*TDC(72)/ECLO(6)/TDC(60)    BHDJ1380
 4903    C                                                                 BHDJ1390
 4904         DO 7219 I=1,2                                                BHDJ1400
 4905         TWT(I+194) = DBLO(10)*TWT(I+149)                             BHDJ1410
 4906         IF (TWT(I+194) - DBLO(9)) 7210,7210,7211                     BHDJ1420
 4907     7210 TWT(I+194) = DBLO(9)                                        BHDJ1430
 4908     7211 IF (TWT(I+194) - TT(12)) 7212,7212,7213                     BHDJ1440
 4909     7212 TWT(I+194) = TT(12)                                         BHDJ1450
 4910     7213 TT(13) = TT(4)*D(5)/(DBLO(8) + D(3))*DBLO(7)                BHDJ1460
              TT(14) = DSPL1(7)*DBLO(7)*DBLO(11)*DSPLO(3)*DSPLO(3)         BHDJ1470
              TWT(197) = TWT(197) + TT(13)*(TT(14) + (TWT(I+194) + TDC(107) + TDBHDJ1480
             1C(107))*(DSPL1(7) - SORHO))                                  BHDJ1490
              TWT(I+194) = TT(11)*(TWT(I+194) - TWT(I+149))/D(2)           BHDJ1500
     7219 CONTINUE                                                        BHDJ1510
              TWT(196) = TWT(196)*TWT(165)                                 BHDJ1520
              TWT(197) = TWT(197)/D(2)                                     BHDJ1530
              GO TO 740                                                    BHDJ1540
 4919    C                                                                 BHDJ1550
 4920    C                                                                 BHDJ1560
 4921    C                                                                 BHDJ1570
 4922    C         *** SPLICE WT DATA = LB FOR ONE SIDE ONLY. ***          BHDJ1580
 4923     730  TWT(20) = DSPL1(1)                                          BHDJ1590
              TT(15) = DSPL1(2) + D(1)                                     BHDJ1600
 4925    C                                                                 BHDJ1610
              TT(16) = TDC(72)*TT(15)                                      BHDJ1620
 4927    C                                                                 BHDJ1630
 4928    C         ****CALC D(BOLT) REQD   TEST WITH MIN AND MAX D ****    BHDJ1640
              IF (TWT(203)) 7300,7300,731                                  BHDJ1650
 4930     7300 TWT(203) = DSPL1(5)*DSPL1(6)*D(54)                          BHDJ1660
              TWT(203) = TT(16)/TWT(203)                                   BHDJ1670
              IF (DSPLO(1) - TWT(203)) 7301,7301,7303                      BHDJ1680
 4933     7301 IF (DSPLO(2) - TWT(203)) 7302,7302,731                      BHDJ1690
 4934     7302 TWT(203) = DSPLO(2)                                         BHDJ1700
              GO TO 731                                                    BHDJ1710
 4936    C                                                                 BHDJ1720
 4937    C          **** SETUP T(REQD). TENSION OR BEARING ****           BHDJ1730
 4938     7303 TWT(203) = DSPLO(1)                                         BHDJ1740
 4939     731  TT(17) = DSPL1(8)*TWT(203)                                 BHDJ1750
              IF (TT(17) - ABS(CJONT)) 7310,7310,7311                      BHDJ1760
 4941     7310 TT(17) = ABS(CJONT)                                         BHDJ1765
 4942     7311 TT(16) = TT(16)*TWT(203)                                    BHDJ1770
 4943    C                                                                 BHDJ1778
 4944    C              **FTMAX AND FBRMAX**                               BHDJ1779
 4945         TT(18) = TWT(167)                                            BHDJ1780
 4946         TT(19) = TWT(168)                                            BHDJ1790
 4947    C                                                                 BHDJ1798
 4948    C              *TREQD(TEN), TREQD(BRG)*                           BHDJ1799
 4949         TT(20) = TT(16)/(TT(18)*TWT(203)*DSPL1(2))                   BHDJ1800
 4950         TT(21) = TT(16)/TT(19)/TWT(203)                              BHDJ1810
 4951    C                                                                 BHDJ1818
 4952    C              **USE LARGER T.  TEST WITH T(MIN)**                BHDJ1819
 4953         TWT(204) = TT(20)                                            BHDJ1820
 4954         IF (TT(20) - TT(21)) 7322,7323,7324                          BHDJ1830
 4955     7323 TWT(204) = TT(21)                                           BHDJ1840
 4956     7324 IF (TWT(204) - DSPLO(4)) 7325,7325,7326                     BHDJ1850
 4957     7325 TWT(204) = DSPLO(4)                                         BHDJ1860
 4958    C                                                                 BHDJ1870
 4959    C              **BOLT AREA/INCH**                                 BHDJ1880
 4960     7326 TT(22) = D(54)*TWT(203)/TT(15)                              BHDJ1890
 4961    C                                                                 BHDJ1900
 4962    C                                                                 BHDJ1910
 4963    C                                                                 BHDJ1920
 4964    C           **** DO DELTA SKINS ***                               BHDJ1930
 4965    C                                                                 BHDJ1940
 4966    C             **** SETUP SKIN CALC. DATA ****                     BHDJ1950
 4967         TT(24) = TT(17)*DSPLO(6)*TT(2)                               BHDJ1960
 4968         TT(25) = TT(24) - TT(2)*TT(22)                               BHDJ1970
 4969    C                                                                 BHDJ1980
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CARD NO  ****                          CONTENTS                          ****
4870     C                                                                BHDJ1990
4871      733  DO 7339 I=1,2                                             BHDJ2000
4872           TWT(I+204) = TWT(I+149)*DSPLO.5)                          BHDJ2010
4873           IF (TWT(I+204) - TWT(204)) 7330,7330,7331                 BHDJ2020
4874      7330 TWT(I+204) = TWT(204)                                     BHDJ2030
4875      7331 TWT(I+194) = TT(23)*TWT(I+204)                            BHDJ2040
4876     C                                                               BHDJ2050
4877     C                                                               BHDJ2060
4878     C          **** SAVE COVER PLATE AND CAP DATA ***               BHDJ2070
4879           TWT(I+206) = TWT(I+194)/D(2)                              BHDJ2080
4880           TWT(I+194) = TWT(I+194) - TT(24)*TWT(I+149)               BHDJ2090
4881      7339 CONTINUE                                                  BHDJ2100
4882           TWT(196) = TWT(196)*TWT(165)                              BHDJ2110
4883     C                                                               BHDJ2120
4884     C        *** DO BOLT WEIGHT ***                                 BHDJ2130
4885           TWT(197) = (TWT(205) + TWT(206) + (TWT(203)*DSPLO(3)/D(19)*DSPLO(3BHDJ2140
4886          1)*DSPLO(6)))/D(19)                                        BHDJ2150
4887           TWT(197) = TT(4)*TWT(197)*DSPLO(7)*TT(22                  BHDJ2160
4888                                                                     BHDJ2170
4889     C                                                               BHDJ2180
4890     C                                                               BHDJ2190
4891     C                                                               BHDJ2200
4892     C       *** SETUP WT. ALLOCATIONS.  TEST ID ***                 BHDJ2210
4893      735  TWT(209) = TWT(207) + TWT(208)                           BHDJ2220
4894           TWT(210) = TWT(207)                                       BHDJ2225
4895           TWT(211) = TWT(208)                                       BHDJ2226
4896           IF (DSPLO(5) - D(2)) 7350,7351,7351                       BHDJ2230
4897      7350 TWT(210) = DC(3)                                          BHDJ2240
4898           TWT(211) = DC(3)                                          BHDJ2250
4899           TWT(209) = TWT(209)*D(2)                                  BHDJ2260
5000     C                                                               BHDJ2270
5001     C        ***** TEST FOR ROOT RIB *****                          BHDJ2280
5002      7351 IF (ND(1) - ISEC) 7352,7352,736                           BHDJ2290
5003      7352 TWT(195) = TWT(195) + TWT(207)                           BHDJ2300
5004           TWT(198) = TWT(198) + TWT(208)                            BHDJ2310
5005           IF (CJONT) 7354,7353,7353                                 BHDJ2320
5006     C                                                               BHDJ2329
5007     C          *** BASIC OPNL TYPE. 2*CAP ***                       BHDJ2330
5008      7353 TWT(209) = TWT(209)*D(2)                                  BHDJ2340
5009      7354 IF (TWT(36)*DLRRC - TWT(209)) 7355,741,741                BHDJ2350
5010      7355 TWT(35) = TWT(35) - TWT(36)*DLRRC + TWT(209)              BHDJ2360
5011           TWT(36) = TWT(209)                                        BHDJ2370
5012           GO TO 741                                                 BHDJ2380
5013     C                                                               BHDJ2390
5014     C        **** SEC. 2 TO TIP.  TEST FOR TIP ****                 BHDJ2400
5015      736  TWT(163) = D(2)                                           BHDJ2410
5016           IF (ND(2) - ISEC) 7360,7360,737                           BHDJ2420
5017     C                                                               BHDJ2429
5018     C           ** SECTION 2 TO 10 **                               BHDJ2430
5019      7360 TWT(184) = D(1)                                           BHDJ2440
5020      7361 TWT(190) = TWT(190) + TWT(209)*D(2)                       BHDJ2450
5021      7362 TWT(195) = TWT(195) + TWT(210)                           BHDJ2460
5022           TWT(198) = TWT(198) + TWT(211)                            BHDJ2470
5023           GO TO 750                                                 BHDJ2480
5024     C                                                               BHDJ2490
5025     C        ***** TIP SECTION *****                                BHDJ2500
5026      737  TWT(184) = D(19)                                          BHDJ2510
5027           IF (CJONT) 7370,7361,7361                                 BHDJ2520
5028      7370 TWT(197) = DC(3)                                          BHDJ2530
5029           TWT(163) = D(1)                                           BHDJ2540
5030           GO TO 7362                                                BHDJ2550
5031     C                                                               BHDJ2560
5032     C        ***** SETUP MID TYPE WT. ALLOCATIONS *****             BHDJ2570
5033      740  TWT(163) = D(2)                                           BHDJ2580
5034           TWT(184) = D(1)                                           BHDJ2590
5035     C                                                               BHDJ2600
5036     C        *** TEST FOR ROOT RIB OR TIP RIB ***                   BHDJ2610
5037           IF (ND(2) - ISEC) 7400,750,742                            BHDJ2620
5038     C                                                               BHDJ2629
5039     C                  TEST FOR RT RIB                              BHDJ2630
5040      7400 IF (ND(1) - ISEC) 741,741,750                             BHDJ2640
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CARD NO	**** CONTENTS ****	
5041	C	BHDJ2649
5042	C *** ROOT RIB TEST FOR OPNL OR C SEC TYPE ***	BHDJ2650
5043	741 IF (CBLHD) 7410,7413,7413	BHDJ2660
5044	C	BHDJ2669
5045	C ** C-SEC TYPE **	BHDJ2670
5046	7410 TWT(190) = TWT(190)*D(19)	BHDJ2680
5047	7411 TWT(163) = D(1)	BHDJ2690
5048	7412 TWT(164) = D(19)	BHDJ2700
5049	GO TO 750	BHDJ2710
5050	C	BHDJ2719
5051	C ** OPNL TYPE **	BHDJ2720
5052	7413 TWT(197) = D(2)*TWT(197)	BHDJ2730
5053	GO TO 7411	BHDJ2740
5054	C	BHDJ2750
5055	C ***** TIP *****	BHDJ2760
5056	742 IF (CBLHD) 7420,7412,7412	BHDJ2770
5057	7420 TWT(197) = DC(3)	BHDJ2780
5058	GO TO 7410	BHDJ2790
5059	C	BHDJ2800
5060	C	BHDJ2810
5061	C	BHDJ2820
5062	C PROCESS PANEL(1) MISC SK..RT (CHORDWISE) AND BLKHDS	BHDJ2830
5063	750 TWT(187)= TWT(195)*TWT(163)	BHDJ2840
5064	TWT(188)= TWT(196)*TWT(163)	BHDJ2850
5065	TWT(189)= TWT(197)*TWT(163)	BHDJ2860
5066	TWT(191) = TWT(191)*TWT(164)	BHDJ2870
5067	C	BHDJ2880
5068	C	BHDJ2890
5069	C EXIT	BHDJ2900
5070	7599 RETURN	BHDJ2910
5071	END	BHDJ2920
5072	C**********	
5073	C	
5074	C *****SUBROUTINE RTRIB*****	
5075	C ***ROOT RIB AND SHEAR TIE WEIGHT EVALUATION***	
5076	C	
5077	C**********	
5078	C	
5079	SUBROUTINE RTRIB	RTRI0010
5080	C	RTRI0011
5081	C ***ROOT RIB AND FUSELAGE SHEAR TIE FIGS CALC SUBR***	RTRI0020
5082	C	RTRI0030
5083	C	RTRI0090
5084	C	RTRI0110
5085	COMMON T(2060),D(2060),CD(20001),ND(100)	RTRI0120
5086	C	RTRI0130
5087	DIMENSION DC(100),TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),	RTRI0140
5088	1TT(24),	RTRI0141
5089	2DEL(30),	RTRI0142
5090	3DBLO(11),DSPR(9),	RTRI0143
5091	9DSTIE(8)	RTRI0149
5092	C	RTRI0150
5093	EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1361)),(TSC(1),T(1541)),	RTRI0160
5094	1(TSS(1),T(1961)),(TWT(1),CD(10001)),(TSEC(1),CD(15001)),	RTRI0161
5095	2(TT(1),T(1317)),(DEL(1),TWT(251)),(DELST,D(520)),	RTRI0162
5096	3(DELRA DEL(21)),(DLRRC,DEL(22)),(DLRRM,DEL(23)),(DLRRM,DEL(24)),	RTRI0163
5097	4(DSTIE(1),D(521)),(DBLO(1),D(479)),(DSPR(1),D(462)),	RTRI0164
5098	5(CNSID,D(461)),	RTRI0165
5099	6(DIAMR,D(69)),(SQRHO,TWT(175)),	RTRI0166
5100	9(COSEA,T(76)),(SINEA,T(75))	RTRI0169
5101	C	RTRI0170
5102	900 TT(10) = SQRHO*TDC(77)/COSEA	RTRI0300
5103	TT(11) = (TDC(88) + TDC(87))/D(2)	RTRI0310
5104	IF (TT(11) - DBLO(2)) 9000,9001,9001	RTRI0311
5105	9000 TT(11) = DBLO(2)	RTRI0312
5106	9001 TT(11) = TT(11)*D(401)/D(19)*DBLO(4)	RTRI0313
5107	C	RTRI0319
5108	TT(13) = (TDC(180) + TDC(187))/D(2)	RTRI0320
5109	IF (TT(13) - DBLO(1)) 901,902,902	RTRI0330
5110	901 TT(13) = DBLO(1)	RTRI0340
5111	902 TT(12) = DBLO(3)*TDC(73)*TT(13)	RTRI0350

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CARD NO      ****                          CONTENTS                          ****
  5112       C                                                                RTRI0350
  5113       C          ***CAPS, WEBS, MISC***                                RTRI0359
  5114             TWT(36) = TT(1)*TT(10)                                     RTRI0360
  5115             TWT(37) = TT(2)*TT(10)                                     RTRI0370
  5116             TWT(38) = (DKMAR - D(1))*(TWT(36) + TWT(37))               RTRI0380
  5117       C                                                                RTRI0390
  5118       C           **TEST FOR INSERTS**                                 RTRI0400
  5119             TT(4) = DC(3)                                              RTRI0410
  5120             TT(5) = DC(3)                                              RTRI0420
  5121             IF (CNSID - D(2)) 920,910,920                              RTRI0430
  5122       C                                                                RTRI0440
  5123       C          ***HC PNL.  CALC INSERTS***                           RTRI0450
  5124        910  TT(4) = DSPR(7)*DSPR(8)/SORHO                              RTRI0460
  5125             IF (TT(4)) 911,911,912                                     RTRI0470
  5126        911  TT(4) = D(2)*DSPR(4)                                       RTRI0480
  5127        912  TT(5) = TT(4)*TT(10)*(DSPR(1) + DSPR(5))                   RTRI0490
  5128       C                                                                RTRI0500
  5129       C          ***APPLY WT. COEFF.                                   RTRI0510
  5130       C            *DELTA CAP NOT APPLIED TO INSETS*                   RTRI0520
  5131       C            *DELTA RT RIB APPLIED TO ALL*                       RTRI0530
  5132       C            *SUM MISC INTO BOX MISC*                            RTRI0540
  5133        920  TWT(36) = TWT(36)*DLRDC + TT(5)                            RTRI0550
  5134             TWT(37) = TWT(37)*DLSRM                                    RTRI0560
  5135             TWT(38) = TWT(30)*DLRRM                                    RTRI0570
  5136             TWT(35) = DELRR*(TWT(36) + TWT(37) + TWT(38))              RTRI0580
  5137       C                                                                RTRI0590
  5138       C                                                                RTRI0600
  5139       C       ****TEST FOR DELTA SHEAR TIE CALC.****                   RTRI0610
  5140       C            *SETUP STRESS AND DENSITY FOR STATISTICAL WT SCALING*  RTRI0611
  5141       C            *FTMAX, FSMAX, FBRMAX AND RHO*                      RTRI0612
  5142       C            *IF DATA = 0, USE COVER MATL MAX VALUES*            RTRI0613
  5143       C            *INPUT= STRESS OR FRACTION OF MAX VALUES*           RTRI0614
  5144             IF (DELST) 999,999,960                                     RTRI0620
  5145       C                                                                RTRI0630
  5146        950  TT(1) = ABS(TSEC(22)/D(2) + TSEC(11)*SINEA/TSEC(55)*COSEAJ  RTRI0640
  5147             TT(2) = TT(1)*(DSTIE(6)/TSEC(267) + DSTIE(7)/TSEC(268) + DSTIE(8))RTRI0650
  5148             TWT(39) = TT(2)*DELST                                      RTRI0660
  5149             TWT(35) = TWT(35) + TWT(39)                                RTRI0670
  5150       C                                                                RTRI0680
  5151       C                                                                RTRI9900
  5152       C          ***EXIT***                                            RTRI9910
  5153        999  RETURN                                                     RTRI9990
  5154             END                                                        RTRI9999
  5155       C*************************************************************************
  5156       C
  5157       C       *****SUBROUTINE WTPIN*****
  5158       C   ***SECTION WEIGHT PER INCH EVALUATION***
  5159       C
  5160       C*************************************************************************
  5161       C
  5162             SUBROUTINE WTPIN                                           WTPI0010
  5163       C                                                                WTPI0011
  5164       C       WT/IN CALC. SUBR                                         WTPI0020
  5165       C                                                                WTPI0030
  5166       C                                                                WTPI0050
  5167       C             WT/IN= RHO*WIDTH*T(I)*DEL(I)  SUM WT*DELC(J)       WTPI0060
  5168       C      DEL(I), DELC(J), DELW(K) NOT APPLIED TO DELTA WF          WTPI0070
  5169       C                                                                WTPI0080
  5170       C                                                                WTPI0100
  5171             COMMON TCOM(7120)                                          WTPI0110
  5172       C                                                                WTPI0120
  5173             DIMENSION T(2060),D(2060),CD(2000),ND(100),TW(900),        WTPI0130
  5174            1DC(100),TDC(200),TSC(420),TSS(100),TWT(460),TSEC(300),     WTPI0131
  5175            2DEL(30),                                                   WTPI0132
  5176            9RHO(2),                                                    WTPI0135
  5177            8WPILE(11),WPITE(11)                                        WTPI0138
  5178       C                                                                WTPI0140
  5179             EQUIVALENCE (T(1),TCOM(1)),(D(1),TCOM(2061)),(CD(1),TCOM(4121)),  WTPI0150
  5180            1(ND(1),TCOM(6121)),(TW(1),TCOM(6221)),(DC(1),D(1401)),     WTPI0151
  5181            2(TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1981)),        WTPI0152
  5182            3(TWT(1),CD(1101)),(TSEC(1),CD(150)),                       WTPI0153
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CARD NO  ****                          CONTENTS                          ****
 5183        4(SDRHO,TWT(175)),                                          WTP10150
 5184        5(SWKMS(1),D(410)),                                         WTP10155
 5185        6(WPILE(1),T(263)),(WPITE(1),T(274)),                       WTP10156
 5186        7(DEL(1),TWT(251)),(DELLE,T(189)),(DELTE,T(190)),           WTP10157
 5187        8(DELNG,T(187)),(DLTBX,T(188)),(XMISC,T(191)),              WTP10158
 5188        9(ISEC,ND(55)),(N,ND(3)),(J,ND(20))                         WTP10159
 5189   C                                                                WTP10160
 5190   C                                                                WTP10170
 5191   C                                                                WTP10230
 5192   C     COMPUTE WT/IN OF ELEMENTS AT SECTION(I)                    WTP10240
 5193   C     CLEAR TWT(331)-TWT(400)                                    WTP10250
 5194    100  DO 101 I=1,70                                              WTP10260
 5195        TWT(I+330)=DC(3)                                            WTP10270
 5196    101  CONTINUE                                                   WTP10280
 5197   C                                                                WTP10290
 5198   C                                                                WTP10300
 5199   C     BASIC BOX WT/IN  TWT(121-144)                              WTP10310
 5200        DO 102 I=1,24                                               WTP10320
 5201        TWT(I+330)=TWT(I+120)*SDRHO                                 WTP10330
 5202    102  CONTINUE                                                   WTP10340
 5203   C                                                                WTP10350
 5204   C     LE, TE DATA, SUM LE,TE,                                    WTP10360
 5205        N = ND(12) - ISEC                                           WTP10370
 5206        TWT(383) = WPILE(N)*DELLE                                   WTP10380
 5207        TWT(384) = WPITE(N)*DELTE                                   WTP10390
 5208   C                                                                WTP10400
 5209   C          MOVE JTS/BLHD DATA                                    WTP10410
 5210        DO 103 I=1,5                                                WTP10420
 5211        TWT(I+374) = TWT(I+180)                                     WTP10430
 5212    103  CONTINUE                                                   WTP10440
 5213   C                                                                WTP10450
 5214   C          *SETUP BOX DATA*                                      WTP10460
 5215   C          *RIB, RIB MISC*                                       WTP10470
 5216    110  TWT(333) = TWT(333)*DEL(10)*DEL(9)                         WTP10480
 5217        TWT(357) = TWT(339)                                         WTP10490
 5218   C                                                                WTP10500
 5219   C          *SET UP VF DELTA ATT U.L. SUM VF*                     WTP10510
 5220    120  TWT(339) = TWT(353) + TWT(354)                             WTP10520
 5221   C                                                                WTP10530
 5222        DO 121 I=1,5                                                WTP10540
 5223        TWT(380) = TWT(380) + TWT(I+338) + TWT(I+347)               WTP10550
 5224    121  CONTINUE                                                   WTP10560
 5225   C                                                                WTP10570
 5226   C          *RESET HSKIN AT FS/RS*                                WTP10580
 5227        TWT(353) = SDRHO*TWT(193)                                   WTP10590
 5228        TWT(354) = SDRHO*TWT(194)                                   WTP10600
 5229   C                                                                WTP10610
 5230   C                                                                WTP10620
 5231   C                                                                WTP10630
 5232   C                                                                WTP10640
 5233   C                                                                WTP10650
 5234   C     FS, RS DATA IN LOOP N=1,2 J=1,5  INCL.SUM.-- SETUP TWEB(8)FS,RS WTP10660
 5235    130  TWT(399)=TDC(180)                                          WTP10670
 5236        DO 131 N=1,2                                                WTP10680
 5237        J=N*ND(4)-ND(3)                                             WTP10690
 5238        TWT(400) = TWT(N+343)/SWKMS(N)                              WTP10700
 5239        TWT(N+354)=(TWT(N+343)-TWT(400))*DEL(J+15)                  WTP10710
 5240        TWT(N+343)=(TWT(400)-TWT(N+345))*TWT(N+151)/TWT(399)        WTP10720
 5241        TWT(N+345)=TWT(N+345)*DEL(J+ 3)                             WTP10730
 5242        TWT(N+360)=DEL(J+12)*(TWT(N+3)+3)+TWT(N+345))               WTP10740
 5243        TWT(399)= TDC(187)                                          WTP10750
 5244    131  CONTINUE                                                   WTP10760
 5245   C                                                                WTP10770
 5246   C     SUM COVERS, SUM BOX ELEMENT      I=1,2  TWT(399)=DEL(COVU,COVL) WTP10780
 5247    140  TWT(399)=DEL(1)                                            WTP10790
 5248        DO 141 I=1,2                                                WTP10800
 5249        TWT(371)=TWT(371)+TWT(I+360)                                WTP10810
 5250        TWT(I+360)=TWT(I+360)+TWT(I+347)                            WTP10820
 5251        TWT(I+357)= TWT(399)*(TWT(I+330)+TWT(I+333)+TWT(I+335)+TWT(I+352))WTP10830
 5252        TWT(371)=TWT(371)+TWT(I+357)                                WTP10840
 5253        TWT(I+357)=TWT(I+357)+TWT(I+339)+TWT(I+341)+TWT(I+350)      WTP10850
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CARD NO    ****                          CONTENTS                          ****
  5254          TWT(399)=DEL(4)                                          WTP10860
  5255      141 CONTINUE                                                 WTP10870
  5256        C                                                          TP10880
  5257        C     SUM PIPS, MISC ATT                                   WTP10890
  5258      150 TWT(360)=TWT(333)+TWT(350)                               WTP10900
  5259          TWT(374)=TWT(338)+TWT(355)+TWT(356)+TWT(357)             WTP10910
  5260          TWT(371)=TWT(371)+TWT(333)+TWT(374)                      WTP10920
  5261          TWT(374)=TWT(374)+TWT(339)                               WTP10930
  5262        C                                                          WTP10940
  5263        C     SUM TB*DEL(TB) + SUM VF                              WTP10950
  5264      160 TWT(371) = TWT(371)*DLTBX + TWT(380)                     WTP10960
  5265        C                                                          WTP10970
  5266        C                                                          WTP10980
  5267        C     TOTALS                                               WTP10990
  5268      161 TWT(382) = TWT(371)                                      WTP11000
  5269          TWT(386) = TWT(380)                                      WTP11010
  5270          TWT(381) = TWT(382) + TWT(383) + TWT(384)                WTP11020
  5271          TWT(385) = DMISC*TWT(381)                                WTP11030
  5272          TWT(381) = DELWD*(TWT(381) + TWT(385))                   WTP11040
  5273        C                                                          WTP11050
  5274        C           **SAVE WT/IN DATA BLOCK FOR C-SEC, DELTA PIVOT CALC**  WTP11060
  5275        C            *11 SETS OF 50 PIECES OF DATA--TWT(331-380)** WTP11070
  5276        C            *STORED TIP-RT IN TW(1-550)*                  WTP11080
  5277      200 J = ISEC*50 - 50                                         WTP11090
  5278          DO 201 I=1,50                                            WTP11100
  5279          J = J + ND(1)                                            WTP11110
  5280          TW(J) = TWT(I+330)                                       WTP11120
  5281      201 CONTINUE                                                 WTP11130
  5282        C                                                          WTP11140
  5283        C                                                          WTP19000
  5284        C           **EXIT**                                       WTP19010
  5285      299 RETURN                                                   WTP19990
  5286          END                                                      WTP19999
  5287        C***********************************************************************
  5288        C
  5289        C       *****SUBROUTINE C03P*****
  5290        C   ***PARABOLIC CURVE FIT AND EVALUATION***
  5291        C
  5292        C***********************************************************************
  5293        C
  5294          SUBROUTINE C03P (XX,ZZ)                                  C03P0010
  5295        C     L.O. 3-POINT FLT SUBROUTINE -- FINDS MIN OR INTERPOLATES FOR  C03P0020
  5296        C    REVISION -- 01-07-66 -- NEW FORMAT FOR STR-PIVOT-- REVISE LINK  C03P0030
  5297        C                                                          C03P0040
  5298        C    X AT Y=1                                              C03P0050
  5299        C                                                          C03P0060
  5300        C     IK=ND(39)= TYPE ID                                   C03P0070
  5301        C     IL=ND(40)= MIN. TYPE                                 C03P0080
  5302        C     IL=1, LEFT,  IL=2, MIN,  IL=3, RIGHT                 C03P0090
  5303        C                                                          C03P0100
  5304          COMMON T(2060),D(2060),CD(2000),ND(100)                  C03P0120
  5305        C                                                          C03P0130
  5306          DIMENSION                                                C03P0140
  5307         1TDC(200),TSC(420),TSS(1),                                C03P0150
  5308         2CX(3),CZ(3),XX(3),ZZ(3),CF(9),CC(3)                      C03P0160
  5309        C                                                          C03P0170
  5310          EQUIVALENCE (TDC(1),T(1334)),(TSC(1),T(1594)),(TSS(1),T(1861)),  C03P0180
  5311         1(CX1,T(1387)),(CX(1),T(1323)),(CZ(1),T(1326)),(CC(1),T(1329)),  C03P0181
  5312         2(CF(1),T(1332))                                          C03P0182
  5313          EQUIVALENCE (IL,ND(40)),(IK,ND(39)),(NDI,ND(1)),(NDCT,ND(58))  C03P0190
  5314        C    MOVE DATA                                             C03P0230
  5315       90   DO 40 I=NDI,3                                          C03P0240
  5316          CX(I) = XX(I)                                            C03P0250
  5317       40   CZ(I) = ZZ(I)                                          C03P0260
  5318        C    FIT CURVE, COMPUTE CONSTANTS A,B,C                    C03P0280
  5319          DO 10 I=NDI,2                                            C03P0290
  5320          CF(I+3) = CX(I)-CX(I+1)                                  C03P0300
  5321       10   CF(I+6) = CX(I)+CX(I+1)                                C03P0310
  5322          CF(8) = CX(2)-CX(3)                                      C03P0330
  5323          CF(9) = CX(2)+CX(3)                                      C03P0340
  5324        C     COMPUTE L,M,N  A,B,C                                 C03P0350
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CARD NO	**** CONTENTS ****	
5325	CF(1) = CZ(1)/(CF(4)*CF(5))	CG3P0360
5326	CF(2) = CZ(2)/(CF(6)*CF(4))	CG3P0370
5327	CF(3) = CZ(3)/(CF(6)*CF(5))	CG3P0380
5328	CC(1) = CF(1)-CF(2)+CF(3)	CG3P0390
5329	CC(2) = CF(2)*CF(8) - CF(1)*CF(9) - CF(3)*CF(7)	CG3P0400
5330	CC(3) = CZ(1)- (CX(1)*(CC(1)*CX(1)+CC(2)))	CG3P0410
5331	C TEST FOR TYPE OF EVALUATION 1= MIN, 2= EVAL X AT Y=1	CG3P0420
5332	C	CG3P0430
5333	IF (IK - ND(1)) 21,21,20	CG3P0440
5334	C EVAL X AT Z = 1.0 , TEST A,B	CG3P0450
5335	20 IF (CC(1)) 33,32,33	CG3P0460
5336	33 CX1 = (-CC(2) - SQRT (CC(2)*CC(2) - D(4)*CC(1)*(CC(3) - D(1)))*DCG3P0470	
5337	((1)/CC(1))	CG3P0480
5338	GO TO 30	CG3P0490
5339	C	CG3P0500
5340	C A IS ZERO	CG3P0510
5341	32 CX1 = (D(1) - CC(3))/CC(2)	CG3P0520
5342	GO TO 30	CG3P0530
5343	C ID=1.0 TEST FOR AND LOCATE MIN AND DIRECTION	CG3P0540
5344	C	CG3P0550
5345	21 IF (CC(1))25,22,25	CG3P0560
5346	C A IS NOT ZERO, TEST SIGN	CG3P0570
5347	25 IF (CC(1)) 29,26,26	CG3P0580
5348	29 IF (CZ(1) - CZ(3)) 24,24,28	CG3P0590
5349	C ID=-1.0 FOR EXTRAP LEFT	CG3P0600
5350	24 IL = ND(1)	CG3P0610
5351	IF (CZ(1) - CZ(3)) 30,30,28	CG3P0620
5352	C A IS 0.0, ST. LINE TEST B	CG3P0630
5353	22 IF (CC(2))23,24,23	CG3P0640
5354	C B IS NOT ZERO, TEST SIGN, 1.0= EXTRAP RIGHT	CG3P0650
5355	23 IL = ND(3)	CG3P0660
5356	IF (CC(2)) 30,24,24	CG3P0670
5357	C	CG3P0680
5358	C A IS POS, FIND MIN X	CG3P0690
5359	26 CX1= (-CC(2))/(CC(1)*D(2))	CG3P0700
5360	IL = ND(2)	CG3P0710
5361	IF (CX(1)-CX1) 27,30,24	CG3P0720
5362	27 IF(CX(3)-CX1) 28,30,30	CG3P0730
5363	28 IL = ND(3)	CG3P0740
5364	C	CG3P0750
5365	C EXIT	CG3P0770
5366	30 RETURN	CG3P0810
5367	END	CG3P0820
5368	C**********	
5369	C	
5370	C *****SUBRUUTINE SS*****	
5371	C ***STRESS-STRAIN CURVE EVALUATION AT GIVEN STRESS (FC)***	
5372	C	
5373	C**********	
5374	C	
5375	SUBROUTINE SS (SFC1)	SS 0010
5376	C STRESS-STRAIN EVAL. SUBR	SS 0020
5377	C	SS 0030
5378	C REVISION -- 01-10-66 -- NEW FORMAT	SS 0040
5379	C	SS 0050
5380	C STRAIN AND REDUCED MODULUS FOR GIVEN FC	SS 0060
5381	C	SS 0070
5382	COMMON T(20060),D(2060),CD(20000),ND(100)	SS 0110
5383	C	SS 0120
5384	DIMENSION	SS 0130
5385	1TDC(200),TSC(420),TSS(100),	SS 0140
5386	2SA(4),SD(7)	SS 0150
5387	C	SS 0160
5388	EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961)),	SS 0170
5389	1(SA(1),T(1377)),(SD(1),T(1392)),(SFC,T(1391)),(SC2,T(1322)),	SS 0171
5390	2(SC1,T(1321))	SS 0172
5391	C	SS 0200
5392	90 SFC = SFC1	SS 0090
5393	C	SS 0100
5394	SC1 = EXP (SD(2)*SFC)	SS 0210
5395	91 SC2= D(1)/SD(3)	SS 0220

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CARD NO  ****                          CONTENTS                          ****
 9388    C                                                                SS  0230
 9387    C     COMPUTE STRAIN, E1, E5                                     SS  0240
 9388          SA(1) = SFC*SC2 + SD(1)*SC1                                SS  0250
 9389          SA(3) = SFC/SA(1)                                          SS  0260
 9390     92   SA(2)= D(1)/( SC2  + SD(1)*SD(2)*SC1)                      SS  0270
 9391          SC1 = SA(2)/SA(3)                                          SS  0280
 9392    C                                                                SS  0290
 9393    C     ERSK AND KBOT                                              SS  0300
 9394     93   SA(8) = SA(3)*(D(41)+D(42)*(SQRT (D(43) + D(44)*SC1)))     SS  0310
 9395          SA(9) = SD(6)*SQRT (SA(8)/SFC)                             SS  0320
 9396    C     ERL1 AND ERL2                                              SS  0330
 9397          SA(4) = SQRT (SA(2)*SD(3))                                 SS  0340
 9398          SA(5) = SA(3)                                              SS  0350
 9399    C     ERG1 AND ERG2                                              SS  0360
 9410          SA(6) = SA(2)                                              SS  0370
 9411     94   SA(7) =  SA(3)*(D(45) + D(46)*SC1)                         SS  0380
 9412    C                                                                SS  0390
 9413     99   RETURN                                                     SS  0400
 9414          END                                                        SS  0410
 9415    C*************************************************************
 9416    C
 9417    C       *****SUBROUTINE PRTB*****
 9418    C   ***DESIGN DATA PRINT - TYPE B SECTION DESIGN DETAIL SUMMARY***
 9419    C
 9420    C*************************************************************
 9421    C
 9422          SUBROUTINE PRTB                                            PRTB0010
 9423    C                                                                PRTB0020
 9424    C            ***PRINT TYPE B--SYNTHESIS DETAILS***               PRTB0030
 9425    C                                                                PRTB0040
 9426    C                                                                PRTB0130
 9427    C                                                                PRTB0140
 9428    C                                                                PRTB0150
 9429    C                                                                PRTB0170
 9430          COMMON T(2000),D(2050),CD(2000),ND(100)                    PRTB0180
 9431          COMMON /MISC/ XMISC(100)                                   PRTB0181
 9432    C                                                                PRTB0190
 9433          DIMENSION DC(100),(DC(200),TSC(420),TSS(100),TWT(400),TSEC(300),  PRTB0200
 9434         1TOOM(3),DOM(3),                                            PRTB0201
 9435         9R(16)                                                      PRTB0209
 9436    C                                                                PRTB0210
 9437          EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1134)),(TSC(1),T(1534)),  PRTB0220
 9438         1(TSS(1),T(1961)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),     PRTB0221
 9439         2(R(1),XMISC(85)),                                          PRTB0222
 9440         3(TOOM(1),D(80)),(DOM(1),D(102)),                           PRTB0223
 9441         4(AC1D,D(430)),                                             PRTB0224
 9442         6(I,ND(20)),(J,ND(29)),(K,ND(30)),(N,ND(31)),               PRTB0226
 9443         7(IWFJT,ND(53)),(IWF,ND(51)),(IOP1,ND(82)),                 PRTB0227
 9444         8(NOOM,ND(56)),(IOM,ND(57)),(ISEC,ND(55 ),                  PRTB0228
 9445         9(NCASE,ND(60)),(NPAGE,ND(85))                              PRTB0229
 9446    C                                                                PRTB0230
 9447    C                                                                PRTB0240
 9448    C                                                                PRTB0310
 9449    C                                                                PRTB0320
 9450    C      TYPE B PAGE PRINT -- ID=1  SECTION DATA DETAIL STORAGE     PRTB0330
 9451    C      INDC ND = STORAGE LOC. REF.                               PRTB0340
 9452    C       BLOCK I--UPPER COVER, GENERAL DATA -- TDC REGION         PRTB0350
 9453    C                                                                PRTB0360
 9454     100  N=ND(12)-ISEC                                              PRTB0370
 9455          I=IOM                                                      PRTB0380
 9456          WRITE (6,101)NCASE,N,TOOM(I),DOM(I),IOM,NOOM,IOP1          PRTB0390
 9457     101  FORMAT (1H1,4HCASE14,10H SECTION I2,13H DATA.  TOOM=F8.1,8H  DOM=PRTB0400
             1F8.1,8H  IOM=I1,7H  NOOM=I1,7H  IOP1=I1,12X,13H** PRTB - IP()
 9458    C                                                                PRTB0410
 9460          IF(IOM - 2)501,505,501
 9461     501  WRITE(6,502)
 9462     502  FORMAT(1H+,103X,8H(2) **)
 9463          GO TO 510
 9464     505  WRITE(6,506)
 9465     506  FORMAT(1H+,103X,8H(1) **)
 9466    C
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CARD NO  ****                          CONTENTS                          ****
 9467    C                    **CASE TITLE**                              PRTB0410
 9468      510 WRITE (6,102)(R(I),I=1,16)
 9469      102 FORMAT(1HO,8A10/1H ,8A10/)
 9470    C                                                                PRTB0420
 9471          WRITE (6,103)                                              PRTB0430
 9472      103 FORMAT (48H  TDC     ***-UPPER COVER AND GENERAL DATA-***-) PRTB0435
 9473    C                                                                PRTB0439
 9474    C       TDC(60 TO 115)= 8 LINES X 6 = 54 CELLS -- LINES 4 - 11   PRTB0440
 9475      104 FORMAT (2X,I3,7E15.7)                                      PRTB0450
 9476    C                                                                PRTB0460
 9477          DO 105 N=60,110,7                                          PRTB0470
 9478          J=N+ND(6)                                                  PRTB0480
 9479          WRITE            (6,104)N,(TDC(I),I=N,J,1)                 PRTB0490
 9480      105 CONTINUE                                                   PRTB0500
 9481    C                                                                PRTB0507
 9482    C             **BLOCK 1-A FOR ADV. COMP  ONLY**                  PRTB0508
 9483    C              *PRINT LAMINATE DATA FROM TDC(121-139)*           PRTB0509
 9484          IF (ACID) 109,109,106                                      PRTB0510
 9485      106 DO 107 N=121,135,7                                         PRTB0511
 9486          J = N + ND(6)                                              PRTB0512
 9487          WRITE (6,104)N,(TDC(I),I=N,J,1)                            PRTB0513
 9488      107 CONTINUE                                                   PRTB0514
 9489    C                                                                PRTB0519
 9490    C       BLOCK 2 -- LOWER COVER, FRONT AND REAR SPAR DATA -- TDC REGION PRTB0520
 9491      109 WRITE (6,110)                                              PRTB0530
 9492      110 FORMAT  (54HO TDC    ***-LOWER COVER, FRONT AND REAR SPAR DATA-***-PRTB0540
                )                                                        PRTB0550
 9494    C                                                                PRTB0560
 9495    C      TDC(161-202)=7 LINES*6 =42 CELLS -- LINES 15-21           PRTB0570
 9496    C                                                                PRTB0580
 9497          DO 111 N=161,196,7                                         PRTB0590
 9498          J=N+ND(6)                                                  PRTB0600
 9499          WRITE            (6,104)N,(TDC(I),I=N,J,1)                 PRTB0610
 9500      111 CONTINUE                                                   PRTB0620
 9501    C                                                                PRTB0630
 9502    C                                                                PRTB0631
 9503    C            ***TEST FOR COMPOSITE DESIGN--SKIP FOLLOWING BLOCKS IF PRTB0632
 9504    C              *COMPOSITE DESIGN*                                PRTB0633
 9505          IF (ACID) 199,1200,199                                     PRTB0635
 9506    C                                                                PRTB0639
 9507    C       BLOCK 3 -- STRUCT EI,GJ DATA -- TWT, TSS REGION          PRTB0640
 9508    C      DATA STORED IN CD(1837-1872)                              PRTB0650
 9509     1200 WRITE (6,120)                                             PRTB0660
 9510      120 FORMAT (42H0 TWT     ***-STRUCTURAL EI, GJ DATA-***-  )    PRTB0670
 9511    C                                                                PRTB0680
 9512    C                                                                PRTB0690
 9513    C      TWT(282-299)= 3 LINES X6=18 CELLS -- LINES 24,25,26       PRTB0700
 9514          N=282                                                      PRTB0710
 9515          DO 121 K=1855,1867,7                                       PRTB0720
 9516          J=K+ND(6)                                                  PRTB0730
 9517          WRITE            (6,104)N,(CD(I),I=K,J,1)                  PRTB0740
 9518          N=N+ND(7)                                                  PRTB0750
 9519      121 CONTINUE                                                   PRTB0760
 9520    C      TSS(7-25) = 3 LINES X 6=18 CELLS -- LINES  28,29,30       PRTB0770
 9521          WRITE            (6,123)                                   PRTB0780
 9522      123 FORMAT (8H  TSS )                                          PRTB0790
 9523    C                                                                PRTB0800
 9524          N=7                                                        PRTB0810
 9525          DO 122 K=1837,1849,7                                       PRTB0820
 9526          J=K+ND(6)                                                  PRTB0830
 9527          WRITE            (6,104)N,(CD(I),I=K,J,1)                  PRTB0840
 9528          N=N+ND(7)                                                  PRTB0850
 9529      122 CONTINUE                                                   PRTB0860
 9530    C                                                                PRTB0870
 9531    C       TEST FOR WF CALC. IWF=2.  NO CALC. IF IWF=1,3            PRTB0880
 9532    C                                                                PRTB0890
 9533          IF (ND(2) - IWF) 199,130,199                               PRTB0900
 9534    C                                                                PRTB0910
 9535    C      PRINT BLOCK 4 -- WF PENALTY DATA IN SECT.                 PRTB0920
 9536      130 IF (IWFJT - ND(2)) 142,143,142                             PRTB0930
 9537      142 WRITE            (6,131)                                   PRTB0940
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CARD NO  ****                          CONTENTS                          ****
   9538    131 FORMAT (48H  TSC     ***-DELTA W DATA -- J COMPARISON-***-)  PRTB0950
   9539    141 FORMAT (49H  TSC     ***-DELTA W DATA -- TWT COMPARISON-***-)PRTB0960
   9540        GO TO 139                                                   PRTB0970
   9541    C                                                               PRTB0980
   9542    143 WRITE           (6,141)                                     PRTB0990
   9543    C                                                               PRTB1000
   9544    C       TSC(35-77) W DATA -- 6 LINES                            PRTB1010
   9545    138 DO 133 N=36,71,7                                            PRTB1020
   9546        J=N+ND(6)                                                   PRTB1030
   9547        WRITE           (6,134)N,(TSC(I),I=N,J,1)                   PRTB1040
   9548    133 CONTINUE                                                    PRTB1050
   9549    C                                                               PRTB1060
   9550    C       TWT(55-86)  6 LINES X 7/LINE                            PRTB1070
   9551        WRITE           (6,136)                                     PRTB1080
   9552    136 FORMAT (8H  TWT )                                           PRTB1090
   9553        DO 135 N=55,90,7                                            PRTB1100
   9554        J=N+ND(6)                                                   PRTB1110
   9555        WRITE           (6,134)N,(TWT(I),I=N,J,1)                   PRTB1120
   9556    135 CONTINUE                                                    PRTB1130
   9557    C                                                               PRTB1140
   9558    C       TDC(116) TO TDC(120) -- 5 CELLS-FIXED                   PRTB1150
   9559        WRITE           (6,132)(TDC(I+115),I=1,5)                   PRTB1160
   9560    132 FORMAT (12H  TDC(116)  ,5F14.8)                             PRTB1170
   9561    C                                                               PRTB1180
   9562    C                                                               PRTB1190
   9563    C                                                               PRTB1200
   9564    C       EXIT                                                    PRTB1210
   9565    199 RETURN                                                      PRTB1220
   9566        END                                                         PRTB1230
   9567    C*************************************************************************
   9568    C
   9569    C       *****SUBROUTINE PRTC*****
   9570    C   ***DESIGN DATA PRINT - TYPE C SECTION WEIGHT DETAIL SUMMARY***
   9571    C
   9572    C*************************************************************************
   9573    C
   9574        SUBROUTINE PRTC                                             PRTC0010
   9575    C                                                               PRTC0020
   9576    C           ***TYPE C PRINT--WEIGHT ANALYSIS DETAILS***         PRTC0030
   9577    C                                                               PRTC0040
   9578    C                                                               PRTC0130
   9579    C                                                               PRTC0140
   9580    C                                                               PRTC0150
   9581    C                                                               PRTC0160
   9582    C                                                               PRTC0180
   9583        COMMON T(2060),D(2060),CD(2000),ND(100)                     PRTC0190
   9584        COMMON /MISC/ XMISC(100)                                    PRTC0191
   9585    C                                                               PRTC0200
   9586        DIMENSION DC(100),TDC(200),TSC(420),TWT(400),TSEC(300),     PRTC0210
   9587       1TT(24), TSS(100),                                           PRTC0211
   9588       2TOGM(3),DGM(3),                                             PRTC0212
   9589       9R(18)                                                       PRTC0219
   9590    C                                                               PRTC0220
   9591    C                                                               PRTC0230
   9592        EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1301)),(TSC(1),T(1501)),PRTC0240
   9593       1(TSS(1),T(1981)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),      PRTC0241
   9594       2(R(1),XMISC(85)),(TT(1),T(1317)),                           PRTC0242
   9595       3(TOGM(1),D(80)),(DGM(1),D(102)),                            PRTC0243
   9596       4(AC1D,D(1430)),                                             PRTC0244
   9597       6(I,ND(29)),(K,ND(30)),(N,ND(31)),                           PRTC0246
   9598       7(IOP),ND(82)),                                              PRTC0247
   9599       8(IGM,ND(57)),(NDGM,ND(56)),(IWF,ND(51)),(ISEC,ND(55)),      PRTC0248
   9600       9(NCASE,ND(60)),(NPAGE,ND(85))                               PRTC0249
   9601    C                                                               PRTC0320
   9602    C                                                               PRTC0330
   9603    C     TYPE C PAGE PRINT BLOCKS 1 TO 5---PANEL WEIGHT DATA --- ID=3 PRTC0340
   9604    C     BLOCK 1 -- PANEL GEOMETRY SUMMARY AND WEIGHT DATA REGION --TWT-XPRTC0350
   9605    C                                                               PRTC0360
   9606    C                                                               PRTC0370
   9607    300 I=IGM                                                       PRTC0380
   9608    C                                                               PRTC0390
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CARD NO    ****                          CONTENTS                          ****
 5609      C                                                               PRTC0480
 5610      C                                                               PRTC0490
 5611       301  N=ND(12) - 1SEC                                          PRTC0420
 5612      C                                                               PRTC0430
 5613           WRITE (6,302)NCASE,M,TOGW(1),DGW(1),IGW,NOOW,IOP1
 5614      C                                                               PRTC0450
 5615       302  FORMAT (1HI,4HCASE14,8H  PANEL I2,13H DATA.  TOGW=F8.1,8H  DGW=F8.PRTC0460
           1,8H  IGW=I1,7H  NOOW=I1,7H  IOP1=I1,14X,13H** PRTC - (P1)
 5616
 5617      C
 5618           IF(IGW - 2)501,505,501
 5619       501 WRITE(6,502)
 5620       502 FORMAT(1H+,103X,6H32) **)
 5621           GO TO 510
 5622       505 WRITE(6,506)
 5623       506 FORMAT(1H+,103X,6H31) **)
 5624      C                                                               PRTC0471
 5625       303 FORMAT(1H0,8A10/1H ,8A10/)
 5626      C                                                               PRTC0490
 5627      C              **CASE TITLE**                                   PRTC0500
 5628       510 WRITE (6,303)(R(I),I=1,16)                                 PRTC0510
 5629      C                                                               PRTC0520
 5630      C                                                               PRTC0530
 5631      C            ***BLOCK 1--DETAIL WT SUMMARY DATA AT PANEL(I)***  PRTC0540
 5632      C              *TWT(1-72),(97-123),(145-153),(185-228)*         PRTC0550
 5633      C              *17 LINES X 9 WORDS*                             PRTC0560
 5634       310  WRITE (6,'1')                                             PRTC0570
 5635       311  FORMAT (4HH0  TWT      -**-DETAIL WEIGHT DATA-**-  )      PRTC0580
 5636       312  FORMAT (3X,13,9F11.4)                                     PRTC0590
 5637      C                                                               PRTC0600
 5638           DO 313 N=1,72,9                                           PRTC0610
 5639           K = N + ND(8)                                             PRTC0620
 5640           WRITE (6,312)N,(TWT(I),I=N,K,1)                           PRTC0630
 5641       313  CONTINUE                                                  PRTC0640
 5642           DO 314 N=97,123,9                                         PRTC0650
 5643           K = N + ND(8)                                             PRTC0660
 5644           WRITE (6,312)N,(TWT(I),I=N,K,1)                           PRTC0670
 5645       314  CONTINUE                                                  PRTC0680
 5646           N = 145                                                   PRTC0690
 5647           WRITE (6,312)N,(TWT(I+144),I=1,9)                         PRTC0700
 5648           DO 315 N=185,228,9                                        PRTC0710
 5649           K = N + ND(8)                                             PRTC0720
 5650           WRITE (6,312)N,(TWT(I),I=N,K,1)                           PRTC0730
 5651       315  CONTINUE                                                  PRTC0740
 5652      C                                                               PRTC0750
 5653      C              **BLOCK 2--WT/IN DATA AT SECTION(I)**            PRTC0760
 5654      C              *TWT(331-393)--7 LINES X 9 WORDS*                PRTC0770
 5655       320  WRITE (6,321)                                             PRTC0780
 5656       321  FORMAT (4HH0  TWT      -**-SECTION WT/INCH DATA-**-)      PRTC0790
 5657      C                                                               PRTC0800
 5658           DO 322 N=331,393,9                                        PRTC0810
 5659           K = N + ND(8)                                             PRTC0820
 5660           WRITE (6,312)N,(TWT(I),I=N,K,1)                           PRTC0830
 5661       322  CONTINUE                                                  PRTC0840
 5662      C                                                               PRTC0850
 5663      C            ***BLOCK 3--BLHD/JOINTS DESIGN DATA***            PRTC0860
 5664      C              *TT(1-24)--3 LINES X 8 WORDS*                    PRTC0870
 5665       330  WRITE (6,331)                                             PRTC0880
 5666       331  FORMAT (4HH0  TT      -**- JOINTS/BLHD DATA-**-  )        PRTC0890
 5667       332  FORMAT (3X,13,8F11.4)                                     PRTC0900
 5668      C                                                               PRTC0910
 5669           DO 333 N=1,24,8                                           PRTC0920
 5670           K = N + ND(7)                                             PRTC0930
 5671           WRITE (6,332)N,(TT(I),I=N,K,1)                            PRTC0940
 5672       333  CONTINUE                                                  PRTC0950
 5673      C                                                               PRTC0960
 5674      C                                                               PRTC0961
 5675      C            ***TEST FOR ADV. COMPOSITES--SKIP BLOCK 4 IF ADV/COMP.***  PRTC0962
 5676           IF (ACID) 399,340,399                                     PRTC0965
 5677      C                                                               PRTC0968
 5678      C              **METAL DESIGN**                                 PRTC0969
 5679      C            ***BLOCK 4--COMPOSITE EI, GJ DATA***              PRTC0970
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CARD NO   ****                       CONTENTS                             ****
      C               *TWT(282-299), TSS(7-24)--6 LINES X 6 (E) FORMAT WORDS* PRTC0960
      C               *TEST IVF FOR PRINT.  PRINT ON 2 ONLY? SKIP ON 1,3*     PRTC0930
       340 IF (IVF - ND(2)) 399,341,399                                       PRTC1000
       341 WRITE (6,342)                                                      PRTC1010
       342 FORMAT (40H   TWT       ---COMPOSITE E1-GJ DATA----)               PRTC1020
       343 FORMAT (1H 3X,I3,6E16.8)                                           PRTC1030
       344 FORMAT (6H   TSS)                                                  PRTC1040
           DO 345 N=282,299,6                                                 PRTC1050
           K = N + ND(5)                                                      PRTC1060
           WRITE (6,343)N,(TWT(I),I=N,K,1)                                    PRTC1070
       345 CONTINUE                                                           PRTC1080
      C                                                                       PRTC1090
           WRITE (6,344)                                                      PRTC1100
           DO 346 N=7,24,6                                                    PRTC1110
           K = N + ND(5)                                                      PRTC1120
           WRITE (6,343)N,(TSS(I),I=N,K,1)                                    PRTC1130
       346 CONTINUE                                                           PRTC1140
      C                                                                       PRTC1150
      C                                                                       PRTC1600
      C                                                                       PRTC1610
      C       EXIT                                                            PRTC1620
       399 RETURN                                                             PRTC1630
           END                                                                PRTC1640
      C*********************************************************************
      C
      C       *****SUBROUTINE PRTBK*****
      C   ***DESIGN DATA PRINT - DETAIL SYNTHESIS SEARCH DATA***
      C
      C*********************************************************************
      C
           SUBROUTINE PRTBK                                                   PRTB0010
      C       ***DETAIL BK PT PRINT SUBR.  5-14-70.****                       PRTB0020
      C                                                                       PRTB0030
      C       ***PRINT ON ID AT D(575,576,577) AND BLOCKS ON IK, ND(39)***    PRTB0040
      C                                                                       PRTB0050
      C                                                                       PRTB0070
           COMMON T(2060),D(2060),CD(2000),ND(100)                            PRTB0080
           COMMON /IPRINT/ IP(80)                                             PRTB0081
      C                                                                       PRTB0090
           DIMENSION                                  DC(100),                PRTB0100
          1TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300)                      PRTB0110
      C                                                                       PRTB0130
           EQUIVALENCE (TDC(1),T(1341)),(TSC(1),T(1541)),(TSS(1),T(1961))     PRTB0140
           EQUIVALENCE (DC(1),D(1401))                                        PRTB0150
           EQUIVALENCE (TWT(1),CD(1101)),(TSEC(1),CD(1501))                   PRTB0160
           EQUIVALENCE (IK,ND(39)),(ISEC,ND(55)),(I,ND(31)),(N,ND(30)),       PRTB0170
          1 (K,ND(29)), (IROO,ND(28)), (NODW,ND(56))                          PRTB0171
      C                                                                       PRTB0180
           K = IROO                                                           PRTB0220
      C
           N = D(578)
           IF (N - NODW) 199,104,199                                          PRTB0250
      C
       104 DO 106 I=1,3                                                       PRTB0255
           N = D(I+574)
           IF (ISEC - N) 106,110,106                                          PRTB0270
       106 CONTINUE                                                           PRTB0275
           GO TO 199                                                          PRTB0276
      C                                                                       PRTB0279
      C        ***PRINT ON ID=IK.***                                          PRTB0280
       110 IF (IK - ND(2)) 111,125,125                                        PRTB0290
      C                  BLOCK 1A                                             PRTB0300
       111 WRITE(6,112)ISEC,NODW,IK,    TSC(1),TSC(2),TSC(381),TSC(409),TDC(7PRTB0310
          12),TSC(385),TSS(57)                                                PRTB0320
       112 FORMAT(1H1,5X,6HISEC =,I3,5X,6HNODW =,I3,5X,4HIK =,I2,31X,
          1   30H** PRTBK (CALLED FROM TSCH) - IP(33) **//
          2    10X, 8HTSC(1)  ,F15.6/10X, 8HTSC(2)  ,F15.6/
          3    10X, 8HTSC(381),F15.6/10X, 8HTSC(409),F15.6/
          4    10X, 8HTDC(72) ,F15.6/10X, 8HTSC(385),F15.6/
          5    10X, 8HTSS(57) ,F15.6//)
           WRITE(6,1122) TSEC(248),TSEC(249),TSEC(250),TSEC(251),TSEC(221),   PRTB0334
```

CARD NO	**** CONTENTS ****	
9751	1 TSEC(224)	PRTB0335
9752	1122 FORMAT (7HOBOTHR=,1E13.5,5X, 6HBOTFR=,1E13.5, 5X, 6HBOTHC=,	PRTB0336
9753	1 1E13.5, 5X, 6HBOTFC=,1E13.5 /15HORATIO BT F/H =, 1E13.5, 21X,	PRTB0337
9754	2 16HI * NF * RATIO =, 1E13.5)	PRTB0338
9755	K = IK	PRTB0340
9756	GO TO 130	PRTB0350
9757	C	PRTB0360
9758	125 WRITE(6,126)ISEC,NOOM,IK	
9759	126 FORMAT(1H1,5X,6HISEC =,13,5X,6HNOOM =,13,5X,4HIK =,12,31X,	
9760	1 39H** PRTBK (CALLED FROM STRG) - IP(33) **//)	
9761	C	
9762	IF(IK - ND(2))111,120,130	
9763	C	
9764	C BLOCK 2A	PRTB0370
9765	120 WRITE (6,121)TSC(411)	PRTB0380
9766	121 FORMAT (10HOTSC(411)=,F10.6)	PRTB0390
9767	K = IK	PRTB0400
9768	C	PRTB0410
9769	C BLOCKS 1B,2B,3A,4A	PRTB0420
9770	130 WRITE (6,131) K,TDC(194),TSS(43),TSS(44),TSS(45),TSS(PRTB0430
9771	146),TSS(47)	PRTB0440
9772	131 FORMAT (1H0,8X, 1HK,10H TDC(194), 99H TSS(43) TSS(44) PRTB0450
9773	2 TSS(45) TSS(46) TSS(47) / 7X,13,F10.6,5F11.7)	PRTB0460
9774	WRITE(6,1131) ND(72),ND(71),ND(70),ND(51),ND(45),ND(46)	PRTB0451
9775	*,ND(34), ND(33), ND(32), ND(35), ND(86), ND(87) , ND(88)	PRTB0451
9776	1131 FORMAT (5HOIBT=, 12,2X,4HIMX=, 12,2X, 4HIRO=, 12, 3X, 4HISK=, 12,	PRTB0452
9777	12X, 5HISK1=, 12, 2X, 5HISK2=, 12, 2X, 4HIL1=,12, 2X, 4HIL2=, 12,	PRTB0453
9778	22X, 4HIL3=, 12, 4HIMN=, 12 //3X,	PRTB0454
9779	32HCALL TSCH FROM SFCH=, I4, 3X, 21HCALL STBAR FROM TSCH=,I4, 3X,	PRTB0455
9780	*19HSTRINGER SIZE CODE=, I4)	
9781	132 FORMAT (1H 3X,13,8E16.8)	PRTB0460
9782	C	PRTB0470
9783	C *****TEST FOR ID=2 ****	PRTB0480
9784	IF (IK - ND(2)) 133,199,133	PRTB0490
9785	C BLOCK 1C,3B,4B	PRTB0500
9786	133 WRITE(6,134)	
9787	134 FORMAT(6HO TWT)	
9788	DO 139 I=300,330,6	PRTB0510
9789	K = I+ND(5)	PRTB0520
9790	WRITE (6,132)I,(TWT(N),N=I,K,I)	PRTB0530
9791	139 CONTINUE	PRTB0540
9792	C	PRTB0550
9793	C *** TEST FOR BLOCK 4C ****	PRTB0560
9794	140 IF (ND(3) - IK) 141,199,199	PRTB0570
9795	141 WRITE (6,142)	PRTB0580
9796	142 FORMAT (6HO TSC)	PRTB0590
9797	DO 149 I=381,417,6	PRTB0600
9798	K = I+ND(5)	PRTB0610
9799	WRITE (6,132)I,(TSC(N),N=I,K,I)	PRTB0620
9800	149 CONTINUE	PRTB0630
9801	C	PRTB0640
9802	C **EXIT ****	PRTB0650
9803	199 RETURN	PRTB0660
9804	END	PRTB0670

OVERLAY (18,0)

TORQUE-BOX STRUCTURAL SYNTHESIS/WEIGHT ANALYSIS
FOR ADVANCED COMPOSITE DESIGNS

FORTRAN MODULE (LIST,,/UTSEQ)

CARD NO **** CONTENTS ****

```
C*************************************************************************
C
C       *****PROGRAM OLAY18*****
C   ***PROGRAM FOR EIGHTH OVERLAY OF WING/EMPENNAGE MODULE***
C       STRUCTURAL SYNTHESIS/WEIGHT ANALYSIS - ADV. COMP DESIGNS
C
C*************************************************************************
C
      PROGRAM OLAY18
C
      COMMON TCOM(9168)
C
      REWIND 24
C
      BUFFER IN(24,1)(TCOM(1),TCOM(9168))
C
      IF(UNIT(24))10,10,10
C
   10 CALL ACPROG
C
      REWIND 24
C
      BUFFER OUT(24,1)(TCOM(1),TCOM(9168))
C
      IF(UNIT(24))20,20,20
C
   20 CONTINUE
C
      END
C*************************************************************************
C
C       *****SUBROUTINE ATBOPT*****
C   ***ADV. COMP. TORQUE-BOX SYNTHESIS CONTROL***
C
C*************************************************************************
C
      SUBROUTINE ATBOPT                                                 ATB00020
C                                                                       CNSR0021
C           ***CONTROL SUBROUTINE FOR ADV. COMPOSITE ANALYSIS***
C             *TORQUE-BOX DESIGN--H/SPAR PLATE OR H-PNLS*
C             *     OR H/RIB STRNG OR FULL DEPTH HONEYCOMB*
C
C           ***TYPE ID FOR H/SPAR OR FDH DESIGNS.***
C             *     PLATES--COVER ID = 1 AND SPAR ID = 1 OR 2*
C             *     HC/PNL--COVER ID = 2 AND SPAR ID = 1 OR 2*
C             *     FULL DEPTH HC--COVER ID = 1 AND SPAR ID = 3*
C
C                                                                       CNSR0029
C                                                                       CNSR0100
C                                                                       CNSR0120
C                                                                       CNSR0140
      COMMON T(2060),D(2060),CD(2000),ND(100),TH(900),CT(2048)          CNSR0150
      COMMON /IPRINT/ IP(80)                                            CNSR0151
C                                                                       CNSR0160
      DIMENSION DC(100),TDC(200),TSC(420),TSS(100),TWT(400),TSEC(300),  CNSR0170
     1TC(400),TT(24),TO(40),                                            CNSR0171
     2SWT(11),TBM(11),                                                  CNSR0172
     3DTTRB(2),DEL(30),                                                 CNSR0173
     7DBOP(5),APRTID(12),                                               CNSR0177
     8ENP(9),ENH(6),CNT(9),                                             CNSR0178
     9DLCS(24)                                                          CNSR0179
C                                                                       CNSR0180
C                                                                       CNSR0190
C                                                                       CNSR0200
      EQUIVALENCE (DC(1),D(401)),(TDC(1),T(1301)),(TSC(1),T(1501)),     CNSR0210
     1(TSS(1),T(1981)),(TWT(1),CD(1101)),(TSEC(1),CD(1501)),            CNSR0211
     2(TC(1),T(1960)),(TO(1),T(1820)),(TT(1),T(1317)),                  CNSR0212
     3(HMV10,T(157)),(DYPVT,D(1208)),(DOPTP,D(1399)),                   CNSR0213
     4(SWT(1),T(734)),(TBM(1),T(942)),(DLCS(1),D(482)),(DELMO,T(1187)), CNSR0214
     5(DTTRB(1),T(1668)),(DEL(1),TWT(251)),                             CNSR0215
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CARD NO  ****                          CONTENTS                          ****
   71        8(DLCMU,DEL(1)),(DLCML,DEL(9)),(DELFS,DEL(13)),(DELRS,DEL(17)),   CNSR0216
   72        8(N,ND(30)),(IPA,ND(23)),(IPB,ND(24)),                           CNSR0218
   73        9(NODM,ND(56)),(IGM,ND(61)),(IGT,ND(57)),(IFN,ND(93))            CNSR0219
   74  C                                                                      CNSR0299
   75         EQUIVALENCE (ACID,D(430)),(ACCVID,D(431)),                     CNST0310
   76        1(ACVSTU,D(432)),(ACVSTL,D(433)),(ACFDHC,D(434)),(ACSPID,D(435)),  CNST0311
   77        2(ACFSID,D(436)),(ACRSID,D(437)),(ACSSID,D(438)),(SSMAX,D(359)),   CNST0312
   78        3(SKMN,D(365)),(SKMX,D(366)),(STLMN,D(375)),(STLMX,D(376)),        CNST0313
   79        4(HSTMN,D(377)),(HSTMX,D(378)),(STPMX,D(379)),(BMIN,D(380)),       CNST0314
   80        5(BMAX,D(381)),(ESMIN,D(382)),(STPCN,D(393)),(STFIX,D(394)),       CNST0315
   81        6(ACKNP,D(429)),(ACKIC,D(457)),(DOPLI,D(579)),(DFFRAD,D(47)),      CNST0316
   82        7(ACPNLI,D(458)),(ACPNLF,D(459)),(ACPNLR,D(460)),(DFSMD,D(537)),   CNST0317
   83        8(DTC,D(462)),(DINS,D(465)),(DTCL,D(466)),(DINSL,D(467)),          CNST0318
   84        9(ENP(1),D(1155)),(ENH(1),D(1164)),(DINSHO,D(469))                 CNST0319
   85  C                                                                      CNST0320
   86  C                                                                      CNST0330
   87         EQUIVALENCE (CNT(1),T(1541)),(XSTRU,CNT(1)),(XSTRL,CNT(2)),     CNST0340
   88        1(BRMIN,CNT(3)),(BRMAX,CNT(4)),(ESMIN,CNT(5)),(ESMAX,CNT(6)),     CNST0341
   89        2(BMMAX,CNT(7)),(BMMIN,CNT(40)),(NSPMIN,CNT(17)),(NSPMAX,CNT(18)), CNST0342
   90        3(XTYPE,CNT(10)),(XDCODE,CNT(19)),(XPCODE,CNT(20)),              CNST0343
   91        4(XFCODE,CNT(27)),(XRCODE,CNT(28)),                              CNST0344
   92        5(C3,CNT(31)),(C7,CNT(22)),(CB,CNT(23)),(C9,CNT(34)),(C10,CNT(35)),CNST0345
   93        6(TCPNLU,CNT(29)),(TCPNLL,CNT(30)),(TCPNLI,CNT(31)),             CNST0346
   94        7(TCPNLF,CNT(32)),(TCPNLR,CNT(33)),                              CNST0347
   95        8(PFTSCV,CT(2047)),(PFFSSP,CT(2048)),                            CNST0348
   96        9(BFMIN,CNT(41)),(BFMAX,CNT(42)),(SLMIN,CNT(8))                  CNST0349
   97        A,(SLLMIN,CNT(19)),(STUMIN,CNT(15)),(STLM.N,CNT(16))             CNST0350
   98        B,(DSKLMU,D(440)),(DSKLML,D(441)),(DSTLMU,D(442)),(DSTLML,D(443))  CNST0351
   99        C,(DBKP(1),D(57)),(APRTID(1),T(1070))                            CNST0352
  100  C                                                                      CNST0359
  101  C                                                                      CNSR0360
  102  C                                                                      CNSR0370
  103         REAL NSPMIN,NSPMAX                                             CNST0380
  104  C                                                                      CNSR0390
  105  C                                                                      CNSR0400
  106  C     MT. CALC. ID=IC 1= AREA, 2=AREA AND PANEL MT.                    CNSR0410
  107         IGM = IGT                                                      CNSR0420
  108  C                                                                      CNSR0430
  109  C                                                                      CNSR0440
  110  C           ****SETUP PRINT ID FOR PRTA, PRTB, PRTC, PRTH****          CNSR0450
  111  C            ***IPA = ND(23) = ID FOR PRTA, PRTH.  1.0=PRINT***        CNSR0460
  112  C            ***IPB = ND(24) = ID FOR PRTB, PRTC.  1.0=PRINT***        CNSR0470
  113  C                                                                      CNSR0480
  114         IPA = DC(3)
  115         IPB = DC(3)                                                    CNSR0660
  116  C
  117         IF(ND(1) - NODM)300,306,306
  118  C
  119  C           **IPA FOR NODM GREATER THAN 1**
  120  C
  121    300 IF(IGM-2)301,304,301
  122    301 IF(IP(28))302,302,400
  123    302 IPA = ND(1)
  124        GO TO 400
  125    304 IF(IP(27))305,305,400
  126    305 IPA = ND(1)
  127        GO TO 400
  128  C
  129  C             **IPA FOR NODM=1**
  130  C
  131    306 IF(IP(29))307,307,310
  132    307 IPA = ND(1)
  133  C
  134  C           ** IPB (NODM=1 ONLY)**
  135  C
  136    310 IF(IGM-2)312,316,312
  137    312 IF(IP(32))314,314,400
  138    314 IPB = ND(1)
  139        GO TO 400
  140  C
  141    316 IF(IP(31))318,318,400
```

```
CARD NO  ****                          CONTENTS                          ****
  142        318 IPB = ND(1)
  143       C                                                            CNSR0300
  144       C                                                            CNSR2900
  145       C                                                            CNSR2910
  146       C
  147       C                                                            CNSR0350
  148       C                                                            CNSR0400
  149       C                                                            CNSR0430
  150       C                                                            CNSR0440
  151       C
  152       C            ***SETUP RECD DATA FOR ADV. COMP. SYNTHESIS***
  153       C
  154       C              *C7 FOR M/SPAR DESIGN ONLY.  0.0 FOR M/RIB AND FCH*
  155       C              *FDH ID = ACCVID=3 AND ACID MUST BE = 2 FOR M/STARS*
  156       C
  157       C             **CLEAR CNT ARRAY**
  158        400  DO 4000 I=1,91
  159             CNT(I) = DC(3)
  160        4000 CONTINUE
  161       C
  162             C3 = DKMPLI
  163             C7 = ACKIC
  164             C8 = ACKNP
  165             PFFSSP = DPFRHO
  166             PFFSCV = DPFRHO * DFSRHO
  167             TCPNLI = DC(3)
  168             TCPNLF = DC(3)
  169             TCPNLR = DC(3)
  170             XPCODE = ACSPID
  171             IF (ACSPID - D(2)) 403,401,403
  172        401  TCPNLI = ACPNLI
  173             IF (ACPNLI) 402,402,403
  174        402  TCPNLI = ENH(4)
  175        403  XFCODE = ACFSID
  176             IF (D(2) - ACFSID) 404,404,40F
  177        404  TCPNLF = ACPNLF
  178             IF (ACPNLF) 405,405,406
  179        405  TCPNLF = ENH(4)
  180        406  XRCODE = ACRSID
  181             IF (D(2) - ACRSID) 407,407,409
  182        407  TCPNLR = ACPNLR
  183             IF (ACPNLR) 408,408,409
  184        408  TCPNLR = ENH(4)
  185       C
  186       C             **XKCODE FOR M/SPAR AND FDH ONLY**
  187       C              *IF FDH, XKCODE = 1 AND XPCODE = 3*
  188       C              *C8,C10,C7=0.0*
  189       C            ***FDH ID = ACCVID = D(431) = 3***
  190        409  XKCODE = D(1)
  191             TCPNLU = DC(3)
  192             TCPNLL = DC(3)
  193             C8 = DC(3)
  194             C10 = DC(3)
  195             IF (D(2) - ACCVID) 4090,410,414
  196        4090 XPCODE = D(3)
  197             XKCODE = D(1)
  198             C7 = 0.0
  199             TCPNLI = DC(3)
  200             PFFSCV = DPFRHO/D(2) * DFSRHO
  201             GO TO 440
  202       C
  203       C             *M/SPAR-HC/PNL.  XKCODE=2*
  204        410  XKCODE = D(2)
  205             TCPNLU = DTC
  206             IF (DTC) 411,411,412
  207        411  TCPNLU = ENH(4)
  208        412  C8 = TCPNLU*DINS/ENP(8)*DINRHO
  209             TCPNLL = DTCL
  210             IF (DTCL) 413,413,4130
  211        413  TCPNLL = ENH(4)
  212        4130 C10 = TCPNLL*DINSL/ENP(8)*DINRHO
```

```
CARD NO  ****                          CONTENTS                          ****
  213    C
  214    C
  215    C            ***M/SPAR OR M/RIB COVER DESIGN****
  216    C             **SETUP COVER DESIGN CONSTRAINTS FOR SPAR AND/OR RIBS**
  217    C              *TEST CONST ID   1=M/SPAR,  2=M/RIBS*
  218     414  IF (ACID - D(1)) 415,415,416
  219    C
  220    C             **DATA FOR M/S   ANLY**
  221    C              *XSTRU AND  STRL = TYPE OF STRINGER (FR/LNR)*
  222    C              *     1=I, 2=Z, 3=T, 4=HAT*
  223     415  C7 = DC(3)
  224          XSTRU = ACVSTU
  225          IF (XSTRU) 4150,4150,4151
  226     4150 XSTRU = D(1)
  227     4151 XSTRL = ACVSTL
  228          IF (XSTRL) 4152,4152,4153
  229     4152 XSTRL = D(1)
  230     4153 BMIN = STLMN
  231          BMAX = STLMX
  232          BMIN = HSTMN
  233          BMAX = HSTMX
  234          BFMIN = STFMN
  235          BFMAX = STFMX
  236          SLUMIN = DSKLMU
  237          SLLMIN = DSKLML
  238          STUMIN = DSTLMU
  239          STLMIN = DSTLML
  240    C
  241    C             **XTYPE = TYPE OF STR/SPAR ORIENTATION**
  242    C              *1=CONST NOS, 2=CONST B.**
  243    C              *USE STRCN--D(393) FOR ID SETUP*
  244    C              *     0,1,3 = CONST B,  2=CONST NOS*
  245     416  XTYPE = D(1)
  246          IF (STRCN - D(2)) 4160,417,4160
  247     4160 XTYPE = D(2)
  248    C
  249    C            ***SETUP SPAR/STR SPACING AND NO OF SPAR/STR LIMITS***
  250     417  BSMIN = BMIN
  251          BSMAX = BMAX
  252          NSPMIN = SNMIN
  253          NSPMAX = SNMAX
  254    C
  255    C             **TYPE OF SEARCH CONTROL DATA--INPUT .B,NOS) OR SEARCH**
  256    C              *IF SEARCH, TEST FOR CONST NOS AND SETUP RANGE OF NOS*
  257    C
  258    C             **NOS RANGE = F(BMIN,BMAX, SPECIFIED NOSMIN,NOSMAX**
  259    C              *     NMAX = F(W(MIN)/BMIN OR INPUT MAX*
  260    C              *     NMIN = F(W(MIN)/BMAX OR INPUT MIN OR 0.)*
  261    C
  262     418  IF (ACSSID) 420,420,440
  263     420  IF (XTYPE - D(1)) 421,421,440
  264     421  IF (NSPMAX - NSPMIN) 422,440,423
  265     422  NSPMAX = NSPMIN
  266          GO TO 440
  267    C
  268     423  TT(1) = TBH(1)
  269          DO 425 I=1,10
  270          IF (TBH(I+1) - TT(1)) 424,425,425
  271     424  TT(1) = TBH(I+1)
  272     425  CONTINUE
  273    C
  274          TT(2) = TT(1)/BSMAX - D(1)
  275          TT(3) = TT(1)/BSMIN - D(1)
  276          TT(4) = DC(3)
  277          IF (TT(2)) 427,427,426
  278     426  TT(4) = INT(TT(2))
  279     427  TT(5) = DC(3)
  280          IF (TT(3)) 429,429,428
  281     428  TT(5) = INT(TT(3))
  282    C
  283    C             **COMPARE CALC NMIN,NMAX WITH INPUT NMIN,NMAX**
```

```
CARD NO  ****                          CONTENTS                          ****
  284    C              *USE LARGER OF MIN, SMALLER OF MAX*
  285     429  IF (NSPMIN - TT(4)) 430,430,431
  286     430  NSPMIN = TT(4)
  287     431  IF (TT(5) - NSPMAX) 432,432,433
  288     432  NSPMAX = TT(5)
  289     433  IF (NSPMAX - NSPMIN) 434,440,440
  290     434  NSPMIN = NSPMAX
  291    C
  292    C
  293    C            ***SETUP POINT ID--APRTID(1-11) AND (12) FROM DBKP(1-5)***
  294    C             **(1-11) = STATION DETAILS--0=NO PRINT, 1=PRINT.
  295    C             **   (12)=GENL DATA **
  296    C             *GENL DATA--PRINT ON DBKP(1)=1 OR 2 FOR NOOW SET BY
  297    C             *     DBKP(5)*
  298    C             *STATION DATA--PRINT ON DBKP(1)=2 ONLY FOR NOOW SET BY
  299    C             *     DBKP(5) AND STATIONS INDICATED BY DBKP(2,3,4)*
  300    C
  301     440  DO 441 I=1,12
  302          APRTID(I) = D(3)
  303     441  CONTINUE
  304          N = DBKP(5)
  305          IF (NOOW - N) 450,442,450
  306     442  APRTID(12) = DBKP(1)
  307    C
  308    C             **STATION ID**
  309          IF (DBKP(1) - D(2)) 450,443,450
  310     443  DO 445 I=1,3
  311          N = DBKP(I+1)
  312          IF (N) 445,445,444
  313     444  APRTID(N) = D(1)
  314     445  CONTINUE
  315    C
  316    C
  317    C            ***TEST FOR H/SPAR OR H/RIB ANALYSIS***
  318    C             **1=H/RIB,  2=H/SPAR**
  319    C
  320     450  IF (ACID - D(1)) 451,451,460
  321     451  CALL ACHRDS
  322    C
  323          GO TO 500
  324    C
  325    C            ***H/SPAR***
  326     460  CALL ACHMS
  327    C
  328    C            ***DO WEIGHT ANALYSIS***
  329     500  CALL ACWSTR
  330    C
  331    C                                                                CWSR2920
  332    C            ***PROCESS FINAL WTS.  ADD INBD PNL(0) DATA, SETUP SUMS***CWSR2929
  333     8900 TWT(1) = TWT(1) + TWT(56)                                  CWSR2930
  334          TWT(30) = TWT(30) + DTTR8(1)                               CWSR2935
  335          DO 8901 I=1,5                                              CWSR2940
  336          TWT(I+44) = TWT(I+44) + TWT(I+57)                          CWSR2945
  337          TC(I+133) = TWT(I+44)                                      CWSR2950
  338     8901 CONTINUE                                                   CWSR2955
  339    C                                                                CWSR2960
  340          TC(139) = TWT(52)                                          CWSR2965
  341          TC(140) = TWT(54)                                          CWSR2970
  342          TWT(40) = TWT(40) + TWT(55)                                CWSR2975
  343          TWT(41) = TWT(41) + TWT(55)                                CWSR2980
  344    C                                                                CWSR2990
  345    C                                                                CWSR3000
  346    C                                                                CWSR3110
  347    C                                                                CWSR3110
  348    C      SUM DELTA WF INTO ELEMENTS WTS                            CWSR3120
  349    C     UPPER COVER                                                CWSR3130
  350     700  TWT(9) = DLCVU*TWT(9) + TWT(19)                            CWSR3140
  351          TWT(10) = DLCVU*TWT(10) + TWT(20)                          CWSR3150
  352          TWT(11) = DLCVU*TWT(11) + TWT(21)                          CWSR3160
  353          TWT(12) = TWT(9) + TWT(10) + TWT(11)                       CWSR3170
  354    C                                                                CWSR3180
```

```
CARD NO  ****                          CONTENTS                          ****
  355    C      LOWER COVER                                              CNSR3190
  356           TWT(12) = DLCVL*TWT(12) + TWT(22)                        CNSR3200
  357           TWT(13) = DLCVL*TWT(13) + TWT(23)                        CNSR3210
  358           TWT(14) = DLCVL*TWT(14) + TWT(24)                        CNSR3220
  359           TWT(3) = TWT(2)+ TWT(13) + TWT(14)                       CNSR3230
  360    C                                                               CNSR3240
  361    C      I-RIBS                                                   CNSR3250
  362           TWT(5) = TWT(5) + TWT(25)                                CNSR3260
  363    C                                                               CNSR3270
  364    C      TORQUE-BOX MISC.                                         CNSR3280
  365           TWT(8) = TWT(8) + TWT(28) + TWT(23)                      CNSR3290
  366    C                                                               CNSR3300
  367    C      FRONT SPAR                                               CNSR3310
  368           TWT(15) = DELFS*TWT(15)                                  CNSR3320
  369           TWT(16) = DELFS*TWT(16) + TWT(26)                        CNSR3330
  370           TWT(6) = TWT(16)+ TWT(15)                                CNSR3340
  371    C                                                               CNSR3350
  372    C      REAR SPAR                                                CNSR3360
  373           TWT(17) = DELRS*TWT(17)                                  CNSR3370
  374           TWT(18) = DELRS*TWT(18) + TWT(27)                        CNSR3380
  375           TWT(7) = TWT(18)+ TWT(17)                                CNSR3390
  376    C                                                               CNSR3400
  377    C
  378    C                                                               CNSR2920
  379    C            ***TEST FOR NOOM PASS***                           TBOP2930
  380    C              *PROCESS PIVOT/C-SEC ON NOOM+1*                  TBOP2940
  381           IF (NOOM - NO(1)) 700,700,790                            TBOP2950
  382    C                                                               TBOP2960
  383    C           ****TEST FOR PIVOT CALC****                         CNSR3310
  384    C             *IF PIVOT, SAVE TC(1-340) IN TSC(41-380) AND CLEAR TC  TBOP3311
  385     700   IF (DYPVT) 701,701,7000                                  CNSR3320
  386     7000  DO 7001 I=1,340                                          CNSR3330
  387           TSC(I+40) = TC(I)                                        TBOP3340
  388           TC(I) = DC(3)                                            CNSR3350
  389     7001  CONTINUE                                                 CNSR3360
  390    C                                                               CNSR3370
  391           CALL PIVOT                                               CNSR3380
  392    C                                                               CNSR3390
  393    C                                                               CNSR3400
  394    C             ***TOTAL WEIGHTS/AV. FOR WING, HORI, VERT***      CNSR3410
  395    C               *(WT)/AV=(WT)/SIDC**2/K*                        CNSR3411
  396    C               *K=1 FOR WING AND HORI.  K=1 OR 2 FOR VERT=(NO OF PNLS)  CNSR3412
  397    C               *          K=2 FOR 1 PNL, 1 FOR 2 PNLS*          CNSR3413
  398    C                                                               CNSR3419
  399     751   DO 7010 I=1,149                                          CNSR3420
  400           TWT(I) = TWT(I)*D(2)/AMVID                               CNSR3430
  401     7010  CONTINUE                                                 CNSR3435
  402    C                                                               CNSR3438
  403    C           ****SAVE TWT(1-100) IN TEMP LOC CT(1-100)****       CNSR3439
  404           DO 702 I=1,100                                           CNSR3440
  405           CT(I) = TWT(I)                                           CNSR3441
  406     702   CONTINUE                                                 CNSR3442
  407    C                                                               CNSR3445
  408    C                                                               CNSR3450
  409    C       TEST FOR C-SEC WT CALC -- ID IN D(480)=C-SEC WIDTH AT C.L.  CNSR3460
  410    C       INTERIM C-SEC SUBR -- 10-14-65 --WIC-SEC)=DELCS*WT/IN AT SEC.(CNSR3470
  411    C                                                               CNSR3480
  412    C       DO C-SEC.  TEST FOR CALC IN SUBR                        CNSR3490
  413     710   CALL CSECH                                               CNSR3500
  414    C                                                               CNSR3510
  415    C       APPLY DEL(CU, CL, FS, RS) TO C-SEC ELEMENTS WTS         CNSR3520
  416           DO 711 I=1,2                                             CNSR3530
  417           TSS(I+8) = DLCS(1)*TSS(I+8)                              CNSR3540
  418           TSS(I+11)=DLCS(4)*TSS(I+11)                              CNSR3550
  419           TSS(I+14)=DLCS(3)*TSS(I+14)                              CNSR3560
  420           TSS(I+16)=DLCS(17)*TSS(I+16)                             CNSR3570
  421     711   CONTINUE                                                 CNSR3580
  422           TSS(11) = DLCS(1)*TSS(11)                                CNSR3590
  423           TSS(14) = DLCS(4)*TSS(14)                                CNSR3600
  424    C                                                               CNSR3610
  425           IF (TSS(1)) 712,714,712                                  CNSR3620
```

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CARD NO  ****                          CONTENTS                          ****
   426   C                                                                CNSR3630
   427   C            ***CSEC WT. DATA PRINT--SAME ID AS PRTA ID***       CNSR3638
   428   C              *SET N=1 FOR OUTPUT BY PRTH*                      CNSR3639
   429    712  IF (IPA) 714,714,713                                       CNSR3640
   430    713  N = ND(1)                                                  CNSR3650
   431         CALL PRTH                                                  CNSR3660
   432   C                                                                CNSR3670
   433   C            ***TOTAL WING DATA--OPNL + CSEC***                  CNSR3680
   434   C       WI(CSEC) = WI(STRU) + WI(MISC)                           CNSR3690
   435    714  TWT(43) = TSS(1) + TSS(2)                                  CNSR3700
   436         TWT(40) = TWT(40) + DELWG*TWT(43)                          CNSR3705
   437   C                                                                TBOP3706
   438   C              *TEST IF PIVOT DESIGN*                            TBOP3707
   439   C              *IF PIVOT, TOTALS DATA IN TSC(41-330),            TBOP3708
   440   C              *IF NO PIVOT, TOTALS DATA IN TC(1-340)*           TBOP3709
   441         IF (DYPVT) 715,715,716                                     TBOP3710
   442    715  TC(134) = TWT(43)*WHVID/D(2)                              CNSR3715
   443         TC(134) = TC(134) + TC(134)*DELWG                          CNSR3716
   444         GO TO 720                                                  CNSR3717
   445   C                                                                CNSR3719
   446    716  TSC(181) = TWT(43)*WHVID/D(2)                             CNSR3720
   447         TSC(174) = TSC(174) + TSC(181)*DELWG                       CNSR3725
   448   C                                                                CNSR3726
   449   C                                                                CNSR3727
   450   C            ***SAVE WT SUMMARIES SWT ARRAY FOR WDDATA SUBR***   CNSR3728
   451   C              *TWT(40-43),(46-52)=11*                           CNSR3729
   452    720  SWT(1) = TWT(40)                                           CNSR3730
   453         SWT(2) = TWT(41)                                           CNSR3735
   454         SWT(3) = DC(3)                                             CNSR3740
   455         SWT(4) = TWT(43)                                           CNSR3745
   456         DO 721 I=1,7                                               CNSR3750
   457         SWT(I+4) = TWT(I+45)                                       CNSR3755
   458    721  CONTINUE                                                   CNSR3760
   459   C                                                                CNSR3769
   460   C       SAVE TOTAL WEIGHT DATA FOR SUMMARY TABLE PRINT -- TYPE D CNSR3770
   461   C            **FOR BASIC OPNL, SAVE TWT(1-33),(35-43),(45-53),(67,70)*CNSR3771
   462   C                                                                CNSR3780
   463   C      FOR PIVOT CASE, COMPUTE DELTA WTS AND SETUP FINAL WT TABLE CNSR3790
   464   C       PIVOT WTS IN TSS(26-50) DELTA OPNL TWT(1-50) C-SEC TSS(1-25) CNSR3800
   465   C                                                                CNSR3810
   466   C            ***SAVE BASIC WTS ON RCDS 184, 185, 186 FOR GW(1,2,3)$$ CNSR3820
   467   C              *FINAL LOC FOR SUBR PRTD WILL BE CO(400-699)*     CNSR3830
   468   C                                                                CNSR3840
   469    750  DO 753 I=1,50                                              CNSR3850
   470         TSS(I+50) = TSS(I)                                         CNSR3855
   471         IF (I - 30) 751,751,753                                    CNSR3860
   472    751  TSS(I) = TWT(I)                                           CNSR3870
   473         IF (I - ND(8)) 752,752,753                                 CNSR3880
   474    752  TSS(I+30) = TWT(I+34)                                      CNSR3890
   475         TSS(I+38) = TWT(I+44)                                      CNSR3895
   476    753  CONTINUE                                                   CNSR3900
   477         TSS(49) = TWT(67)                                          CNSR3910
   478         TSS(50) = TWT(70)                                          CNSR3915
   479         IFN = IGW + 183                                            CNSR3916
   480         CALL WRITMS (1,TSS(1),100,IFN)                             CNSR3917
   481   C                                                                CNSR3918
   482   C       CHECK FOR DELTA PIVOT CALC  CLEAR TSS,TWT (1-50)         CNSR3920
   483    754  DO 755 I=1,50                                              CNSR3930
   484         TWT(I) = DC(3)                                             CNSR3940
   485         TSS(I) = DC(3)                                             CNSR3950
   486    755  CONTINUE                                                   CNSR3960
   487   C                                                                CNSR3969
   488         IF (DYPVT) 770,770,760                                     CNSR3970
   489   C                                                                CNSR3980
   490   C       DO DELTA WTS                                             CNSR3990
   491    760  CALL DLPVT                                                 CNSR4000
   492         SWT(3) = TSS(26)                                           CNSR4005
   493   C                                                                CNSR4010
   494   C            **RESET TC(1-340) FROM TSC(41-380)**                CNSR4020
   495         DO 761 I=1,340                                             CNSR4030
   496         TC(I) = TSC(I+40)                                          CNSR4040
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CARD NO **** CONTENTS ****

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 781  CONTINUE                                                    CNSR4050
C                                                                 CNSR4060
C       MOVE DELTA WT SUMMARIES                                   CNSR4070
C             *SAVE ON RCDS 187, 188, 189*                        CNSR4080
C             *FINAL LOC FOR SUDR PRTD WILL BE CD(800-1099)*      CNSR4090
 770  DO 771 I=1,50                                               CNSR4100
      TSS(I+50) = TSS(I)                                          CNSR4110
      TSS(I) = TWT(I)                                             CNSR4120
 771  CONTINUE                                                    CNSR4130
      IF4 = IGW + 186                                             CNSR4140
      CALL WRITMS (1,TSS(1),100,IF4)                              CNSR4150
C                                                                 CNSR4159
C          ***PIVOT WT, DELTA WT PRINT--SAVE ID AS PRTA ID***     CNSR4160
C             SET N=2 FOR DATA                                    CNSR4170
C        SET N=2 FOR PRTH PRINT--TEMP---                          CNSR4180
 780  N = ND(2)                                                   CNSR4190
      IF (DYPVT) 783,783,781                                      CNSR4200
 781  IF (IPA) 783,783,782                                        CNSR4210
 782  CALL PRTH                                                   CNSR4220
C                                                                 CNSR4230
C          **SETUP NODW=1 EXIT.  TEST FOR TYPE A PRINT**          CNSR4240
C          ***RESET TWT(1-100) FROM TEMP LOC CT(1-100) FOR PRTA PRINTCNSR4250
 783  DO 784 I=1,100                                              CNSR4260
      TWT(I) = CT(I)                                              CNSR4270
 784  CONTINUE                                                    CNSR4280
C                                                                 CNSR4290
C          ***TEST FOR DESIGN SUMMARY DATA--TYPE A.  NODW=1***    CNSR4300
C           **IF NO PRINT, SETUP STIFFNESS DATA IN CD(1-100),     CNSR4310
C            *    FROM RCD 40**                                   CNSR4320
C            *IF PRINT, ACPRTA WILL SETUP CD(1-400)**             CNSR4330
      IF (IPA) 785,785,791                                        CNSR4340
 785  CALL READMS (1,CD(1),400,40)                                CNSR4350
      GO TO 799                                                   CNSR4360
C                                                                 CNSR4370
C          ***NODW=2-5--TEST FOR TYPE A PRINT***                  CNSR4380
 790  IF (IPA) 799,799,791                                        CNSR4390
 791  CALL ACPRTA                                                 CNSR4400
C                                                                 CNSR4410
C                                                                 CNSR9900
C          ***EXIT***                                             CNSR9910
C                                                                 CNSR9950
 799  RETURN                                                      CNSR9990
      END                                                         CNSR9999
C*********************************************************************
C
C       *****SUBROUTINE ACLOAD*****
C   ***DESIGN LOAD DATA PROCESS - ADV. COMP. ANALYSIS***
C
C*********************************************************************
C
      SUBROUTINE ACLOAD                                           ACL00010
C                                                                 AL000020
C          ***AIR LOADS DATA PROCESSING SUBR***                   AL000030
C                                                                 AL000040
      COMMON T(2060),D(2060),CD(2000),ND(100),TH(900),CT(2048)    AL000150
      COMMON /IPRINT/ IP(80)                                      AL000151
C                                                                 AL000160
      DIMENSION DC(100),TSEC(300),TDGW(11),TT(24),                AL000170
     1PNZW(11),VPNZ(11),VNNZ(11),ZNNW(11),                        AL000171
     2ALPV(11),ALPW(11),ALNV(11),ALNW(11),                        AL000172
     3CALI(12),      TR(17),TO(300) TAND(9),CCLO(9),SIND(6),COSO(6), AL000173
     4PNZT(11),ZNNT(11),ALPT(11),ALNT(11),                        AL000174
     5WAVLID(24),WBO(200),ACL(900),TEMP(20),                      AL000175
     6TFLD(10),                                                   AL000176
     7TFLD1(8),DCDL1(8),                                          AL000177
     8YSTRC(11)                                                   AL000178
C                                                                 AL000180
      EQUIVALENCE (DC(1),D(1431)), (TSEC(1),CD(1501)) (TDGW(1),T(1430)), AL000180
     1(TT(1),T(1317)),(YSTRC(1),TSEC(168)),(DGWO,D(105)),         AL000191
     2(PNZ,D(85)),(ZNZ,D(86)),(DALV,D(255)),(DALCP,D(256)),       AL000192
     3(DCPCD,D(257)),(DCPVL,D(233)),(DEXV,D(232)),                AL000193
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CARD NO  ****                          CONTENTS                          ****
   568       %(ALOS,D(2351)),(ALOAR,D(2360)),(ALOIR,D(2371)),(ALOS1,D(2339)),      AL000194
   569       5(PNZN(1),D(2600)),(VPNZ(1),D(2637)),(VPNZ(1),D(2675)),(ZPN...(1),D(270AL000195
   570       6),(TAND(1),T(1222)),(CCLO(1),T(1313)),(SINA(1),T(1340)),              AL000196
   571       7(ALPV(1),T(554)),(ALPH(1),T(565)),(ALNV(1),T(576)),(ALNH(1),T(587)),ALO00197
   572       8),(CKNOL,D(3921))                                                     AL000198
   573    C                                                                         AL000199
   574        EQUIVALENCE (B02,T(12)),(DS1,T(15)),(EDXP,T(96)),(CF,T(52)),        AL000200
   575       1(CTIP,T(37)),(TANAC,T(38)),(INPEA,D(2401)),(DFCEA,D(127)),          AL000201
   576       2(CAL(1)),D(2201)),                  (TR(1),T(1305)),(TC(1),T(1001)),AL000202
   577       3(PNZ(1),D(1019)),(ZN(1),D(1033)),                                   AL000203
   578       4(ALP(1),T(877)),(ALN(1),T(889)),                                    AL000204
   579       5(COSO(1),T(1146)),(COTEA,T(152)),(ALREF,D(2391)),                   AL000205
   580       6(INPAGE,ND(65)),(NSEC,ND(C9)),                                      AL000208
   581       9(N,ND(31)),(K,ND(30)),(I,ND(29)),(LID,ND(54)),(NCASE,ND(60))        AL000209
   582    C                                                                       AL000210
   583        EQUIVALENCE (MMLID(1),CD(52)),(IZO(1),CD(550)),                     AL000220
   584       1(SLOID,D(205)),(TEMP(1),CT(2003)),                                  AL000221
   585       2(DPNZ,T(20)),(DPNZ,T(21)),(DSMO,D(1051),(TOSMO,D(E3)),              AL000222
   586       3(DMTI,D(259)),(VTID,D(209)),                                        AL000223
   587       4(TFLO(1),T(631)),(TT(1),T(637)),                                    AL000224
   588       8(DFLO(1),D(159)),(DCOL(1),D(167)),                                  AL000228
   589       9(ACL(1),CT(1)),(ILCASE,ND(4)))                                      AL000229
   590    C                                                                       AL000230
   591    C                                                                       AL000240
   592    C            ***TEST FOR TYPE OF LOADS CALC--IIFUT, CALC BY ALOAD OR    AL000250
   593    C              SETUP BY BLCNTL***                                       AL000260
   594    C              *CLEAR ACL(1-900)*                                       AL000270
   595     300  DO 301 I=1,900                                                    AL000280
   596          ACL(I) = DC(3)                                                    AL000290
   597     301  CONTINUE                                                         AL000300
   598    C                                                                       AL000310
   599    C              *CLEAR MMLID(1-24)-NO OF LOADS ID*                       AL000320
   600          DO 302 I=1,24                                                     AL000320
   601          MMLID(I) = DC(3)                                                  AL000340
   602     302  CONTINUE                                                         AL000350
   603    C                                                                       AL000360
   604          IF (SLOID) 310,310,320                                            AL000370
   605    C                                                                       AL000380
   606    C            ***SET UP TWO LOADS ONLY  FROM INPUT SET***                AL000390
   607     310  DO 311 I=1,11                                                    AL000400
   608          ACL(I) = ALPV(I)                                                  AL000410
   609          ACL(I+11) = ALPH(I)                                               AL000420
   610          ACL(I+22) = ALPT(I)                                               AL000430
   611          ACL(I+33) = ALNV(I)                                               AL000440
   612          ACL(I+44) = ALNH(I)                                               AL000450
   613          ACL(I+55) = ALNT(I)                                               AL000460
   614     311  CONTINUE                                                         AL000470
   615    C                                                                       AL000480
   616          ACL(661) = DPNZ                                                   AL000490
   617          ACL(662) = DPNZ                                                   AL000500
   618    C                                                                       AL000510
   619          DO 312 I=1,2                                                      AL000520
   620          ACL(I+680) = DMTI                                                 AL000530
   621          ACL(I+700) = D(I)                                                 AL000540
   622          ACL(I+720) = D(I)                                                 AL000550
   623          ACL(I+740) = D(I)                                                 AL000560
   624          ACL(I+760) = D(I)                                                 AL000570
   625          ACL(I+780) = D(I)                                                 AL000580
   626          ACL(I+800) = TOOMO                                                AL000590
   627          ACL (I+820) = DOMO                                                AL000600
   628     312  CONTINUE                                                         AL000610
   629    C                                                                       AL000620
   630    C             **NO OF LOADS=2**                                        AL000630
   631          ILCASE = ND(2)                                                    AL000640
   632    C                                                                       AL000650
   633          GO TO 380                                                         AL000660
   634    C                                                                       AL000670
   635    C            ***LOADS CALC BY BLCNTL ROUTINES--24 SETS ON RCD 160-183**AL001000
   636    C              *COND. CALC ID ON RCD 158--USE COND 1-23, BUT 20 MAX*    AL001010
   637    C                                                                       AL001020
   638     320  CALL READMS (1,MMLID(1),24,158)                                  AL001030
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CARD NO  ****                          CONTENTS                          ****
  639    C                                                                ALO01040
  640    C                                                                ALO01050
  641    C                                                                ALO01060
  642    C     VERTICAL TAIL LOADS SHOULD BE A SET EQUAL AND OPPOSITE
  643    C     LOADS.  THIS SECTION WILL DO JUST THAT WITHOUT RUNNING A COMPLETE
  644    C     NEW SET OF LOADS.  ONE EXCEPTION IS WHEN THERE IS A "T" TAIL THEN
  645    C     THE SET OF LOADS WILL BE TOO LARGE FOR THE DIMENSION
  646    C     STATEMENT .  SOME THE LOADS SETS ARE ROUTINELY ELIMINATED
  647    C     IN THIS SITUATION.
  648    C
  649          IF ( D(200) ) 3540,3540,3505                                 ALO01061
  650     3540 L4 = 0
  651          GO TO 3530
  652     3525 L4 = 11
  653     3530 ILCASE = DC(3)
  654          DO 3790 NN=1,23                                              ALO01080
  655          N=NN                                                         ALO01081
  656          IF ( VTID ) 3500,3500,3600                                   ALO01082
  657     3600 IF ( D(357)) 3500,3500,3505                                  ALO01082
  658     3505 N = 24+NN                                                    ALO01082
  659     3500 IF ( NAVLID(N)) 3790,3790,32                                 ALO01091
  660      321 ILCASE = ILCASE + ND(1)                                      ALO01100
  661          IFL = N + 159                                                ALO01110
  662          CALL READMS (1,NBO(1),200,IFL)                               ALO01120
  663    C                                                                  ALO01130
  664    C              *TEST FOR TAILS AND MOVE LOAD DATA TO WING LOC IF TAILS*ALO01140
  665          CHECK = 0.0                                                  ALO01090
  666          VERT = 0.0                                                   ALO01141
  667          IF ( VTID) 3210,3210,3211                                    ALO01142
  668     3211 VERT = 1.0                                                   ALO01143
  669     3210 K = 138                                                      ALO01150
  670          IF (VTID)  322,325,323                                       ALO01160
  671      322 K = 83                                                       ALO01170
  672      323 DO 324 I=1,44                                                ALO01180
  673          J = K + I                                                    ALO01190
  674          NBO(I+30) = NBO(J)                                           ALO01200
  675      324 CONTINUE                                                     ALO01210
  676    C
  677          IF ( VTID ) 325,325,3605                                     ALO01211
  678     3605 IF (D(357)) 325,325,3510                                     ALO01211
  679     3510 ACN = INT(NZO(1)/100.)                                       ALO01212
  680          A = INT(ACN/100.)                                            ALO01213
  681          A = 100. *A                                                  ALO01213
  682          NN = ACN - A                                                 ALO01214
  683          IF ( NN .GE. 18 ) GO TO 325                                  ALO01215
  684          IF ( NN .GE. 14 ) GO TO 3252                                 ALO01216
  685          IF ( NN .GE. L4 ) GO TO 325                                  ALO01217
  686          CHECK = 1.0                                                  ALO01218
  687          IF ( NN .LE. 1 )  CHECK = 0.0                                ALO01218
  688    C                                                                  ALO01220
  689    C              **MOVE V,M,T--STORED TIP TO ROOT IN BO ARRAY**      ALO01230
  690    C               *REORDER TO ROOT-TIP*                              ALO01240
  691      325 K = ILCASE*33 -33                                            ALO01250
  692          DO 3250 I=1,11                                               ALO01260
  693          L = K + I                                                    ALO01270
  694          J = ND(4)*(ND(12) - 1) + ND(3)                               ALO01280
  695          ACL(L) = NBO(J+31)                                           ALO01290
  696          ACL(L+11) = NBO(J+32)                                        ALO01300
  697          ACL(L+22) = NBO(J+33)                                        ALO01310
  698     3250 CONTINUE                                                     ALO01320
  699          IF( ABS(ACL(K+1))+ABS(ACL(K+12))+ABS(ACL(K+23))-1.0)         ALO01321
  700         1 3252,3252,3251                                              ALO01321
  701     3252 ILCASE = ILCASE-ND(1)                                        ALO01322
  702          GO TO 3790                                                   ALO01323
  703    C                                                                  ALO01330
  704    C              **SETUP GENL DATA**                                 ALO01340
  705    C                                                                  ALO01341
  706    C               ***TEMP FIX FOR DELTA FUEL/COL SEQUENCE***         ALO01342
  707      3251 IF (CHECK ) 3515,3515,3520                                  ALO01331
  708     3520 FMX1 = ABS ( ACL(LPREV + 11))                                ALO01332
  709          FMX2 = ABS ( ACL(L+11 ))                                     ALO01333
```

CARD NO	**** CONTENTS	****
710	CHECK = 0.0	AL001334
711	IF (FMX2 .LT. FMX1) GO TO 3252	AL001335
712	ILCASE = ILCASE - 2	AL001336
713	GO TO 325	AL001337
714	3515 WBO(191) = DFLD(3)	AL001342
715	WBO(192) = DFLD(7)	AL001343
716	WBO(189) = DCDL(3)	AL001344
717	WBO(190) = DCDL(7)	AL001345
718	C	AL001349
719	C *NZ, TEMP, RDW, RFL1, RFL2, RCDL1, RCDL2, TOSW, DSW*	AL001350
720	ACL(ILCASE+660) = WBO(18)	AL001360
721	ACL(ILCASE+840) = WBO(1)	AL001365
722	ACL(ILCASE+800) = WBO(181)	AL001370
723	ACL(ILCASE+820) = WBO(182)	AL001380
724	ACL(ILCASE+860) = WBO(184)	AL001381
725	ACL(ILCASE+890) = WBO(185)	AL001382
726	ACL(ILCASE+680) = WBO(186)	AL001390
727	ACL(ILCASE+700) = D(1)	AL001400
728	IF (VTID) 326,7	AL001410
729	326 ACL(ILCASE+680) = WBO(187)	AL001420
730	IF (WBO(20)) 327,329,329	AL001430
731	327 ACL(ILCASE+700) = -D(1)	AL001440
732	GO TO 329	AL001450
733	328 ACL(ILCASE+680) = WBO(188)	AL001460
734	C	AL001470
735	C **SETUP DELTA FUEL AND CDL CONSTANTS**	AL001480
736	329 ACL(ILCASE+720) = TFLD(1)	AL001490
737	ACL(ILCASE+740) = TFLD(2)	AL001500
738	ACL(ILCASE+760) = D(1)	AL001510
739	ACL(ILCASE+780) = D(1)	AL001520
740	IF (VTID) 370,330,370	
741	330 ACL(ILCASE+760) = D(1) - WBO(189)	AL001540
742	ACL(ILCASE+780) = D(1) - WBO(190)	AL001550
743	C	AL001560
744	C *FUEL CONSTANTS*	AL001570
745	IF (WBO(184)) 370,370,331	AL001580
746	331 ACL(ILCASE+720) = D(1)	AL001590
747	ACL(ILCASE+740) = D(1)	AL001600
748	C	AL001610
749	C *TEST FUEL CELL-1. 0=NO, 1=YES*	AL001620
750	IF (WBO(191)) 332,332,337	AL001630
751	332 IF (WBO(192)) 370,370,333	AL001640
752	C	AL001650
753	C *FUEL CELL 2 ONLY. NO CHANGE IN FUEL CELL 1*	AL001660
754	333 IF (TFLD(8)) 370,370,334	AL001670
755	334 TT(2) = TFLD(8) - WBO(184)/D(2)	AL001680
756	IF (TT(2)) 335,336,336	AL001690
757	335 TT(2) = DC(3)	AL001700
758	336 ACL(ILCASE+740) = (TT(2) + TFLD(10))/TFLD(8)	AL001710
759	GO TO 370	AL001720
760	C	AL001730
761	C *CELL 1 OR 2. CHECK 1 FIRST*	AL001740
762	337 IF (WBO(191) - D(2)) 338,346,346	AL001750
763	C	AL001760
764	C *SEQUENCE=1,2. CHECK FOR FUEL IN CELL 1.*	AL001770
765	338 IF (TFLD(7)) 332,332,339	AL001780
766	339 TT(1) = TFLD(7) - WBO(184)/D(2)	AL001790
767	IF (TT(1)) 341,340,340	AL001800
768	C	AL001810
769	C *CELL 1 ONLY*	AL001820
770	340 ACL(ILCASE+720) = (TT(1) + TFLD(9))/TFLD(5)	AL001830
771	GO TO 370	AL001840
772	C	AL001850
773	C *CELL 1 AT ZERO FUEL. TEST CELL 2*	AL001860
774	341 TT(2) = TT(1)	AL001870
775	TT(1) = DC(3)	AL001880
776	IF (WBO(192)) 340,340,342	AL001890
777	342 IF (TFLD(8)) 340,340,343	AL001900
778	C	AL001910
779	C *EXPEND FUEL FROM CELL 2. TT(2) = AMOUNT TO BE EXPENDED	AL001920
780	343 TT(2) = TT(2) + TFLD(8)	AL001930

```
CARD NO  ****                          CONTENTS                          ****
  781          IF (TT(2)) 344,345,345                                    ALOD1940
  782      344 TT(2) = DC(3)                                             ALOD1950
  783      345 ACL(ILCASE+740) = (TT(2) + TFLD(10))/TFLD(8)              ALOD1960
  784          GO TO 348                                                 ALOD1970
  785      C                                                             ALOD1980
  786      C              *SEQUENCE=2,1.  CHECK FOR FUEL IN CELL 2*      ALOD1990
  787      346 IF (WBO(102)) 330,330,347                                 ALOD2000
  788      347 IF (TFLD(8)) 330,330,348                                  ALOD2010
  789      348 TT(2) = TFLD(8) - WBO(104)/D(2)                           ALOD2020
  790          IF (TT(2)) 349,336,336                                    ALOD2030
  791      349 TT(1) = TT(2)                                             ALOD2040
  792          TT(2) = DC(3)                                             ALOD2050
  793      C                                                             ALOD2060
  794      C              *TEST CELL 1*                                  ALOD2070
  795          IF (TFLD(7)) 330,330,350                                  ALOD2080
  796      350 TT(1) = TT(1) - TFLD(7)                                   ALOD2090
  797          IF (TT(1)) 351,345,345                                    ALOD2100
  798      351 TT(1) = DC(3)                                             ALOD2110
  799          GO TO 345                                                 ALOD2120
  800      C                                                             ALOD2130
  801      C                                                             ALOD2500
  802      C            ***CHECK NO OF CASES BEFORE LOOP***              ALOD2510
  803      C              *SETUP I   CASE MAX*                           ALOD2520
  804      370 IF (ILCASE - 20) 376,380,380                              ALOD2530
  805      C                                                             ALOD2540
  806      378 IF (VTID) 3790,3790,3800                                  ALOD2550
  807      3800 IF (VERT) 3790,3790,3805                                 ALOD2551
  808      3805 VERT = 0.0                                               ALOD2552
  809           ILCASE = ILCASE + ND(1)                                  ALOD2553
  810           IF ( ILCASE-20) 3792,3792,380                            ALOD2554
  811      3792 DO 3791 I = 1,11                                         ALOD2555
  812           J = ND(4)*I - ND(3)                                      ALOD2556
  813           WBO(J+31)=-WBO(J+31)                                     ALOD2557
  814           WBO(J+32)=-WBO(J+32)                                     ALOD2558
  815      3791 WBO(J+33)=-WBO(J+33)                                     ALOD2559
  816             GO TO 325                                              ALOD2560
  817      3790 LPREV = ILCASE* 33 - 32                                  ALOD2561
  818      C                                                             ALOD2580
  819      C                                                             ALOD3000
  820      C            ***SAVE ACL ARRAY ON RCD 30***                   ALOD3010
  821      380 CALL WRITMS (1,ACL(1),900,30)                             ALOD3020
  822      C                                                             ALOD3030
  823      C              **SETUP TEMP(1-20.**                           ALOD3040
  824           DO 381 I=1,20                                            ALOD3050
  825           TEMP(I) = ACL(I+680)                                     ALOD3060
  826      381 CONTINUE                                                  ALOD3070
  827      C                                                             ALOD3080
  828      C                                                             ALOD3090
  829      C            ***TEST FOR PRINT--IP 19***                      ALOD3100
  830      C              *PRINT DESIGN DATA SUMMARY*                    ALOD3110
  831           IF (IP(19)) 382,382,390                                  ALOD3120
  832      382 NPAGE = NPAGE + ND(1)                                     ALOD3130
  833           WRITE (6,383)NCASE,NPAGE                                 ALOD3140
  834      383 FORMAT (1H1     CASE14,T25,56H-***-BASIC LIMIT AIRLOAD DATA--ADV CALOD3150
  835         1OMPOSITE ANALYSIS-***-,T100,4HPAGE,I4,//10HO  COND       TOON    ALOD3160
  836         2   DSN     DEL-FL    DEL-UL     NZ      TEMP      RDN     RFL1    RFLALOD3170
  837         32    RCDL1   RCDL2 )                                     ALOD3180
  838      384 FORMAT (F9.1,2F11.1,2F10.1,F8.3,F8.1,5F8.4)               ALOD3190
  839      C                                                             ALOD3200
  840           DO 385 N=1,ILCASE                                        ALOD3210
  841           WRITE (6,384)ACL(N+040),ACL(N+000),ACL(N+020),ACL(N+060),ACL(N+080)ALOD3220
  842         1),ACL(N+060),ACL(N+080),ACL(N+700),ACL(N+720),ACL(N+740),ACL(N+760ALOD3230
  843         2),ACL(N+780)                                              ALOD3240
  844      385 CONTINUE                                                  ALOD3250
  845      C                                                             ALOD3260
  846      C            **TEST FOR PRINT OF PROCESSED LOADS--IP 20**     ALOD3260
  847           IF (IP(20)) 386,386,390                                  ALOD3270
  848      386 WRITE (6,387)                                             ALOD3280
  849      387 FORMAT (9HN1       ***-DESIGN LOADS SUMMARY--ACL ARRAY--IP 20-**-,ALOD3290
  850         1/8H0 ACL )                                                ALOD3300
  851      388 FORMAT (1H I4,F11.1,F13.1,F12.1,F11.1,F13.1,F12.1)        ALOD3310
```

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CARD NO  ****                          CONTENTS                          ****
  052    C                                                                ALC03320
  053          DO 389 N=1,660,6                                           ALC03330
  054          K = N + ND(5)                                              ALC03340
  055          WRITE (6,388)N,(ACL(I),I=N,K,1)                            ALC03350
  056     389  CONTINUE                                                   ALC03360
  057    C                                                                ALC03370
  058    C              **EXIT**                                          ALC04990
  059     388  RETURN                                                     ALC04998
  060          END                                                        ALC04999
  061    C**********************************************************************
  062    C
  063    C       *****SUBROUTINE TEMPC*****
  064    C   ***MATERIAL PROPERTIES EVAL FOR ADV. COMP. MATERIALS***
  065    C
  066    C**********************************************************************
  067    C
  068    C**********************************************************************
  069    C
  070          SUBROUTINE TEMPC                                           TEMP0010
  071    C             **COMPOSITE MATL LAMINA PROPERTIES                  TEMP0020
  072    C
  073    C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
  074    C  SUBROUTINE TO CALCULATE LAMINA PROPERTIES AND ALLOWABLES
  075    C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
  076    C                                                                TEMP0030
  077          COMMON T(9100)                                             TEMP0040
  078          COMMON /IPRINT/ IP(80)
  079    C                                                                TEMP0050
  080          DIMENSION D(2060),CD(2000),ND(100),TM(900),CT(2040),TMT(400),   TEMP0060
  081         1ENH(6),ENP(9),                                             TEMP0081
  082         2PROP(7),TEMP(20),TC(5,7),G(20),                            TEMP0082
  083         3ENOC(6,4),TEIGJ(4),REFSTE(4),REFSTG(4),                    TEMP0083
  084         4CFMTL(5,3),FDMCY(20),FDMFE(20),FDMFG(20),                  TEMP0084
  085         5EBOT(20),
  086         6ENC(3),END(5,20),ENX(3,20)                                 TEMP0086
  087    C                                                                TEMP0070
  088          EQUIVALENCE (D(1),T(2061)),(CD(1),T(4121)),(ND(1),T(6121)),     TEMP0080
  089         1(TM(1),T(6221)),(CT(1),T(7121)),(TMT(1),CD(1101)),         TEMP0081
  090         2(ENP(1),D(1195)),(ENH(1),D(1184)),(TC(1,1),D(1170)),       TEMP0082
  091         3(TEMP(1),CT(2003)),(PROP(1),T(1300)),                      TEMP0083
  092         4(END(1,1),TM(601)),(ENX(1,1),TM(701)),                     TEMP0084
  093         5(ENC(1),CT(2043)),(G(1),CT(2023)),                         TEMP0085
  094         6(ENOC(1,1),TM(787)),(TEIGJ(1),TM(783)),                    TEMP0086
  095         7(REFSTE(1),TM(811)),(REFSTG(1),TM(815)),                   TEMP0087
  096         8(NCASE,ND(60)),                                            TEMP0088
  097         9(ILCASE,ND(41)),(ND(1),T(6121))                            TEMP0089
  098    C                                                                TEMP0090
  099          EQUIVALENCE (CFMTL(1,1),D(580)),(CFSHU,D(595)),(CFSCY,D(596)),  TEMP0100
  100         1(CFSE,ENH(2)),(CFSG,ENH(3)),                               TEMP0101
  101         2(ACCVID,D(431)),                                           TEMP0102
  102         3(EBOT(1),TM(819)),(PI,D(15)),
  103         9(FDMCY(1),TM(841)),(FDMFE(1),TM(861)),(FDMFG(1),TM(881))   TEMP0109
  104    C                                                                TEMP0110
  105          IF (ENP(5).GT.0.0)ENP(5)=-ENP(5)
  106    C
  107    C             **TEST FOR MATL PRINT--IP(18)**
  108     206  IF (IP(19)) 201,201,220
  109    C
  110     201  WRITE (6,202)NCASE
  111          WRITE (6,203)
  112     202  FORMAT (1H1     CASE,14,62H      ---TORQUE-BOX MATERIAL DATA--AD
  113         IV. COMPOSITE DESIGN---  ,6X,20H** TEMPC - IP(19) **)
  114    C
  115     203  FORMAT (6BH0  LOAD ID   TEMP.      EL         ET         GXY
  116         1NUXY      FTU        FCU        FSU )
  117     204  FORMAT (7X,I2,1X,F8.1,F12.1,2F11.1,F7.4,2F10.1,F9.1)
  118    C
  119     220  CONTINUE
  120    C
  121          DO 2 LCASE=1,ILCASE
  122          IF (TEMP(LCASE).NE.72.0) GO TO 6
```

```
CARD NO  ****                          CONTENTS                          ****
  923    C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
  924    C  IF TEMP= 72 DEGREES, PROPERTIES ARE THOSE OF ROOM TEMPERATURE
  925    C
  926         DO 7 I=1,7
  927       7 PROP(I)=ENP(I)
  928         GO TO 8
  929       8 CONTINUE
  930    C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
  931    C  INTERPOLATE TO FIND PROPERTIES
  932    C
  933         NL=INT(TEMP(LCASE)/100.)
  934         F=TEMP(LCASE)/100.-FLOAT(NL)
  935         NL=NL+1
  936         NU=NL+1
  937         DO 1 I=1,7
  938       1 PROP(I)=ENP(I)+(TC(NL,I)+F*(TC(NU,I)-TC(NL,I)))/100.
  939       8 CONTINUE
  940         G(LCASE)=PROP(3)
  941         XX=1.-PROP(4)**2*PROP(2)/PROP(1)
  942    C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
  943    C  CALCULATE LAMINA PROPERTIES
  944    C
  945         END(1,LCASE)=PROP(1)/XX
  946         END(2,LCASE)=PROP(2)/XX
  947         END(3,LCASE)=PROP(4)*END(2,LCASE)
  948         END(4,LCASE)=.25*(END(1,LCASE)+END(2,LCASE)+2.*(END(3,LCASE)+2.*PR
  949        2OP(3)))
  950         END(5,LCASE)=.25*(END(1,LCASE)+END(2,LCASE)+2.*(END(3,LCASE)-2.*PR
  951        2OP(3)))
  952    C
  953    C  CALCULATE LAMINA ALLOWABLES
  954    C
  955         ENX(1,LCASE)=PROP(6)*2.*ENP(9)
  956         ENX(2,LCASE)=PROP(5)*2.*ENP(9)
  957         ENX(3,LCASE)=PROP(7)*4.*ENP(9)
  958    C
  959    C            ***BUCKLING CONSTANT FOR STR ***
  960         EBOT(LCASE) = PI/12.0*PI*(SQRT(  2(1,LCASE)*END(2,LCASE)) + END(3,
  961        1LCASE) + 2.0*G(LCASE))
  962    C
  963    C              *TEST PRINT*
  964         IF (IP(19)) 221,221,2
  965     221 WRITE (6,204)LCASE,TEMP(LCASE),(PROP(I),I=1,7)
  966    C
  967       2 CONTINUE
  968    C
  969    C  CALCULATE HONEYCOMB PROPERTIES
  970    C
  971         ENC(1)=2.*ENH(6)*ENH(1)/ENH(5)
  972         XX=ENC(1)/ENH(1)
  973         ENC(2)=2.13*XX**1.415 *ENH(2)
  974         IF(XX-.033)3,4,4
  975       3 ENC(3)=2.43*XX**1.54*ENH(3)
  976         GO TO 5
  977       4 ENC(3)=.4*XX*ENH(3)
  978       5 CONTINUE
  979    C
  980    C            **TEST PRINT OF ENC AND END ARRAYS**
  981         IF (IP(19)) 230,230,100
  982     230 WRITE (6,231)
  983     231 FORMAT (1140H0  LOAD ID     END(1)     END(2)    END(3)     END(4)
  984        1   END(5)      ENX(1)    ENX(2)    ENX(3)     EBOT)  )
  985     232 FORMAT (7X,I2,1X,F12.1,F11.1,F10.1,2F11.1,1X,3F10.1,F12.1)
  986    C
  987         DO 233 I=',ILCASE
  988         WRITE (6,232)I,END(1,I),END(2,I),END(3,I),END(4,I),END(5,I),ENX(I,
  989        1I),ENX(2,I),ENX(3,I),EBOT(I)
  990     233 CONTINUE
  991    C
  992    C
  993    C
```

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CARD NO  ****                          CONTENTS                          ****
  994      C             **PRINT HEADINGS FOR REF TEMP DATA**
  995       240  WRITE (6,241)
  996      C
  997       241  FORMAT (62H0            ***-ENOC PROPERTIES FOR STIFFNESS CALCULATI
                 ONS-***-//11OH     ITEM     TEMP.       EL          GXY        ENOC
  999            2I)    ENOC(2)   ENOC(3)    ENOC(4)    ENOC(5)    ENOC(6) )
 1000      C
 1001       242  FORMAT (12H  ST. REF.  ,F7.1,3F12.1,F11.1,F10.1,3F11.1)
 1002       243  FORMAT (12H  FLUT. REF.,F7.1,3F12.1,F11.1,F10.1,3F11.1)
 1003       244  FORMAT (12H  FLUT/DPTH.,F7.1,3F12.1,F11.1,F10.1,3F11.1)
 1004       245  FORMAT (12H  FLEX/LOADS,F7.1,3F12.1,F11.1,F10.1,3F11.1)
 1005      C
 1006      C             ***CALC ENOC PROPERTIES FOR STIFFNESS CALC***
 1007       100  DO 109 N=1,4
 1008            DO 1000 I=1,6
 1009            ENOC(I,N) = 0.0
 1010       1000 CONTINUE
 1011      C
 1012            DO 101 I=1,7
 1013            PROP(I) = ENP(I)
 1014       101  CONTINUE
 1015      C
 1016            IF (TEIGJ(N)) 102,109,102
 1017       102  IF (TEIGJ(N) - 72.0) 103,105,103
 1018      C
 1019      C              **INTERPOLATE AT TEMP(N)**
 1020       103  NL = INT(TEIGJ(N)/100.0)
 1021            F = TEIGJ(N)/100.0 - FLOAT(NL)
 1022            NL = NL + 1
 1023            NU = NL + 1
 1024            DO 104 I=1,7
 1025            PROP(I) = ENP(I)+(TC(NL,I) + F*(TC(NU,I) - TC(NL,I)))/100.0
 1026       104  CONTINUE
 1027      C
 1028      C              **CALC ENOC(1-6) FOR EACH TEMP**
 1029       105  XX = 1.0 - PROP(4)**2*PROP(2)/PROP(1)
 1030            ENOC(1,N) = PROP(1)/XX
 1031            ENOC(2,N) = PROP(2)/XX
 1032            ENOC(3,N) = PROP(4)*ENOC(2,N)
 1033            ENOC(4,N) = 0.25*(ENOC(1,N) + ENOC(2,N) + 2.0*(ENOC(3,N) + 2.0*PRO
                P(3)))
 1035            ENOC(5,N) = 0.25*(ENOC(1,N) + ENOC(2,N) + 2.0*(ENOC(3,N) - 2.0*PRO
                P(3)))
 1037            ENOC(6,N) = 0.25*(ENOC(1,N) + ENOC(2,N) - 2.0* ENOC(3,N) )
 1038      C
 1039      C              **SAVE REF E AND G**
 1040            REFSTE(N) = PROP(1)
 1041            REFSTG(N) = PROP(3)
 1042      C
 1043      C              **TEST FOR ENCO PRINT**
 1044            IF (IP(19)) 2460,2460,109
 1045      C
 1046      C             ***PRINT OF ENOC PROPERTIES FOR STIFF CALC***
 1047       2460 IF (N - 2) 246,247,248
 1048       248  WRITE (6,242)TEIGJ(1),REFSTE(1),REFSTG(1),ENOC(1,1),ENOC(2,1),ENOC
                (3,1),ENOC(4,1),ENOC(5,1),ENOC(6,1)
 1050            GO TO 109
 1051      C
 1052       247  WRITE (6,243)TEIGJ(2),REFSTE(2),REFSTG(2),ENOC(1,2),ENOC(2,2),ENOC
                (3,2),ENOC(4,2),ENOC(5,2),ENOC(6,2)
 1054            GO TO 109
 1055      C
 1056       248  IF (N - 4) 249,250,250
 1057       249  WRITE (6,244)TEIGJ(3),REFSTE(3),REFSTG(3),ENOC(1,3),ENOC(2,3),ENOC
                (3,3),ENOC(4,3),ENOC(5,3),ENOC(6,3)
 1059            GO TO 109
 1060      C
 1061       250  WRITE (6,245)TEIGJ(4),REFSTE(4),REFSTG(4),ENOC(1,4),ENOC(2,4),ENOC
                (3,4),ENOC(4,4),ENOC(5,4),ENOC(6,4)
 1063      C
 1064       109  CONTINUE
```

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CARD NO  ****                          CONTENTS                          ****

1065      C
1066      C          ***TEST ACCVID.  3=MC CORE E,G REQD AT 20 LOAD COND.***
1067           IF (3.0 - ACCVID) 260,260,2695
1068       260 DO 269 LCASE=1,NLCASE
1069           FDHCY(LCASE) = 0.0
1070           FDHFE(LCASE) = 0.0
1071           FDHFG(LCASE) = 0.
1072           IF (TEMP(LCASE)) 261,259,261
1073       261 PROP(1) = CFBE
1074           PROP(2) = CFBMU
1075           PROP(3) = CFBCY
1076           IF (TEMP(LCASE) - 72.0) 262,264,262
1077       262 NL = INT(TEMP(LCASE)/100.0)
1078           F = TEMP(LCASE)/100.0 - FLOAT(NL)
1079           NL = NL+1
1080           NU = NL + 1
1081           DO 263 I=1,3
1082           PROP(I) = PROP(I)*(CFMTL(NL,I)+F*(CFMTL(NU,I)-CFMTL(NL,I)))/100.0
1083       263 CONTINUE
1084      C
1085      C            **CALC FOIL G AND MOVE FOIL E AND FCY***
1086       264 FDHCY(LCASE) = PROP(3)
1087           FDHFE(LCASE) = PROP(1)
1088           FDHFG(LCASE) = PROP(1)/(2.0*(1.0 + PROP(2)))
1089       269 CONTINUE
1090      C
1091           WRITE (6,2690)
1092       2690 FORMAT (30H0     ***HONEYCOMB CORE PROPERTIES*** )
1093       2691 FORMAT (4X,I2,3E16.8)
1094           DO 2692 I=1,20
1095           WRITE (6,2691) I,FDHCY(I),FDHFE(I),FDHFG(I)
1096       2692 CONTINUE
1097      C
1098      C
1099       2695 RETURN
1100           END
1101      C*************************************************************************
1102      C
1103      C       *****SUBROUTINE AVLOAD*****
1104      C  ***NET ULTIMATE LOADS EVALUATION - ADV. COMP. ANALYSIS***
1105      C
1106      C*************************************************************************
1107      C
1108           SUBROUTINE AVLOAD                                          AVL00010
1109      C                                                               AVL00011
1110      C************COMPOSITE STRUCTURE ANALYSIS VERSION OF SUBR VLOAD********AVL00012
1111      C            ***REVISED TO EVALUATE UP TO 20 LOAD CASES***      AVL00013
1112      C                                                               AVL00014
1113      C                                                               VL000019
1114      C                                                               VL000020
1115      C            ***NET ULT DESIGN LOADS CALC SUBR***               VL000030
1116      C                                                               VL000040
1117      C            **LIS = TYPE OF LOAD SET ID***                     VL000050
1118      C              *1 = GROSS, CALC*                                VL000060
1119      C              *2 = GROSS, INPUT*                               VL000070
1120      C              *3 = INPUT, NET*                                 VL000080
1121      C                                                               VL000090
1122      C                                                               VL000100
1123      C                                                               VL000150
1124           COMMON T(2060),D(23E3),CD(2000),ND(100),TM(900),CT(204)    AVL00160
1125           COMMON /IPRINT/ IP(80)                                     VL000161
1126      C                                                               VL000170
1127           DIMENSION DC(100),TT(24),TSEC(300),                        VL000180
1128          1ALPV(11),ALPH(11),ALPT(11),ALNV(11),ALNH(11),ALNT(11),     VL000190
1129          2TDGN(10),ULTPT(11),ULTNT(11),                              VL000192
1130          3DNV(11),DNH(11),DNT(11),SDNV(11),SDNH(11),SDNT(11),        VL000193
1131          4UWFS(11),UVRS(11),CVFS(11),DVRS(11),                       VL000194
1132          5TDNV(11),TDNH(11),TDNT(11),                                VL000195
1133          6GJROD(11),DVFSRS(11),                                      VL000196
1134          8RLDS(132),                                                 VL000198
1135          9ULTPV(11),ULTPH(11),ULTNV(11),ULTNH(11)                    VL000199
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CARD NO  ****                          CONTENTS                          ****
1136     C                                                                AVL00200
1137           DIMENSION ACL(900),ACVIT(600),ACLT(66),                    AVL00201
1138          1STHV(11),ST2H(11),STHT(11),                                AVL00202
1139          2FLV1(11),FLM1(11),FLT1(11),FLV2(11),FLM2(11),FLT2(11),     AVL00203
1140          3CDLV1(11),CDLM1(11),CDLT1(11),CDLV2(11),CDLM2(11),CDLT2(11),AVL00204
1141          4CDLV3(11),CDLM3(11),CDLT3(11)                             AVL00205
1142     C                                                                AVL00210
1143     C                                                                AVL00210
1144           EQUIVALENCE (DC(1),D(1401)),(UPNZ,D(285)),(UFNZ,D(288)),   AVL00220
1145          1(ULTLF,D(122)),(TT(1),T(1317)),(TSEC(1),CD(1501)),        AVL00221
1146          2(ALPV(1),T(554)),(ALPH(1),T(565)),(ALPT(1),T(877)),(ALNV(1),T(57AVL00222
1147          3),(ALN(1),T(567)),(ALNT(1),T(889)),(TDG(1),T(430)),       AVL00223
1148          4(DMV(1),T(599)),(DMM(1),T(609)),(DMT(1),T(620)),          AVL00224
1149          5(ULTPH(1),TSEC(1)),(ULTFV(1),TSEC(121)),(ULTHV(1),TSEC(111)),(ULTHMAVL00225
1150          6(1),TSEC(122)),(GJROD(1),T(668)),(DGH,T(22)),             AVL00226
1151          7(DGHR,TDGH(2)),(EDAK,TDGH(3)),(TBOK,TDGH(4)),             AVL00227
1152          8(INCASE,ND(60)),(ISDM,ND(  )),(IGM,ND(61)),(IOPT,ND(62)), AVL00228
1153          9(NPAGE,ND(65)),(LID,ND(50)),(N,ND(30)),(K,ND(31))         AVL00229
1154     C                                                                AVL00230
1155           EQUIVALENCE (UVFS(1),TSEC(123)),(UVRS(1),TSEC(134)),       AVL00240
1156          1(ULTPT(1),TSEC(144)),(ULTNT(1),TSEC(155)),                AVL00241
1157          2(SDMV(1),T(894)),(SDMM(1),T(905)),(SDMT(1),T(916)),       AVL00242
1158          3(RLDS(1),CD(1400)),                                       AVL00243
1159          8(TDMV(1),CD(1968)),(TDGM(1),CD(1979)),(TDMT(1),CD(1990)), AVL00248
1160          9(DWFSRS(1),CD(1924)),(DVFS(1),D(1942)),(DVRS(1),D(1953))  AVL00249
1161     C                                                                AVL00250
1162     C                                                                AVL00240
1163           EQUIVALENCE (ACL(1),CT(1)),(ACVIT(1),CT(1321)),(ACLT(1),CD(5321)), AVL00250
1164          1(STHV(1),T(811)),(STHH(1),T(822)),(STHT(1),T(833)),       AVL00251
1165          2(FLV1(1),T(745)),(FLM1(1),T(756)),(FLT1(1),T(767)),       AVL00252
1166          3(FLV2(1),T(778)),(FLM2(1),T(789)),(FLT2(1),T(791)),       AVL00253
1167          4(CDLV1(1),T(309)),(CDLM1(1),T(320)),(CDLT1(1),T(331)),    AVL00254
1168          5(CDLV2(1),T(342)),(CDLM2(1),T(353)),(CDLT2(1),T(364)),    AVL00255
1169          6(CDLV3(1),T(375)),(CDLM3(1),T(325)),(CDLT3(1),T(397)),    AVL00256
1170          7(TDGH(1),T(430)),(CDLK3,TDGH(15)),                        AVL00257
1171          8(ILCASE,ND(41))                                           AVL00258
1172     C                                                                AVL00260
1173     C            ***CHECK BK PRINT***                                VL000251
1174     C              *IP 25 FOR NOOH = 1 ONLY*                         VL000252
1175     C              *IP 24 FOR ALL NOOH*                              VL000253
1176     C              *SET TT(3) TO 0 FOR NO PRINT, 1 FOR PRINT*        VL000254
1177      100  TT(3) = DC(3)                                              VL000260
1178           IF(NOOH - ND(1))1000,1000,1001                             VL000261
1179      1000 N = 25                                                     VL000265
1180           IF(IP(25)) 1003,1003,1002                                  VL000268
1181      1001 N = 24                                                     VL000270
1182      1002 IF(IP(24)) 1003,1003,1009                                  VL000271
1183      1003 TT(3) = D(1)                                               VL000275
1184           NPAGE = NPAGE + ND(1)                                      VL000278
1185           WRITE(6,1004)INCASE,NPAGE,N,IGM,NOOH,IOPT,DGH1             VL000280
1186           WRITE(6,1005)                                              VL000285
1187     C                                                                VL000289
1188      1004 FORMAT (10H1     CASE IN ,16X,48H-**-DESIGN LOADS/1000 AND REQD GJ/IVL000290
1189          1,000,000-**- ,20X,4HPAGE IN ,I6H0            IP=I2,6H  IGM=I1,7H  NVL000291
1190          2OOH=I1,7H  IOPT=I1,6H  DGH=F9.1)                          VL000292
1191     C                                                                VL000299
1192      1005 FORMAT (106H0  STA   +V(ULT)    +M(ULT)   +T(ULT)  -V(ULT)  -M(ULVL000300
1193          1T)   -T(ULT)  VDH(IG)   MDH(IG)   TDH(IG)   GJ(REQD)  )   VL000301
1194     C                                                                VL000302
1195      1006 FORMAT (1H 3X,I2,F10.3,F11.2,F10.2,F9.3,F10.2,F10.2,F9.3,F10.2,F10VL000303
1196          1.2,F12.3)                                                 VL000304
1197     C                                                                VL000309
1198      1009 DO 109 N=1,11                                              VL000310
1199           K = ND(12) + N                                             VL000315
1200           TT(1) = DC(3)                                              VL000320
1201           TT(7) = DC(3)                                              VL000325
1202           TT(2) = DC(3)                                              VL000330
1203           IF (LID - ND(2)) 101,101,102                               VL000340
1204     C                                                                VL000350
1205     C              *PRINT ON TT(3)=1.0*                              VL000351
1206     C            **SETUP INERTIA DATA**                              VL000360
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CARD NO  ****                          CONTENTS                          ****
 1207      101  TT(1) = DC4K*TEMP*DMVIN  + DC4B*SDMVIN(I)                 VL000370
 1208           TT(2) = DC4B*TEMP*DMRSIN(I) + DC4B*SDMRSIN(I)             VL000380
 1209           TT(7) = DC4B*TEMP*DMTINI(I) + DC4B*SDMTINI(I)             VL000385
 1210      C                                                              VL000389
 1211       102  ULTPVI(I) = ULTLF*DGAIR*ALPVIN(I) - UPNZ*RLDS(IN+66)*TT(1)  VL000390
 1212      C                                                              VL000399
 1213           ULTNVI(I) = ULTLF*DGAIR*ALNVIN(I) - UPNZ*RLDS(IN+99)*TT(1)  VL000400
 1214      C                                                              VL000409
 1215           ULTPHI(I) = ULTLF*DGAIR*ALPHIN(I) - UPNZ*RLDS(IN+77)*TT(2)  VL000410
 1216      C                                                              VL000419
 1217           ULTNI(I) = ULTLF*DGAIR*ALNIN(I) - UPNZ*RLDS(IN+110)*TT(2)   VL000415
 1218      C                                                              VL000419
 1219           ULTPTI(I) = ULTLF*DGAIR*ALPTIN(I) - UPNZ*RLDS(IN+89)*TT(7)  VL000420
 1220      C                                                              VL000424
 1221           ULTNTI(I) = ULTLF*DGAIR*ALNTIN(I) - UPNZ*RLDS(IN+121)*TT(7) VL000425
 1222      C                                                              VL000429
 1223      C              FS/RS LOADS                                     VL000430
 1224           DVFSI(I) = ULTPVI(I)*DVFSIN(I)*DVFSRS(I)                  VL000440
 1225           DVRSI(I) = ULTPVI(I)*DVRSIN(I)*(1.0 - DVFSRS(I))          VL000450
 1226           IF (TT(3)) 109,109,103                                    VL000451
 1227       103 TT(8) = ULTPVI(I)/1000.0                                  VL000452
 1228           TT(9) = ULTPHI(I)/1000.0                                  VL000453
 1229           TT(10)= ULTPTI(I)/1000.0                                  VL000454
 1230           TT(11)= ULTNVI(I)/1000.0                                  VL000455
 1231           TT(12)= ULTNHI(I)/1000.0                                  VL000456
 1232           TT(13)= ULTNTI(I)/1000.0                                  VL000457
 1233           TT(14)= TT(1)/100.0                                       VL000458
 1234           TT(15) = TT(2)/1000.0                                     VL000459
 1235           TT(16) = TT(7)/1000.0                                     VL000460
 1236           TT(17) = GJROD(N)/10000000.0                              VL000461
 1237           WRITE (6,104)N,(TT(I+7),I=1,10)                           VL000465
 1238      C                                                              VL000470
 1239           TVMVI(N) = TT(1)                                          VL000473
 1240           TDMHI(N) = TT(2)                                          VL000474
 1241           TDMTI(N) = TT(7)                                          VL000475
 1242      C                                                              VL000479
 1243       109 CONTINUE                                                  VL000480
 1244      C                                                              VL000490
 1245      C                                                              AVL01000
 1246      C            ***SETUP LOADS ARRAY FOR ADV. COMP. ROUTINES***   AVL01010
 1247      C              *20 SETS OF LOADS--(V,H,T) X 11 EACH*           AVL01020
 1248      C              *DATA ON RCD 30.   NO OF LOADS*ILCASE*          AVL01030
 1249       150 CALL READMS (1,ACL(1),900,33)                             AVL01040
 1250      C                                                              AVL01041
 1251      C            ***SETUP PRINT ID FOR LOADS PROCESS LOOP**        AVL01042
 1252      C              *IP 25 FOR NODH = 1 ONLY*                       AVL01043
 1253      C              *IP 24 FOR ALL NODH*                            AVL01044
 1254      C              *SET NN=0 FOR NO PRINT, 1 FOR PRINT*            AVL01045
 1255           NN = DC(3)                                                AVL01046
 1256           IF(NODH - NO(1)) 1500,1500,1501                           AVL01047
 1257       1500 IF (IP(25)) 1502,1502,1501                               AVL01048
 1258       1501 IF (IP(24)) 1502,1502,1509                               AVL01049
 1259       1502 NN = NO(1)                                               AVL01050
 1260      C                                                              AVL01054
 1261       1509 DO 151 I=1,660                                           AVL01055
 1262           ACVHT(I) = DC(3)                                          AVL01060
 1263       151 CONTINUE                                                  AVL01070
 1264      C                                                              AVL01080
 1265           DO 159 N=1,ILCASE                                         AVL01090
 1266           L = N*33 -33                                              AVL01100
 1267           DO 152 I=1,33                                             AVL01110
 1268           K = L + I                                                 AVL01120
 1269           ACLT(I) = ACL(K)                                          AVL01130
 1270       152 CONTINUE                                                  AVL01140
 1271      C                                                              AVL01150
 1272           DO 153 I=1,11                                             AVL01160
 1273           ACLT(I+33) = ULTLF*(DGAIR*ACLT(I) - ACL(N+700)*ACL(N+660)*DC4K*(TEMAVL01170
 1274          1K*DMVI(I) + STHVI(I) + ACL(N+720)*FLVI(I) + ACL(N+740)*FLV2(I) + ACLAVL01180
 1275          2(N+760)*CDLVI(I) + ACL(N+780)*CDLV2(I) + CDLK3*CDLV3(I)))     AVL01190
 1276      C                                                              AVL01200
 1277           ACLT(I+44) = ULTLF*(DGAIR*ACLT(I+11) - ACL(N+700)*ACL(N+660)*DC4K*(AVL01210
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CARD NO **** CONTENTS ****

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     1TBXX*DWM(I) + STMM(I) + ACL(N+720)*FLM1(I) + ACL(N+740)*FLM2(I) + AVL01220
     2ACL(N+760)*CDLM1(I) + ACL(N+700)*CDLM2(I) + CDLK3*CDLM3(I)))      AVL01230
C                                                                        AVL01240
      ACLT(I+55) = ULTLF*(DGWR*ACLT(I+22) - ACL(N+700)*ACL(N+C60)*DGWR*(AVL01250
     1TBXX*DWT(I) + STMT(I) + ACL(N+720)*FLT1(I) + ACL(N+740)*FLT2(I) + AVL01260
     3ACL(N+760)*CDLT1(I) + ACL(N+780)*CDLT2(I) + CDLK3*CDLT3(I)))      AVL01270
C                                                                        AVL01280
  153 CONTINUE                                                           AVL01290
C                                                                        AVL01300
      DO 154 I=1,11                                                      AVL01310
      K = L + I*ND(3) - ND(2)                                            AVL01315
      ACVMT(K) = ACLT(I+33)                                              AVL01320
      ACVMT(K+1) = ACLT(I+44)                                            AVL01325
      ACVMT(K+2) = ACLT(I+55)                                            AVL01330
  154 CONTINUE                                                           AVL01340
C                                                                        AVL01350
C             ***TEST FOR PRINT OF CURRENT CONDITION***                  AVL01360
      IF (NN)  159,159,155                                               AVL01390
  155 WRITE (6,156)ACL(N+C40)                                            AVL01380
  156 FORMAT (1HHO    COND. NO.F8.1,//E5H0   STA     V(ULT)       M(ULT)AVL01390
     1       T(ULT)    STA     V(ULT)        M(ULT)       T(ULT))        AVL01400
  157 FORMAT (4X,I3,F11.1,F13.1,F12.1,4X,I3,F11.1,F13.1,F12.1)           AVL01410
 1570 FORMAT (4X,I3,F11.1,F13.1,F12.1)                                   AVL01420
C                                                                        AVL01430
      DO 158 I=1,10,2                                                    AVL01440
      L = I + ND(1)                                                      AVL01450
      WRITE (6,157)I,ACLT(I+33),ACLT(I+44),ACLT(I+55),L,ACLT(I+34),ACLT(AVL01460
     1I+45),ACLT(I+56)                                                   AVL01470
  158 CONTINUE                                                           AVL01480
C                                                                        AVL01490
      WRITE (6,1570)ND(1),ACLT(44),ACLT(55),ACLT(66)                     AVL01500
C                                                                        AVL01510
C                *LOOP FOR NEXT LOAD CONDITION*                          AVL01520
  159 CONTINUE                                                           AVL01530
C                                                                        AVL01540
C                                                                        VL001990
C             ***EXIT***                                                 VL001990
  199 RETURN                                                             VL001998
      END                                                                VL001999
C*********************************************************************
C
C       *****SUBROUTINE ACPROG*****
C   ***TOTAL SURFACE HEIGHT SYNTHESIS CONTROL - ADV. COMP. ANALYSIS***
C
C*********************************************************************
C
      SUBROUTINE ACPROG                                                  ACPR0010
C                                                                        PROG0020
C             **GENL CONTROL PROG FOR GW/DW PASSES***                    PROG0030
C                                                                        PROG0040
C                                                                        PROG0110
C                                                                        PROG0130
      COMMON T(2060),D(2050),CD(2000),ND(100),TW(900),CT(2048)           ACPR0140
      COMMON /MISC/XMISC(100)                                            PROG0141
C                                                                        PROG0150
      DIMENSION DC(100),TSEC(300),DGW(3),TOGW(3),TSS(100),TWT(400),      PROG0160
     1TT(24),DMTLB(17),TOGW(15),ULTPM(11),DWV(11),DWM(11),DWT(11),       PROG0161
     2YBUI(11),YBUD(11),YBLI(11),YBLD(11),                               PROG0162
     3DWMI(11),DSMI(11),DNXI(11),DEFFI(11),                              PROG0163
     4SDWV(11),SDWM(11),SDWT(11),DCDL(18),DCNST3(22),TCNST(8),           PROG0164
     5AFDOW(8),FLV1(11),FLV2(11),FLM1(11),FLM2(11),FLT1(11),FLT2(11),    PROG0165
     6CDLV1(11),CDLV2(11),CDLV3(11),CDLM1(11),CDLM2(11),CDLM3(11),       PROG0166
     7CDLT1(11),CDLT2(11),CDLT3(11),STMV(11),STMM(11),STMT(11),          PROG0167
     8DCBST(11),DCNOS(11),DPCDL(10),SHT(11),                             PROG0168
     9WPNLS(11),TPNLW(11),TCHT(11),TBWP1(11),THWP1(11),VFWP1(11)         PROG0169
     A,ACVFDL(11),ACVFDG(11)                                             PROG0169
     B,CTBW(150),TSC(420)                                                PROG0169
C                                                                        PROG0170
C                                                                        PROG0170
      DIMENSION TEMP(20),W(22),                                          ACPR0170
     1TEIGJ(4),                                                          ACPR0171
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CARD NO  ****                          CONTENTS                          ****
 1349        2(NP(9),                                                    ACPR0172
 1350        3RLDS(132),                                                 ACPR0173
 1351        9TBO(1),TBW(1),GJROD(1))                                    ACPR0179
 1352    C                                                               ACPR0180
 1353         EQUIVALENCE (DC(1),D(1401)),(TSEC(1),CD(1501)),(T*(1),T(1317)),  PROG0160
 1354        1(DGH(1),D(1021),(DGHO,D(1105)),(DGHI,T(222)),(TDGH(1),D(80)),   PROG0161
 1355        2(DKA,,D(234)),(D(240,D(369)),(DCNST3(1),D(1301)),(TWT(1),CD(1101)),PROG0162
 1356        3(TDGH(1),T(430)) (DGHRI,TDGH(1)),(DGHR,TDGH(2)),(TDGR,TDGH(4)),  PROG 63
 1357        4(RFLE,TDGH(1)),(RFL2,TDGH(12)),                            PROG0164
 1358        5(CDLK1,TDGH(13)),(CDLK2,TDGH(14)),(CDLK3,TDGH(15)),        PROG0165
 1359        6(IOPS,ND(83)),(IOPC,ND(84)),(IOPI,ND(22)),(IOPI,ND(74)),   PROG0166
 1360        7(ISC,ND(22)),(ICD,ND(49)),(I,ND(26)),(N,ND(27)),(K,ND(79)),PROG0167
 1361        8(IFN,ND(93)),(IFB,ND(97)),(NOCT,ND(50)),                   PROG0168
 1362        9(IGH,ND(61)),(IGT,ND(57)),(NOOH,ND(56)),(NDSP,ND(25))      PROG0169
 1363    C                                                               PROG0190
 1364    C                                                               PROG0200
 1365    C                                                               PRO 0210
 1366         EQUIVALENCE (YDUD(1),T(679)),(YDLD(1),T(690)),              PROG0220
 1367        1(DOPT,D(1365)),(DOPTP,D(1399)),(TSS(1),T(196)),             PROG0221
 1368        2(DCBST(1),D(765)),(DCNOS(1),D(776)),                        PROG0222
 1369        3(DWV(1),T(598)),(DSH(1),T(609)),(DWT(1),T(620)),            PROG0223
 1370        4(DMH(1),T(701)),(DSH(1),T(712)),                            PROG0224
 1371        5(DXI(1),T(7 )),(DEFF(1),T(800)),(ULTPH(1),TSEC(1)),         PROG0225
 1372        6(FLV(1),T(445)),(FLH(1),T(456)),(FLT(1),T(467)),            PROG0226
 1373        7(FLV2(1),T(470)),(FLH2(1),T(480)),(FLT2(1),T(491)),         PROG0227
 1374        8(SDWV(1),T(844)),(SDWH(1),T(855)),(SDWT(1),T(866)),         PROG0228
 1375        9(YBU(1),TSEC(133)),(YBL(1),TSEC(188))                       PROG0229
 1376    C                                                               PROG0230
 1377         EQUIVALENCE (STHV(1),T(811)),(STHH(1),T(822)),(STHT(1),T(833)),  PROG0240
 1378        1(CDLV(1),T(309)),(CDLH(1),T(320)),(CDLT(1),T(331)),         PROG0241
 1379        2(CDLV2(1),T(342)),(CDLH2(1),T(353)),(CDLT2(1),T(364)),      PROG0242
 1380        3(CDLV3(1),T(375)),(CDLH3(1),T(386)),(CDLT3(1),T(397)),      PROG0243
 1381        4(RFDGH(1),T(522)),(DHTLB(1),T(20))),                        PROG0244
 1382        5(SDRHO,TWT(175)),(ERT,DHTLB(14)),(GRT,DHTLB(15)),           PROG0245
 1383        6(DPCDL(1),T(220)),(SWT(1),T(734)),(TCNST(1),CD(1960)),      PROG0246
 1384        7(MPNLS(1),T(645)),(TPNLW(1),T(656)),(TBCWT(1),T(789)),      PROG0247
 1385        8(TBWPI(1),T(745)),(TWPI(1),T(778)),(VFWPI(1),T(758)),       PROG0248
 1386        9(DCDL(1),D(167))                                            PROG0249
 1387        A,(ACVFDE(1),CD(1938)),(ACVFDG(1),CD(1949))                  PROG0249
 1388        B,(DRHOO,CD(1937)),(DGVF,CD(1936)),(DEVF,CD(1935))           PROG0251
 1389        C,(CTBW(1),T(1541)),(TSC(1),T(1541))                         PROG0252
 1390    C                                                               PROG0260
 1391         EQUIVALENCE (TEMP(1),CT(2005)),(W(1),CT(1981)),             ACPR0260
 1392        1(TBO(1),T(530)),(TBW(1),T(542)),(GJROD(1),T(668)),          ACPR0261
 1393        2(TEIOJ(1),TW(783)) (DTMPB,D(281)),(VFDTMP,T(1806)),(DTMPFD,D(284)),ACPR0262
 1394        3(DTMPFL,D(283)),(VFID,D(251)),(DINID,D(271)),               ACPR0263
 1395        4(ENP(1),D(1155)),                                           ACPR0264
 1396        5(RLDS(1),CD(400)),                                          ACPR0265
 1397        6(STAFN,D(361)),(CNSID,D(1461)),                             ACPR0266
 1398        7(ACID,D(1430)),(DBRHO,D(1464)),(ACCVID,D(1431)),            ACPR0267
 1399        8(XLCASE,CT(2046)),                                          ACPR0268
 1400        9(ILCASE,ND(41))                                             ACPR0269
 1401    C                                                               ACPR0300
 1402    C            ***SETUP DATA FOR ADV. COMPOSITE DESIGN***         ACPR0310
 1403     500  XLCASE = D(2)                                             ACPR0320
 1404          ILCASE = ND(2)                                           ACPR0330
 1405          DO 501 I=1,11                                            ACPR0340
 1406          N = ND(2)*I - ND(1)                                      ACPR0350
 1407          W(N) = TBW(I)                                            ACPR0360
 1408          W(N+1) = TBO(I)                                          ACPR0370
 1409     501  CONTINUE                                                 ACPR0400
 1410    C                                                               ACPR0401
 1411    C              *SETUP LOAD TEMP(1,2)*                           ACPR0402
 1412          TEMP(1)  DHTLB(1)                                        ACPR0405
 1413          TEMP(2)  DHTLB(1)                                        ACPR0406
 1414    C                                                               ACPR0409
 1415    C            ***SETUP TEIOJ ARRAY DATA--TEMP FOR EI,OJ CALC FOR--  ACPR0410
 1416    C              **1.  BASE STIFFNESS OUTPUT DATA**               ACPR0411
 1417    C              **2.  CRITICAL FLUTTER PT ANALYSIS**             ACPR0412
 1418    C              **3.  OUTPUT EI/OJ FOR FLUTTER IPT. ANALYSIS**   ACPR0413
 1419    C              **4.  OUTPUT EI/OJ FOR FLEX LOADS ANALYSIS**     ACPR0414
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CARD NO  ****                          CONTENTS                          ****
1420     C                                                                ACPR0415
1421     C              *ITEM 1.  IF INPUT TEMP=0, PROG WILL USE D(253) DATA*  ACPR0416
1422     C                                                                ACPR0416
1423     C             **ITEM 2.  IF CALC OR INPUT GJ, VF TEMP HAS BEEN SETUP  ACPR0416
1424     C              *     AND STORED IN VFDTMP=T(1950)**              ACPR0416
1425     C                                                                ACPR0417
1426     C             **ITEMS 3,4.  IF INPUT TEMP=0, AND DATA IS TO BE CALC,  ACPR0417
1427     C              *     PROG WILL USE TEMP FOR ITEM 1 ABOVE*        ACPR0418
1428     C                                                                ACPR0419
1429      503  DO 5030 I=1,3                                              ACPR0420
1430           TEIGJ(I+1) = DC(3)                                         ACPR0421
1431      5030 CONTINUE                                                   ACPR0422
1432           TEIGJ(1) = DTMPB                                           ACPR0423
1433           IF (DTMPB) 5031,5031,5032                                  ACPR0424
1434      5031 TEIGJ(1) = DATL0(1)                                        ACPR0425
1435      5032 IF (VFID) 5035,5035,5033                                   ACPR0426
1436      5033 TEIGJ(2) = VFDTMP                                          ACPR0427
1437     C                                                                ACPR0429
1438     C                                                                ACPR0430
1439     C              **FLUTTER IPT/FLUX LDS**                          ACPR0431
1440     C               *ID=0,1,2,3  0=NO, 1,3=FLUT/OPT, 1,2=F/LODS*     ACPR0431
1441      5035 IF (DINID) 505,505,5036                                    ACPR0432
1442      5036 IF (DINID - D(21)) 5037,5039,5037                          ACPR0433
1443      5037 TEIGJ(3) = DTMPFO                                          ACPR0434
1444           IF (DTMPFO) 5038,5038,5039                                 ACPR0435
1445      5038 TEIGJ(3) = TEIGJ(1)                                        ACPR0436
1446      5039 IF (DINID - D(2)) 5040,5040,505                            ACPR0437
1447      5040 TEIGJ(4) = DTMPFL                                          ACPR0438
1448           IF (DTMPFL) 5041,5041,505                                  ACPR0439
1449      5041 TEIGJ(4) = TEIGJ(1)                                        ACPR0440
1450     C                                                                ACPR0441
1451     C                                                                PROG0448
1452     C              ***SETUP LOADS FOR COMPOSITE ANALYSIS***          PROG0449
1453      505  CALL ACLOAD                                               ACPR0450
1454     C               **SAVE RLDS ARRAY ON RCD 39**                    ACPR0455
1455           CALL WRITMS (1,RLDS(1),132,39)                             ACPR0456
1456     C                                                                PROG0458
1457     C              ***ADV. COMP. MATL PROP***                        ACPR0460
1458           CALL TEMPC                                                 ACPR0470
1459     C                                                                ACPR0471
1460     C               **CLEAR T(920-1340)**                            ACPR0472
1461           DO 506 I=1,421                                             ACPR0473
1462           T(I+919) = DC(3)                                           ACPR0474
1463      506  CONTINUE                                                  ACPR0475
1464     C                                                                ACPR0479
1465     C                                                                ACPR0480
1466     C              ***SETUP TWT ARRAY CONSTANTS                      ACPR0490
1467           SORHO = ENP(8)                                             ACPR0500
1468           TWT(185) = D(1)                                            ACPR0510
1469           DO 507 I=1,8                                               ACPR0520
1470           TWT(I+175) = D(1)                                          ACPR0530
1471      507  CONTINUE                                                  ACPR0540
1472           TWT(183) = D(1)                                            ACPR0550
1473           TWT(184) = D(1)                                            ACPR0560
1474     C                                                                ACPR0570
1475     C              ***SET INPUT COND MT TO LB/SQ IN***               PROG0580
1476           DBRHO = DBRHO/D(17)                                        PROG0590
1477     C                                                                PROG0600
1478     C                                                                PROG0320
1479     C              ***SETUP DM PASSES. MAX=5***                      PROG0330
1480      100  NDMP = IFIX(DMND)                                         PROG0340
1481           IF (ND(5) - NDMP) 101,102,102                              PROG0350
1482      101  NDMP = ND(5)                                              PROG0360
1483     C                                                                PROG0370
1484     C                                                                PROG0512
1485     C               *CLEAR 184-189, 100/RCD*                         PROG0513
1486      102  DO 105 N=1,6                                              PROG0514
1487           IF4 = N + 183                                              PROG0515
1488           CALL WRITMS (1,CD(1),100,IF4)                              PROG0516
1489      105  CONTINUE                                                  PROG0517
1490     C                                                                PROG0518
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CARD NO  ****                          CONTENTS                          ****
1491     C              ***SAVE D 375,376,377,378,380,381,382***          PROG0510
1492      150  DO 151 I=1,4                                               PROG0520
1493           TCNST(I) = D(I+374)                                        PROG0530
1494           TCNST(I+4) = D(I+378)                                      PROG0540
1495      151  CONTINUE                                                   PROG0550
1496     C                                                                PROG0570
1497     C                                                                PROG0580
1498     C          *****SETUP FOR 3 GW. CALC. GW 3 TO 1 TO 2.*****       PROG0860
1499      200  IGW = ND(3)                                                PROG0870
1500           NODW = NDWP + ND(1)                                        PROG0880
1501           IF (TOGW(3)) 2000,2000,210                                 PROG0881
1502     C                                                                PROG0882
1503     C            ***TOGW(3)=0.  TEST TOGW(1)***                      PROG0883
1504      2000 IGW = ND(1)                                                PROG0885
1505           IF (TOGW(1)) 2001,2001,210                                 PROG0[illegible]
1506     C                                                                PROG0893
1507     C            ***TOGW(3 AND 1)=0.  TEST TOGW(2)***                PROG0899
1508      2001 IGW = ND(2)                                                PROG0890
1509           IF (TOGW(2)) 400,400,210                                   PROG0895
1510     C                                                                PROG0909
1511     C            ***TOGW(3) NOT ZERO.  DO TOGW(1)***                 PROG0910
1512      201  IGW = ND(1)                                                PROG0920
1513           IF (TOGW(1)) 202,202,203                                   PROG0930
1514     C                                                                PROG0940
1515     C            ***TOGW(3 OR 1) NOT ZERO.  DO TOGW(2)***            PROG0950
1516      202  IGW = ND(2)                                                PROL0960
1517           IF (TOGW(2)) 400,400,203                                   PROG0970
1518      203  NODW = NDWP                                                PROG0535
1519     C                                                                PROG0990
1520     C            ***BEGIN LOOP FOR DGW***                            PROG1000
1521      210  DGWI = DGW(IGW)                                            PROG1010
1522     C                                                                PROG1020
1523           IGT = IGW                                                  PROG1030
1524           DGWR = DGWI/DGWO*DKVL                                      PROG1040
1525           DGWRI = DGWR - D(1)                                        PROG1050
1526     C                                                                PROG1060
1527     C             **SETUP TOTAL DW LESS BOX AT DGW(I)**              PROG1070
1528      211  RFL1 = RFDGW(IGW+1)                                        PROG1080
1529           RFL2 = RFDGW(IGW+5)                                        PROG1090
1530           COLK3 = D(1)                                               PROG1100
1531           COLK1 = D(1) - DCOLI(IGW+1)                                PROG1110
1532           COLK2 = D(1) - DCOLI(IGW+5)                                PROG1120
1533           DO 2110 I=1,11                                             PROG1130
1534           SDWV(I) = STWV(I) + RFL1*FLV1(I) + RFL2*FLV2(I) + COLK1*COLV1(I) +PROG1140
1535          1 COLK2*COLV2(I) + COLK3*COLV3(I)                           PROG1141
1536           SDWM(I) = STWM(I) + RFL1*FLM1(I) + RFL2*FLM2(I) + COLK1*COLM1(I) +PROG1150
1537          1 COLK2*COLM2(I) + COLK3*COLM3(I)                           PROG1151
1538           SDWT(I) = STWT(I) + RFL1*FLT1(I) + RFL2*FLT2(I) + COLK1*COLT1(I) +PROG1160
1539          1 COLK2*COLT2(I) + COLK3*COLT3(I)                           PROG1161
1540      2110 CONTINUE                                                  PROG1170
1541     C                                                                PROG1178
1542     C          ****DW ITERATION LOOP.  ADJUST DW AND YIBAR1****      PROG1179
1543     C            ***SETUP RATIOS FROM PCD 39***                      PROG1179
1544      220  CALL READMS (1,RLDS(1),132,39)                            PROG1180
1545           CALL DWYBA                                                 PROG1185
1546     C                                                                PROG1189
1547     C            ****  TEST FOR CONST. BY GW  ***                    PROG1190
1548           IF (DCNST3(1)) 223,230,223                                 PROG1200
1549      223  D(375) = DCNST3(IGW+1)                                     PROG1210
1550           D(376) = DCNST3(IGW+4)                                     PROG1220
1551           D(377) = DCNST3(IGW+7)                                     PROG1230
1552           D(378) = DCNST3(IGW+10)                                    PROG1240
1553           D(380) = DCNST3(IGW+13)                                    PROG1250
1554           D(381) = DCNST3(IGW+16)                                    PROG1260
1555           D(382) = DCNST3(IGW+19)                                    PROG1270
1556     C                                                                PROG1280
1557     C                                                                PROG1350
1558     C            ***NET LOADS AND DESIGN DATA***                     PROG1360
1559      230  CALL AVLOAD                                                ACPR1370
1560     C                                                                ACPR1380
1561     C                                                                ACPR0390
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CARD NO  ****                          CONTENTS                          ****
1562     C              *CLEAR CT(1-1320)*                                ACPR0400
1563           DO 231 I=1,1320                                            ACPR0410
1564           CT(I) = DC(3)                                              ACPR0420
1565      231  CONTINUE                                                   ACPR0430
1566     C                                                                 ACPR0440
1567     C                                                                 PROG1460
1568     C          *****START DESIGN/SYNTHESIS*****                       PROG1470
1569      240  CALL ATBOPT                                                PROG1480
1570     C                                                                 PROG1520
1571     C            ***SAVE ASSUMED MH(LT) AND DMV DATA FOR ITERATION***  PROG1530
1572     C              *ORDER ROOT-TIP*                                   PROG1540
1573      250  DO 251 I=1,11                                              PROG1550
1574           N = ND(12) - I                                             PROG1560
1575           DMH1(I) = DMH(I)                                           PROG1570
1576           DBH1(I) = ULTPM(N)                                         PROG1580
1577      251  CONTINUE                                                   PROG1590
1578     C                                                                 PROG1600
1579     C            ***DW(V,H) FOR DESIGNED DATA***                      PROG1610
1580     C            ***SET K=1 FOR DEADWEIGHT PRINT BY SUBR DEADW***     PROG1611
1581      260  K = ND(1)                                                  PROG1620
1582           CALL DEADW                                                 PROG1625
1583     C                                                                 PROG1630
1584     C          ****TEST FOR NEXT DW PASS****                          PROG1640
1585      270  NODW = NODW - ND(1)                                        PROG1650
1586           DOARI = DC(3)                                              PROG1660
1587           IF (NODW) 280,280,220                                      PROG1661
1588     C                                                                 PROG1668
1589     C            ***SETUP DESIGN DATA FOR OUTPUT PROCESS***           PROG1669
1590      280  DRHOO = SDRHO                                              PROG1670
1591           DEWF = TWT(173)                                            PROG1671
1592           DGWF = TWT(174)                                            PROG1672
1593           DO 281 I=1,11                                              PROG1675
1594           ACWFDE(I) = CD(I+297)                                      PROG1676
1595           ACWFDG(I) = CD(I+286)                                      PROG1677
1596      281  CONTINUE                                                   PROG1678
1597     C                                                                 PROG1679
1598     C                                                                 PROG1682
1599     C            ***SAVE WT/DESIGN DATA FOR WDATA/TDFWI SUBR.         PROG1683
1600     C             **CTBW ARRAY ITEMS STORED RT-TIP**                  PROG1684
1601     C              *1.  11-Z(BOX WT/IN.-ST).  2. 11 BOX CHORDWISE ST. ITEMSPROG1685
1602     C              *3. 11 EI.  4. 11 GJ.  5. DESIGN E,G,RHO.          PROG1687
1603     C              *6.  10-BC  PNL WTS-ST.  7.  10-RECD COV DIST. WTS. PROG1688
1604     C              *8.  10-T/L DELTA COL F' WTS.  9.  11-MISC WT/IN.   PROG1689
1605     C              *10. .1-VF WT/IN.                                  PROG1690
1606     C              *11. TOTAL WT SUMMARY DATA--TWT(40-52) (SWT ARRAY)* PROG1691
1607     C               *12.  11-MATL E.  13.  11-MATL G*                 PROG1692
1608     C            ***RCD 156,157,158--150 CELLS/RCD***                 PROG1693
1609     C              *USE CTBW+ TEMP SCRATCH LOC AT TSC(1-150)*          PROG1694
1610     C                                                                 PROG1699
1611           DO 283 I=1,11                                              PROG1680
1612           CTBW(I) = TBWPI(I)                                         PROG1681
1613           CTBW(I+11) = TBCWT(I)                                      PROG1682
1614           CTBW(I+22) = CD(I+275)                                     PROG1683
1615           CTBW(I+33) = CD(I+264)                                     PROG1684
1616           CTBW(I+77) = TWBPI(I)                                      PROG1685
1617           CTBW(I+88) = VFWPI(I)                                      PROG1686
1618           CTBW(I+99) = SWT(I)                                        PROG1687
1619           CTBW(I+110) = ACWFDE(I)                                    PROG1688
1620           CTBW(I+121) = ACWFDG(I)                                    PROG1689
1621           IF (I - ND(10)) 282,282,283                                PROG1690
1622      282  CTBW(I+47) = WPNLS(I)                                      PROG1691
1623           CTBW(I+57) = TPNLW(I)                                      PROG1692
1624           CTBW(I+67) = DPCOL(I)                                      PROG1693
1625      283  CONTINUE                                                   PROG1694
1626           CTBW(45) = DEWF                                            PROG1695
1627           CTBW(46) = DGWF                                            PROG1696
1628           CTBW(47) = DRHOO                                           PROG1697
1629     C                                                                 PROG1698
1630           IFB = IBW + 155                                            PROG1699
1631           CALL WRITMS (1,CTBW(1),150,IFB)                            PROG1700
1632     C                                                                 ACPR1710
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CARD NO  ****                          CONTENTS                          ****
 1633    C                                                                ACPRI720
 1634    C            ***SAVE STIFFNESS DATA CD(I=400) IN RCD 13,14,15***  ACPRI730
 1635          IF0 = IGW + 12                                             ACPRI740
 1636          CALL WRITMS (1,CD(1),400,IF0)                              ACPRI750
 1637    C                                                                ACPRI760
 1638    C            ***TEST FOR NEXT GW***                              ACPRI770
 1639    C                                                                ACPRI780
 1640          IF (ND(2) - IGW) 201,400,202                               ACPRI790
 1641    C                                                                ACPRI800
 1642    C                                                                PROG3000
 1643    C             **END OF CALC. RESET DATA AND EXIT**               PROG3010
 1644     400  DO 401 I=1,4                                              PROG3020
 1645          D(I+378) = TCNST(I)                                        PROG3030
 1646          D(I+379) = TCNST(I+4)                                      PROG3040
 1647     401  CONTINUE                                                   PROG3050
 1648    C                                                                PROG3080
 1649    C            ***RESET BOND WT LB/SQ FT***                        PROG3090
 1650          DBRHO = DGRHO*D(17)                                        PROG3100
 1651    C                                                                PROG3110
 1652    C                                                                PROG3990
 1653          RETURN                                                     PROG3330
 1654          END                                                        PROG3999
 1655    C*************************************************************.****
 1656    C
 1657    C        *****SUBROUTINE CKSTAB*****
 1658    C   ***COMP/SHEOR STABILITY CHECK FOR ADV. COMP. PANELS***
 1659    C
 1660    C*****************************************************************.****
 1661    C
 1662          SUBROUTINE CKSTAB(R,B,L,M,N,NXP,NXY,FACT,FCRC,FCRS,LCASE,TCMPNL)
 1663    C
 1664    C  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
 1665    C  SUBROUTINE TO CHECK STABILITY OF A.C., CIRCULAR CORRUGATED AND
 1666    C          HONEYCOMB PANNELS UNDER INPLANE COMPRESSION AND SHEAR
 1667    C  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
 1668    C
 1669    C                                                                CKST0020
 1670    C                                                                CKST0030
 1671          COMMON T(9168)                                             CKST0040
 1672    C                                                                CKST0050
 1673          DIMENSION D(2060),CD(2000),ND(100),TH(900),CT(2048),       CKST0060
 1674         1ENP(9),ENH(6),                                             CKST0061
 1675         2ENO(5,20),ENC(3),                                          CKST0062
 1676         3APRTID(12),                                                CKST0063
 1677         9G(20)                                                      CKST0069
 1678    C                                                                CKST0070
 1679          EQUIVALENCE (D(1),T(2061)),(CD(1),T(4121)),(ND(1),T(6121)),CKST0080
 1680         1(TH(1),T(6221)),(CT(1),T(7121)),                           CKST0081
 1681         2(ENP(1),D(1155)),(ENH(1),D(1196)),                         CKST0082
 1682         3(ENC(1),CT(2043)),(ENO(1,1),TH(601)),                      CKST0083
 1683         8(APRTID(1),T(1070)),(NMAX,ND(3)),(NSTAT,ND(55)),           CKST0084
 1684         9(G(1),CT(2023))                                            CKST0089
 1685    C                                                                CKST0090
 1686    C
 1687    C
 1688          REAL NOP
 1689          REAL      KV,NUXY,KT,L,M,N,NX,NXY,NXCR,NXYCR
 1690    C
 1691          NX=NOP
 1692          D66 = 0.0
 1693          KV = 0.0
 1694          KT = 0.0
 1695    C
 1696    C
 1697          IF (NX.LT.0.0) NX=0.0
 1698          IF (FACT .GE. 2. ) GO TO 7
 1699    C  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
 1700    C  ADVANCED COMPOSITE FLAT AND CORRUGATED PANNELS
 1701    C
 1702          THICK= (L+2.*M+N) * ENP(9) * 2.0
 1703          XX=THICK**2*ENP(8)/8.
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CARD NO  ****                          CONTENTS                          ****
 1704            D11=(ENO(1,LCASE)*L+ENO(4,LCASE)*M*2.+ENO(2,LCASE)*N)*XX
 1705            D22=(ENO(2,LCASE)*L+ENO(4,LCASE)*M*2.+ENO(1,LCASE)*N)*XX
 1706      C
 1707      C     D12 IS EQUIVALENT TO (D12+2*D66). TERMS HAVE BEEN COMBINED INTO
 1708      C      D12
 1709      C
 1710            D66= G(LCASE)*(L*N) + 0.5*M*(ENO(1,LCASE)+ENO(2,LCASE)-2.*
 1711           (ENO(3,LCASE))
 1712            D12= (ENO(3,LCASE)*(L*N)+ENO(5,LCASE)*2.*M +2.*D66) *XX
 1713            IF (FACT-1.) 1,2,1
 1714      C
 1715      C  IF PANEL IS CORRUGATED, CORRECT FOR CORRUGATION
 1716      C
 1717          1 D12 = D12*FACT
 1718            D22 = D22/FACT
 1719      C
 1720      C     D11 = EX*IXX/(1-MUXY*MUYX)
 1721      C     IX = (R**1)*NT/2)*((3*A/SIN(A)-2*A*SIN(A)-3*SIN(A))
 1722      C     WHERE A IS CORRUGATION ANGLE AND ASSUMED TO BE 60 DEGREE
 1723      C     IN THIS SUBROUTINE
 1724      C
 1725            R = B/2.828N
 1726            IF ( R .GE. D(N04))  R = D(N04)
 1727            IF ( R .LT. D(N03))  R = D(N03)
 1728            D11 = (ENO(1,LCASE)*L +2.*M*ENO(4,LCASE) + ENO(2,LCASE)*N)*
 1729           (R**2 *0.31376*ENP(9)
 1730            NX=NX/FACT
 1731      C
 1732      C     COLUMN EQUATION SYMETRICAL LAYUPS ONLY
 1733      C
 1734            NXCR=9.869*D11/B**2
 1735            THETA=SQRT(D11*D22)/D12
 1736            GO TO 3
 1737          2 CONTINUE
 1738      C
 1739      C  CALCULATE INTERACTION
 1740      C
 1741            THETA=SQRT(D11*D22)/D12
 1742            NXCR=(19.739/(B*B))*(THETA+1.)*D12
 1743          3 CONTINUE
 1744            IF (THETA-1.) 4,4,5
 1745          4 NXYCR=(4./(B*B))*SQRT(D22*D12)*((THETA*.938+.582)*THETA+11.7)
 1746            GO TO 98
 1747          5 NXYCR=(4./(B*B))*SQRT(SQRT(D11*D22*D22*D22))*(8.125+5.05/THETA)
 1748            GO TO 98
 1749      C
 1750      C
 1751      C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
 1752      C  HONEYCOMB SANDWITCH PANNEL
 1753      C
 1754          7 CONTINUE
 1755            TF=(L+2.*M+N)*ENP(9)
 1756            THICK = TF
 1757            XX = ENP(8) * (TCHPNL + TF ) **2 / 2.
 1758            D11=(ENO(1,LCASE)*L+ENO(4,LCASE)*M*2.+ENO(2,LCASE)*N)*XX
 1759            D22=(ENO(2,LCASE)*L+ENO(4,LCASE)*M*2.+ENO(1,LCASE)*N)*XX
 1760            D12=(ENO(3,LCASE)*(L*N)+ENO(5,LCASE)*M*2.)*XX
 1761            D66= (G(LCASE)*(L*N) + 0.5*M*(ENO(1,LCASE)+ENO(2,LCASE)-
 1762           12.*ENO(3,LCASE)))*XX
 1763      C
 1764      C     MUXY = MUXY POISSON RATIO
 1765      C
 1766            MUXY=(ENO(3,LCASE)*(L*N)+ENO(5,LCASE)*2.*M)/(ENO(2,LCASE)*L+ENO(1,
 1767           2LCASE)*N+ENO(4,LCASE)*2.*M)
 1768            Y=SQRT(D11*D22)
 1769            X=D12+2*D66
 1770            THETA=Y/X
 1771            B3=D66/Y
 1772            B1=SQRT(D22/D11)
 1773            B2=B1*MUXY+2.*B3
 1774            U=  ENO(3)*(TCHPNL + TF )
```

CARD NO **** CONTENTS ****

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      Z=9.853*Y/(B**2*U)
      YY=1.-B3*Z
      KV=YY/(YY-4.*B1*Z)
      IF (THETA-1.) 8,8,9
    8 FS = (4.*KV/B**2)*SQRT(D22*KI*((1.7*THETA*(0.532+2.93/THETA)))
      GO TO 10
    9 FS = (4.*KV/B**2)*SQRT(SQRT(D11*D22**3))*(8.125+5.05/THETA)
   10 CONTINUE
C
C  ITERATE TO FIND MINIMUM BUCKLING COEFFICENT
C
      IF (FACT .EQ. 2.5 )  GO TO 16
      NBR=0
C
C     ANC-23  RIGID CORE Z= 0.0, THEN KT = B1*C1+2.*B2+ 1/(C1*B1)
C     1ST DERIVATIVE OF KT WITH VARIABLE (C1*B1) GIVES
C     1.0 - 1/(C1*B1)**2 = 0.0
C     SO FOR THE 1ST ESTIMATE OF C1 IS 1./B1  FOR A MINIMUM
C
      C1 = 1./B1
      KT = 2. + 2.*B2
      DELTA=.05
   17 OLD=KT
   11 A = 1.-B2**2 + B3*(B1*(C1 +2.*NUXY) +4.*B3 +1./(C1*B1))
      KT=(B1*C1+2.*(B1*NUXY+2.*B3)+1./(C1*B1)+A*Z*(1.+(1./C1))/(1.+(Z/C     6   53
     1)*(B1*C1+B3*(1.+C1)+(1./B1)+Z*A))                                  8   59
      COMP=OLD-KT
      IF (COMP) 14,12,12
   12 ADD=-DELTA
      GO TO 13
   14 DELTA=DELTA*.5
      ADD=DELTA
   13 IF (ABS(COMP).LT..01*KT) GO TO 15
   18 C1=C1+ADD
      GO TO 17
   15 IF (NBR.EQ.1) GO TO 16
      NBR=1
      GO TO 18
C
   16  NXYCR = FS
      IF (FACT .EQ. 2. )  NXCR = KT*9.859*Y/B**2
C
C     COLUMN FIXITY IS ASSUMED TO BE PIN END  C = 1
C
      IF (FACT .EQ.  2.5 )  NXCR = (9.859*D11 /B**2) * (1./ (1. + 9.853*
     1(D11/B**2/U)))
C
C
C  CALCULATE INTERACTION
   98  RC = NX/NXCR
      RS = NXY/NXYCR
      RSSQ = RS*RS
      R = RC + RSSQ
C
      FCRC = NXCR
      FCRS = NXYCR
C
C
C             ***PRINT COMPONENT DETAILS ON APRTID(NSTAT) = 1***
      NMAX = NMAX + 1
  290  IF (APRTID(NSTAT)) 293,293,294
C
  294  WRITE (6,295)NSTAT,LCASE,NMAX,B,FACT
  295  FORMAT (1H0/,24H0  ***CKSTAB SUBR -- STA,I2,12H  LOAD CASE ,I2,8H
     1 PT NO=I4,5H  B=F6.2,8H  FACT= F4.2,5H*** )
  296  FORMAT (2X,3F6.1,F7.4,3X,2E15.8,3X,3E15.8,/30X,2E15.8,3X,3E15.8,/1
     12X,F15.6,3X,2E15.8,3X,3E15.8/12X,F8.6,3X,6E15.8)
C
      WRITE (6,296)L,M,N,THICK,NXP,NXY,D11,D12,D22,NXCR,NXYCR,THETA,XX,D
     166,R,RC,RS,RSSQ,KV,KT,NUXY,U,Y,B1,B2,B3,Z
C
```

CARD NO **** CONTENTS ****

```
      299  RETURN
           END
C*************************************************************************
C
C        *****SUBROUTINE ACHMS*****
C   ***H/SPAR, FDH TORQUE-BOX SYNTHESIS - ADV. COMP. ANALYSIS***
C
C*************************************************************************
C
      SUBROUTINE ACHMS                                                  ACMS0010
C             ***ADV. COMP. BOX SYNTHESIS--H/SPAR CONST***              ACMS0020
C
C            ****CONSTRUCTION ID--SKCODE****
C              **H/SPAR PLATE = 1 AND SPCODE = 1 OR 2**
C              **H/SPAR HC/PNL = 2 AND SPCODE = 1 OR 2**
C              **FULL DEPTH HONEYCOMB = 1 AND SPCODE = 3**
C
C                                                                       ACMS0030
      COMMON T(9168)                                                    ACMS0040
C                                                                       ACMS0050
      DIMENSION D(2060),CD(2000),ND(100),TH(900),CT(2040),              ACMS0060
     1ENP(9),ENH(6),                                                    ACMS0061
     2END(5,20),EIX(3,20),CNT(91),                                      ACMS0062
     3ENC(3),EL(15),ELW(12),XEL(10),WS(8),                              ACMS0063
     4P(20),WEIGH(11),SPCRUH(11),FCR(10,11),IEL(15,11),                 ACMS0064
     5DVFS(11),DVRS(11),DVFSRS(11),SLCFS(5),                            ACMS0065
     6TBFS(11),TBRS(11),YST(11),                                        ACMS0066
     7SPB(33),SPN(33),DCBST(11),DCNDS(11),WEIGP(10),                    ACMS0067
     8THICK(2),E11(2),SKLUO(33),SKLLO(33),                              ACMS0068
     9W(2,11),V(3,11,20),STRESS(6,11,20),CRLC(7,11)                     ACMS0069
     A,YBUI(11),YBLI(11)                                                ACMS0070
     B,DOP2(4),DOP3(4)                                                  ACMS0071
     C,APRTID(12)                                                       ACSTD072
     D,SWBCP(2),DNOU(11),DNOL(11)                                       ACMS0072
C                                                                       ACMS0079
      EQUIVALENCE (D(1),T(2061)),(CD(1),T(4121)),(ND(1),T(6121)),       ACMS0080
     1(TH(1),T(6221)),(CT(1),T(7121)),                                  ACMS0081
     2(ENP(1),D(1155)),(ENH(1),D(1164)),                                ACMS0082
     3(END(1,1),TH(601)),(EIX(1,1),TH(701)),(CNT(1),T(1541)),           ACMS0083
     4(ENC(1),CT(2041)),(EL(1),T(1300)),(WS(1),T(1315)),                ACMS0084
     5(ELW(1),T(1043)),(XEL(1),T(1323)),(WEIGP(1),T(1655)),             ACMS0085
     6(P(1),T(1098)),(WEIGH(1),T(1165)),(SPCRUH(1),T(1632)),            ACMS0086
     7(CRLC(1,1),T(1960)),(FCR(1,1),T(1100)),(IEL(1,1),TH(1)),          ACMS0087
     8(W(1,1),CT(1981)),(V(1,1,1),CT(1321)),(STRESS(1,1,1),CT(1)),      ACMS0088
     9(SPCODE,ND(43)),(SKCODE,ND(42)),(TYPE,ND(44)),(ILCASE,ND(41))     ACMS0089
C                                                                       ACMS0090
      EQUIVALENCE (BSMIN,CNT(5)),(BSMAX,CNT(6)),(XTYPE,CNT(10)),        ACMS0100
     1(C1,CNT(11)),(C2,CNT(12)),(C3,CNT(13)),(C4,CNT(14)),              ACMS0101
     2(DVFS(1),D(942)),(DVRS(1),D(853)),(DVFSRS(1),CD(1924)),           ACMS0102
     3 SLCFS(1),D(1470)),                                               ACMS0103
     4(TBFS(1),T(153)),(TBRS(1),T(165)),(YST(1),T(51))),                ACMS0104
     5(MS,CNT(24)),(MF,CNT(25)),(MR,CNT(26)),                           ACMS0105
     6(XFCODE,CNT(27)),(XRCODE,CNT(28)),                                ACMS0106
     7(SFCODE,ND(45)),(SRCODE,ND(46)),                                  ACMS0107
     8(NSPMIN,CNT(17)),(NSPMAX,CNT(18)),(XXCODE,CNT(19)),               ACMS0108
     9(XPCODE,CNT(20)),(NSPAR,CNT(21)),(C7,CNT(22))                     ACMS0109
C                                                                       ACMS0110
      EQUIVALENCE (ACSSID,D(1438)),                                     ACMS0120
     1(SPB(1),T(1232)),(SPN(1),T(1265)),(THICK(1),T(1916)),             ACMS0121
     2(DOP2(1),D(1367)),(DOP3(1),D(1371)),                              ACMS0122
     3(YBUI(1),T(679)),(YBLI(1),T(690)),                                ACMS0123
     5(ACDLN1,DOP2(3)),(ACDLN2,DOP2(4)),                                ACMS0125
     6(ACDLB1,DOP3(3)),(ACDLB2,DOP3(4)),                                ACMS0126
     7(TCPNLU,CNT(29)),(TCPNLL,CNT(30)),(TCPNLT,CNT(31)),               ACMS0127
     8(TCPNLF,CNT(32)),(TCPNLR,CNT(33)),                                ACMS0128
     9(DCBST(1),D(785)),(DCNDS(1),D(776 '                               ACMS0129
     A,(APRTID(1),T(1070)),(NMAX,ND(3))),(NSTAT,ND(55)),(ISEC,ND(62))   ACMS0130
     B,(SWBCP(1),D(923)),(DNOU(1),D(931))),(DNOL(1),D(942)              ACMS0131
     C,(SLUMIN,CNT(8)),(SLLMIN,CNT(9))                                  ACMS0132
     D,(SKLUO(1),CD(28)),(SKLLO(1),CD(29))                              ACMS0133
C                                                                       ACMS0140
```

```
CARD NO  ****                          CONTENTS                          ****
1917     C
1918     C
1919     C                                                                ACMS0130
1920           INTEGER FLAG
1921           INTEGER     SPCODE,SKCODE,TYPE
1922           INTEGER $FCODE,$RCODE
1923     C
1924           REAL NSPAR
1925           REAL NSPMIN,NSPMAX,IEL
1926     C
1927           SPCODE = XPCODE
1928           SKCODE = XKCODE
1929           TYPE = XTYPE
1930           $FCODE = XFCODE
1931           $RCODE = XRCODE
1932     C
1933     C            ***SETUP SEARCH DATA--TEST ID FOR TYPE OF DESIGN***
1934     C              *ID=D(4381)=ACSSID.  0=SEARCH, 1=INPUT B, 2=INPUT NOS*
1935     C              *IF SEARCH, USE TYPE AS CONTROL ID--1=CONST NOS, 2=B
1936     C
1937     C            ***FOR FDH SAVE CORE DATA IN SPB AND SPN ARRAYS***
1938     C              *INPUT NOS = CORE DENSITY IN LD/CU FT AT STA CUTS,
1939     C              *   IF THESE INPUT DENSITIES ARE DESIRED.*
1940     C              *          USE CALC DENSITY IF NO STA INPUTS*
1941     C
1942     C
1943           DO 300 I=1,22
1944           $PB(I) = 0.0
1945           $PN(I) = 0.0
1946      300  CONTINUE
1947     C
1948     C            ***INITIALIZE M-PLIES FOR UPPER AND LOWER SKINS***
1949           DO 3003 I=1,11
1950           $KLUD(I) = 1.0
1951           $KLLO(I) = 1.0
1952      3003 CONTINUE
1953     C
1954     C            ***TEST FOR FDH DESIGN***
1955           FLAG = 0.0
1956           IF (SPCODE - 2) 3004,3004,320
1957      3004 IF (ACSSID - D(1)) 305,301,303
1958     C
1959     C
1960     C              *INPUT B*
1961      301  DO 302 I=1,11
1962           $PB(I) = DCBST(I)
1963           $PN(I) = W(1,I)/$PB(I) + 1.0
1964      302  CONTINUE
1965           GO TO 350
1966     C
1967     C              *INPUT NOS*
1968      303  DO 304 I=1,11
1969           $PN(I) = DCNOS(I) + 2.0
1970           $PB(I) = W(1,I)/($PN(I) - 1.0)
1971      304  CONTINUE
1972           GO TO 350
1973     C
1974     C              *SEARCH--TEST TYPE OF ORIENTATION--CONST B OR NOS*
1975      305  FLAG = 1
1976           IF (TYPE - 2) 308,306,306
1977     C
1978     C              *CONST B -- SEARCH BMIN TO BMAX--NO ROUND ON NOS*
1979      306  DO 307 I=1,11
1980           $PB(I) = BSMIN
1981           $PN(I) = W(1,I)/$PB(I) + 1.0
1982      307  CONTINUE
1983           GO TO 350
1984     C
1985     C              *CONST NOS---SEARCH FROM NOSMAX TO NOSMIN*
1986      308  IF (NSPMIN - NSPMAX) 309,309,310
1987      309  FLAG = 0.0
```

CARD NO **** CONTENTS ****

```
1988      310  DO 311 I=1,11
1989           SPN(I) = NSPMAX + 2.0
1990           SPB(I) = W(1,1)/(NSPMAX + 1.0)
1991      311  CONTINUE
1992           GO TO 350
1993      C
1994      C            ***FULL DEPTH HONEYCOMB**TEST FOR INPUT CORE DENSITY**
1995      C              *INITIALIZE SPB(1-11) = 1.0 FOR CORE CRUCHING LOAD CALC
1996      C              *     SPB(12-22) = INITIAL CORE DENSITY, LB/CU IN
1997      C              *     SPB(23-33) = CORE COIL GAGE
1998      C              *     SPN(1-11) = INPUT/CALC CORE DENSITY, LB/CU FT
1999      C              *     SPN(12-22) = CORE CELL SIZE
2000      C             **SPN(23-33) WILL CONTAIN FINAL CORE DENSITY, LB/ CU IN
2001      C
2002      C             **FLAG HAS BEEN SET TO 0 FOR ONE PASS**
2003      320  DO 321 I=1,11
2004           SPB(I) = D(I)
2005           SPB(I+11) = ENC(I)
2006           SPB(I+22) = ENH(6)
2007           SPN(I) = ENC(I)*1728.0
2008           SPN(I+11) = ENH(5)
2009           SPN(I+22) = SPB(I+11)
2010      321  CONTINUE
2011      C
2012      C
2013           IF (ACSSID) 350,350,322
2014      C
2015      C              *INPUT DENSITY IN INPUT NOS ARRAY*
2016      322  DO 323 I=1,11
2017           SPN(I) = DCNOS(I)
2018           SPB(I+11) = SPN(I)/1728.0
2019           SPB(I+33) = SPB(I+11)*ENH(6)/ENC(I)
2020      323  CONTINUE
2021      C
2022      C
2023      C             ***INITIALIZE DATA***
2024      350  NB = 0.0
2025           DO 3500 I=1,12
2026           ELM(I) = 0.0
2027      3500 CONTINUE
2028      C
2029      C             ***PRINT CONSTANTS ON APRTID(12) = 1***
2030      3501 IF (APRTID(12)) 3503,3503,3502
2031      3502 WRITE (6,105)
2032           DO 109 K=1,38,5
2033           J = K + 4
2034           WRITE (6,1061)K,(CNT(KK),KK=K,J,1)
2035      109  CONTINUE
2036      C
2037           WRITE (6,102)(ENP(K),K=1,8)
2038      C
2039           WRITE (6,103)
2040           DO 107 K=1,100,5
2041           J = K + 4
2042           WRITE (6,106)K,(TH(KK+600),KK=K,J,1)
2043      107  CONTINUE
2044      C
2045           WRITE (6,104)
2046           DO 108 K=1,60,5
2047           J = K + 4
2048           WRITE (6,106)K,(TH(KK+700),KK=K,J,1)
2049      108  CONTINUE
2050      C
2051      3503 NMAX = 0.0
2052      C
2053      C
2054      C             ***SEARCH LOOP***
2055      C             *ANALYZE TIP TO ROOT***
2056         3 ELM(I) = 0.0
2057           SLUMIN = 1.0
2058           SLLMIN = 1.0
```

```
CARD NO  ****                          CONTENTS                          ****
 2059      C
 2060      C
 2061            DO 35 ISEC=1,11
 2062            NSTAT = 12 - ISEC
 2063      C
 2064            DO 4 I=1,6
 2065            CRLC(I,NSTAT) = 0.0
 2066            XEL(I) = 1.0
 2067          4 CONTINUE
 2068            CRLC(7,NSTAT) = 0.0
 2069            WIDE=W(1,NSTAT)
 2070      C
 2071      C            ***ESTIMATED EFFECTIVE DEPTHS = F(YBAR CO:ER)***
 2072      C             **WEB DEPTHS ASSUMED TO BE D-2*(DELTA YBAR)**
 2073      C              *MIN EFF DEPTH = 1.0 IN.*
 2074       351  DELCOV = YBOT(NSTAT) + YBL(NSTAT)
 2075            HI = W(2,NSTAT) - DELCOV
 2076            IF (HI - D(1)) 3511,3512,3512
 2077       3511 HI = D(1)
 2078       3512 HS = W(2,NSTAT) - 2.0*DELCOV
 2079            IF (HS - D(1)) 3513 3514,3514
 2080       3513 HS = D(1)
 2081       3514 HF = TBFS(NSTAT) - 2.0*DELCOV
 2082            IF (HF - D(1)) 3515,3516,3516
 2083       3515 HF = D(1)
 2084       3516 HR = TBRS(NSTAT) - 2.0*DELCOV
 2085            IF (HR - D(1)) 3517,3518,3518
 2086       3517 HR = D(1)
 2087      C
 2088      C            ***SETUP CONSTANTS (C1,C2,C4) 1-11***
 2089       3518 B = SPB(NSTAT)
 2090            NSPAR = SPN(NSTAT)
 2091            C1 = DVFS(NSTAT)*DVFSRS(NSTAT)/D(19)
 2092            C2 = DVRS(NSTAT)*(D(1) - DVFSRS(NSTAT))/D(19)
 2093            C4 = SLCFS(5)*(SLCFS(1) + SLCFS(2)) + SHOCP(1) + SHBCP(2) + C7*ISP
 2094           1AR/D(2)
 2095      C
 2096            DO 15 LCASE=1,ILCASE
 2097            WS(1)=V(2,NSTAT,LCASE)/(HI*(WIDE+C4))*DXDU(NSTAT)
 2098            WS(2)=-WS(1)*DNDL(NSTAT)/DNDU(NSTAT)
 2099            WS(3)=V(3,NSTAT,LCASE)/(2.*WIDE*HI)
 2100      C
 2101      C             **CHECK FOR FOH--NO SHEAR IN CORE**
 2102            IF (ND(3) - SPCODE) 352,352,3520
 2103       352  WS(8) = V(1,NSTAT,LCASE)/2.0
 2104            WS(4) = ABS(C1*WS(8)/HF + WS(3))
 2105            WS(5) = 0.0
 2106            WS(6) = ABS(C2*WS(8)/HR - WS(3))
 2107            GO TO 356
 2108      C
 2109      C             **M/SPAR**
 2110       3520 WS(8) = V(1,NSTAT,LCASE)/NSPAR
 2111            WS(5) = ABS(WS(8)/WS)
 2112            WS(7) = C1*WS(8)/HF
 2113            WS(4) = ABS(WS(7) + WS(3))
 2114            IF (WS(4) - ABS(WS(7))) 353,354,354
 2115       353  WS(4) = ABS(WS(7))
 2116       354  WS(7) = C2*WS(8)/HR
 2117            WS(6) = ABS(WS(7) - WS(3))
 2118            IF (WS(6) - ABS(WS(7))) 355,356,356
 2119       355  WS(6) = ABS(WS(7))
 2120      C
 2121       356  DO 8 I=1,8
 2122            STRESS(I,NSTAT,LCASE)=WS(I)
 2123          8 CONTINUE
 2124      C
 2125            IF (WS(1)) 9,11,10
 2126          9 EL(1)=WS(1)/ENX(2,LCASE)+C3
 2127            GO TO 11
 2128         10 EL(1)=WS(1)/ENX(1,LCASE)+C3
 2129         11 IF (WS(2))12,13,14
```

```
CARD NO  ****                          CONTENTS                          ****
   2130        12 EL(2)=WS(2)/EN(2,LCASE)+C3
   2131           GO TO 13
   2132        14 EL(2)=WS(2)/EN(1,LCASE)+C3
   2133        13 CONTINUE
   2134     C
   2135           DO 60 I=3,6
   2136           EL(I) = ABS(WS(I)/EN(3,LCASE)) + C3
   2137        60 CONTINUE
   2138     C
   2139           DO 159 I=1,6
   2140           IF (CRLC(I,NSTAT)) 150,150,151
   2141       150 CRLC(I,NSTAT) = LCASE
   2142       151 IF (EL(I),LE.XEL(I)) GO TO 159
   2143           XEL(I)=EL(I)
   2144           CRLC(I,NSTAT)=LCASE
   2145       159 CONTINUE
   2146     C
   2147        15 CONTINUE
   2148     C
   2149           DO 600 I=1,6
   2150           XEL(I) = INT(XEL(I))
   2151       600 CONTINUE
   2152     C
   2153           EL(1)=XEL(1)
   2154           EL(2)=XEL(3)
   2155           EL(4)=XEL(2)
   2156           EL(5)=EL(2)
   2157           EL(8)=XEL(4)
   2158           EL(7)=XEL(5)
   2159           EL(9)=XEL(6)
   2160     C
   2161     C            ***INITIAL EST OF M-PLIES = MAX OF -
   2162     C              *1.  STA(I) ST. M-PLIES*
   2163     C              *2.  STA(I-1) FINAL M-PLIES - 2*
   2164     C              *3.  PASS(J-1) STA(I) FINAL M-PLIES LESS 2*
   2165           XEL(7) = SLMIN - 2.0
   2166           XEL(8) = SLMIN - 2.0
   2167           IF (SLMIN - SKLLO(NSTAT)) 160,161,161
   2168       160 XEL(7) = SKLLO(NSTAT) - 2.0
   2169       161 IF (SLLMIN - SKLLO(NSTAT)) 162,163,163
   2170       162 XEL(8) = SKLLO(NSTAT) - 2.0
   2171       163 IF (EL(2) - XEL(7)) 164,165,165
   2172       164 EL(2) = XEL(7)
   2173       165 IF (EL(5) - XEL(8)) 166,167,167
   2174       166 EL(5) = XEL(8)
   2175       167 EL(3) = XN(1,2)
   2176           EL(6) = XN(4,5)
   2177     C
   2178     C            ***PRINT SECTION CNSTANTS ON APRTID(12) = 1***
   2179      1000 IF (APRTID(12)) 1009,1009,1001
   2180      1001 WRITE (6,100)(WS(K),K=1,8)
   2181     C
   2182       100 FORMAT (7H0   WS=,8E16.8,/7X,4E16.8)
   2183       101 FORMAT (7H0  XEL=,8E16.8)
   2184       102 FORMAT (7H0  EN=,5E16.8,/7X,4E16.8)
   2185     C
   2186       103 FORMAT (6H0  END)
   2187       104 FORMAT (6H0  EN)
   2188       105 FORMAT (6H0  CNT)
   2189     C
   2190       106 FORMAT (1H ,3X,13,5E16.8)
   2191     C
   2192           WRITE (6,101)(XEL(K),K=1,8)
   2193     C
   2194     C
   2195     C
   2196     C            ***START BOX DESIGN--TEST FOR H/SPAR OR FULL D/HC***
   2197      1009 IF (3 - SPCODE) 130,130,1300
   2198     C
   2199     C            ***FULL DEPTH HONEYCOMB DESIGN***
   2200     C             **CALL SUBR ACHFDH FOR UPR/LWR SKIN AND CORE DESIGN**
```

```
CARD NO  ****                          CONTENTS                          ****
 2201      130  CALL ACHFDH (NSTAT)
 2202      C
 2203      C              *SET EL(10,11,12) = 0.0*
 2204           EL(10) = 0.0
 2205           EL(11) = 0.0
 2206           EL(12) = 0.0
 2207           GO TO 230
 2208      C
 2209      C
 2210      C            ***UPPER COVER DESIGN--M/SPAR-PLATES OR HC/PNL***
 2211      C             **FACT = 1 FOR PLATES**
 2212      C             **FACT = 2 FOR HC/PNL**
 2213       1300 FACT = 1.0
 2214           IF (SKCODE.EQ.2) FACT=2.
 2215      C
 2216      C            ***FOR COVERS--SAVE FCRC FOR COMPRESSION RIMAX) LESS THAN
 2217      C              *     1 IF NOT STABILITY CRITICAL***
 2218           FCR(1,NSTAT) = 0.0
 2219           RMAX = 0.0
 2220           DO 139 LCASE=1,ILCASE
 2221           I = 1
 2222       131 CALL CKSTABIR,B,EL(1),EL(2),EL(3),STRESS(1,NSTAT,LCASE),STRESS(3,N
 2223          ISTAT,LCASE),FACT,FCRC,FCRS,LCASE,TCPNLU)
 2224           IF (1.0 - R) 132,133,133
 2225       132 I = 2
 2226           EL(2) = EL(2) + 1.0
 2227           EL(3) = BN(1,2)
 2228           GO TO 131
 2229      C
 2230      C             **NO SAVE ON TENSION**
 2231       133 IF (STRESS(1,NSTAT,LCASE)) 139,139,134
 2232       134 IF (2 - I) 135,135,136
 2233       135 FCR(1,NSTAT) = FCRC
 2234           FCR(2,NSTAT) = FCRS
 2235           CRLC(3,NSTAT) = LCASE + 20
 2236           GO TO 139
 2237      C
 2238       136 IF (RMAX - 2) 138,137,139
 2239       137 IF (FCR(1,NSTAT) - FCRC) 138,139,139
 2240       138 RMAX = R
 2241           FCR(1,NSTAT) = FCRC
 2242           FCR(2,NSTAT) = FCRS
 2243           CRLC(3,NSTAT) = LCASE
 2244       139 CONTINUE
 2245      C
 2246      C
 2247      C            ***LOWER COVER DESIGN***
 2248      C             **FACT = 1 FOR PLATES**
 2249      C             **FACT = 2 FOR HC/PNL**
 2250      C
 2251       140 FCR(2,NSTAT) = 0.0
 2252           RMAX = 0.0
 2253           DO 149 LCASE=1,ILCASE
 2254           I = 1
 2255       141 CALL CKSTABIR,B,EL(4),EL(5),EL(6),STRESS(2,NSTAT,LCASE),STRESS(3,N
 2256          ISTAT,LCASE),FACT,FCRC,FCRS,LCASE,TCPNLL)
 2257           IF (1.0 - R) 142,143,143
 2258       142 EL(5) = EL(5) + 1.0
 2259           EL(6) = BN(4,5)
 2260           GO TO 141
 2261      C
 2262      C             **NO SAVE ON TENSION LOADS**
 2263      C              *NO STABILITY LOAD ID FOR TENSION COVER*
 2264       143 IF (STRESS(2,NSTAT,LCASE)) 148,148,144
 2265       144 IF (2 - I) 145,145,146
 2266       145 FCR(3,NSTAT) = FCRC
 2267           FCR(4,NSTAT) = FCRS
 2268           GO TO 148
 2269      C
 2270       146 IF (RMAX - R) 148,147,148
 2271       147 IF (FCR(3,NSTAT) - FCRC) 148,148,148
```

```
CARD NO      ****                          CONTENTS                          ****
 2272        148  RMAX = R
 2273             FCR(3,NSTAT) = FCRC
 2274             FCR(4,NSTAT) = FCRS
 2275        149  CONTINUE
 2276        C
 2277        C
 2278        C            ***SPAR DESIGN FOR H/SPAR AND FDH CONST ***
 2279        C            ***SETUP T(U,L) AND E(U,L) FOR CRUSHING LOAD CALC***
 2280        230  DO 2300 I=1,2
 2281             N = I*3 - 2
 2282             THICK(I) = ENP(9)*D(2)*(EL(N) + D(2)*EL(N+1) + EL(N+2))
 2283        2300 CONTINUE
 2284        C
 2285        C
 2286             SPCRUH(NSTAT) = 0.0
 2287        C
 2288        240  DO 244 LCASE=1,ILCASE
 2289             P(LCASE) = 0.0
 2290             DO 242 I=1,2
 2291             IF (STRESS(I,NSTAT,LCASE)) 242,242,2400
 2292        2400 N = I*3 - 2
 2293             E1(I) = (ENO(1,LCASE)*EL(N) + D(2)*EL(N+1)*ENO(4,LCASE) + ENO(2,L
                 1CASE)*EL(N+2))*ENS(9)/THICK(I)*D(2)
 2294             PP = STRESS(I,NSTAT,LCASE)**2*B/(THICK(I)*E1(I)*NS)*D(2)
 2295             IF (P(LCASE) - PP) 241,242,242
 2296        241  P(LCASE) = PP
 2297        242  CONTINUE
 2298        C
 2299             IF (SPCRUH(NSTAT) - P(LCASE)) 243,244,244
 2300        243  SPCRUH(NSTAT) = P(LCASE)
 2301             CRLC(7,NSTAT) = LCASE
 2302             PH = P(LCASE)/ENO(1,LCASE)
 2303        244  CONTINUE
 2304        C
 2305        C            **MIN NO OF L PLIES = 1**
 2306             EL(7) = INT(PH + C3)
 2307             IF (EL(7) - D(1)) 245,246,246
 2308        245  EL(7) = D(1)
 2309        246  EL(10) = EL(7)
 2310             EL(13) = EL(7)
 2311             EL(9)=XN(7,8)
 2312             EL(12)=XN(10,11)
 2313             EL(15)=XN(13,14)
 2314        C
 2315        C            ***FRONT SPAR DESIGN***
 2316        C              *CORRUGATION OR HC/PNL*
 2317             FACT = 1.21
 2318             IF (SFCODE.EQ.2)  FACT=2.5
 2319        C
 2320        C            ***SETUP ALLOWABLE STABILITY LOADS AT CRITICAL P/A COND***
 2321        810  LCASE = CRLC(4,NSTAT)
 2322             CALL CKSTAB (R,HF,EL(7),EL(8),EL(9),P(LCASE),STRESS(4,NSTAT,LCASE)
                 1,FACT,FCRC,FCRS,LCASE,TCPNLF)
 2323             FCR(5,NSTAT)=FCRC
 2324             FCR(8,NSTAT)=FCRS
 2325        C
 2326        C            **CHECK ALL L..   'OR STABILITY**
 2327             DO 815 LCASE=1,ILCASE
 2328             I = 1
 2329        811  CALL CKSTAB (R,HF,EL(7),EL(8),EL(9),P(LCASE),STRESS(4,NSTAT,LCASE)
                 1,FACT,FCRC,FCRS,LCASE,TCPNLF)
 2330             IF (1.0 - R) 812,813,813
 2331        812  I = 2
 2332             EL(8) = EL(8) + 1.0
 2333             EL(9) = XN(7,8)
 2334             GO TO 811
 2335        C
 2336        813  IF (2 - I) 814,814,815
 2337        814  FCR(5,NSTAT)=FCRC
 2338             FCR(8,NSTAT)=FCRS
 2339             CRLC(4,NSTAT)=20+LCASE
```

```
CARD NO  ****                          CONTENTS                          ****
 2343      615 CONTINUE
 2344      C
 2345      C
 2346      C            ***INTERM SPAR WEB DESIGN***
 2347      C             **CHECK FOR FULL DEPTH HONEYCOMB DESIGN-SECTION-2**
 2348       620 FACT = 2.5
 2349           IF (SPCODE - 2) 6200,6201,630
 2350       6200 FACT = 1.21
 2351      C
 2352      C            ***SETUP ALLOWABLE STABILITY LOADS AT CRITICAL P/A CORD***
 2353       6201 LCASE = CRLC(5,NSTAT)
 2354           CALL CKSTAB (R,NS,EL(10),EL(11),EL(12),PILCASE),STRESS(5,NSTAT,LCA
 2355          1SE),FACT,FCRC,FCRS,LCASE,TCP1&.1)
 2356           FCR(7,NSTAT)=FCRC
 2357      C
 2358           FCR(8,NSTAT)=FCRS
 2359      C             **CHECK ALL LOADS FOR STABILITY**
 2360           DO 625 LCASE=1,ILCASE
 2361           I = 1
 2362       621 CALL CKSTAB (R,NS,EL(10),EL(11),EL(12),PILCASE),STRESS(5,NSTAT,LCA
 2363          1SE),FACT,FCRC,FCRS,LCASE,TCP1&.1)
 2364           IF (1.0 - R) 622,623,623
 2365       622 I = 2
 2366           EL(11) = EL(11) + 1.0
 2367           EL(12) = XN(10,11)
 2368           GO TO 621
 2369      C
 2370       623 IF (2 - I) 624,624,625
 2371       624 FCR(7,NSTAT)=FCRC
 2372           FCR(8,NSTAT)=FCRS
 2373           CRLC(5,NSTAT) = 20 + LCASE
 2374       625 CONTINUE
 2375      C
 2376      C
 2377      C            ***REAR SPAR DESIGN***
 2378      C              *CORRUGATION OR HC/PIL*
 2379       630 FACT = 1.21
 2380           IF (SRCODE.EQ.2)  FACT=2.5
 2381      C
 2382      C            ***SETUP ALLOWABLE STABILITY LOADS AT CRITICAL P/A CORD***
 2383           LCASE = CRLC(6,NSTAT)
 2384           CALL CKSTAB (R,NR,EL(13),EL(14),EL(15),PILCASE),STRESS(6,NSTAT,LCA
 2385          1SE),FACT,FCRC,FCRS,LCASE,TCP1&R)
 2386           FCR(9,NSTAT)=FCRC
 2387           FCR(10,NSTAT)=FCRS
 2388      C
 2389      C             **CHECK ALL LOADS FOR STABILITY**
 2390           DO 635 LCASE=1,ILCASE
 2391           I = 1
 2392       631 CALL CKSTAB (R,NR,EL(13),EL(14),EL(15),PILCASE),STRESS(6,NSTAT,LCA
 2393          1SE),FACT,FCRC,FCRS,LCASE,TCP1&R)
 2394           IF (1.0 - R) 632,633,633
 2395       632 I = 2
 2396           EL(14) = EL(14) + 1.0
 2397           EL(15) = XN(13,14)
 2398           GO TO 631
 2399      C
 2400       633 IF (2 - I) 634,634,635
 2401       634 FCR(9,NSTAT)=FCRC
 2402           FCR(10,NSTAT)=FCRS
 2403           CRLC(6,NSTAT)=20+LCASE
 2404       635 CONTINUE
 2405      C
 2406      C
 2407      C            ***SAVE UPPER/LOWER COVER M-PLIES FOR NEXT STATION***
 2408           SLUMIN = EL(2)
 2409           SLLMIN = EL(5)
 2410           SKLUO(NSTAT) = EL(2)
 2411           SKLLO(NSTAT) = EL(5)
 2412      C
 2413      C
```

```
CARD NO  ****                                CONTENTS                                ****
2414        C            ***CALC WT/IN AND WT/FT***
2415         690  CALL WEIGHT (WEIGH(NSTAT),NSTAT)
2416              IF (I - ISEC) 691,692,692
2417         691  WEIGP(NSTAT) = (WEIGH(NSTAT+1) + WEIGH(NSTAT))*(YST(NSTAT+1) - YST
2418             1(NSTAT))/2.0
2419              ELW(I) = ELW(I) + WEIGP(NSTAT)
2420        C
2421        C            ***SAVE PLY DATA***
2422         692  DO 693 I=1,15
2423              IEL(I,NSTAT)=EL(I)
2424         693  CONTINUE
2425        C
2426        C           ***LOOP FOR NEXT STATION***
2427            35 CONTINUE
2428        C
2429        C            ***PRINT WEIGHT SUMMARY DATA ON APRTID(12) = 1***
2430         6990 IF (APRTID(12)) 6999,6999,6991
2431         6991 WRITE (6,17)ELW(I)
2432         17   FORMAT (15H1  CALC WEIGHT=F10.4)
2433              WRITE (6,18)(WEIGP(I),I=1,10),(WEIGH(I),I=1,11),(SPB(I),I=1,11),(S
2434             1PN(I),I=1,11)
2435         18   FORMAT (10H0   WPNL= 10F9.3,/10H0  WT/IN= 11F9.3,/10H0      B= 11
2436             19.3,/10H0    NDS= 11F9.3)
2437        C
2438        C
2439        C            ***TEST ID---0=NO TEST***
2440         6999 IF (FLAG) 700,800,700
2441        C
2442        C             **TEST NB FOR LOOP 1 OR 2.  0=LOOP 1**
2443         700  IF (NB) 701,701,750
2444         701  IF (ELW(2)) 710,710,702
2445        C
2446        C              *TEST WT(I) WITH WT(I-1)*
2447         702  IF (ELW(I) - ELW(2)) 710,703,703
2448        C
2449        C             **CALC INTERM PT.  USE DELTA B2 OR DELTA NDS2**
2450        C              *SET NB TO 1 AND MOVE (I-1) DATA TO (I-2),
2451        C              *     (I) DATA TO (I-1)*
2452         703  NB = 1
2453              DO 704 I=1,11
2454              SPB(I+22) = SPB(I+11)
2455              SPN(I+22) = SPN(I+11)
2456              SPB(I+11) = SPB(I)
2457              SPN(I+11) = SPN(I)
2458              SKLUO(I+22) = SKLUO(I+11)
2459              SKLLO(I+22) = SKLLO(I+11)
2460              SKLUO(I+11) = SKLUO(I)
2461              SKLLO(I+11) = SKLLO(I)
2462         704  CONTINUE
2463              ELW(3) = ELW(2)
2464              ELW(2) = ELW(1)
2465        C
2466        C            ***TYPE = SPAR ID--- 1=CONST NDS, 2=CONST B SEARCH***
2467              IF (ITYPE - 2) 707,705,705
2468        C
2469        C              *CONST B*
2470         705  DO 706 I=1,11
2471              SPB(I) = SPB(I) - ACDLB2
2472              SPN(I) = WT(1,I)/SPB(I) + 1.0
2473         706  CONTINUE
2474              GO TO 3
2475        C
2476        C              *CONST NDS*
2477         707  DO 708 I=1,11
2478              SPN(I) = SPN(I) + ACDLN2
2479              SPB(I) = WT(1,I)/(SPN(I) - 1.0)
2480         708  CONTINUE
2481              GO TO 3
2482        C
2483        C            ***PT(I) = FIRST POINT OR WT(I) LESS THAN WT(I-1)***
2484         710  IF (ITYPE - 2) 720,711,711
```

CARD NO **** CONTENTS ****

```
2485        C
2486        C
2487        C              **CONST B SEARCH---TEST IF PT(1) IS AT EMAX**
2488         711  IF (B - BSMAX) 712,800,800
2489         712  ELM(2) = ELM(1)
                  DO 713 I=1,11
2490              SPB(I+11) = SPB(I)
2491              SPN(I+11) = SPN(I)
2492              SXLUO(I+11) = SXLUO(I)
2493              SXLLO(I+11) = SXLLO(I)
2494         713  CONTINUE
2495        C
2496              IF (B - BSMAX + ACCLB2) 716,717,800
2497        C
2498        C                *TEST B(1) + DELTA B1 WITH EMAX*
2499        C                *IF LESS THAN EMIN, USE THIS POINT*
2500         714  IF (B - BSMAX + ACCLB1) 715,715,717
2501         715  B = B + ACCLB1
2502              DO 716 I=1,11
2503              SPB(I) = B
2504              SPN(I) = NO(1,1)/SPB(I) + 1.0
2505         716  CONTINUE
2506              GO TO 3
2507        C
2508        C                *B(I+1)=B+DELTA B2.  SET NB=1, NT(3)=1*NT(2)*
2509         717  NB = 1
2510              ELM(3) = 2.0*ELM(2)
2511              B = B - ACCLB1 + ACCLB2
2512              IF (BSMAX - B) 800,715,715
2513        C
2514        C                ***CONST NOS SEARCH---TEST IF PT(1) IS AT NOS(1)***
2515        C                ***CONST NOS SEARCH---TEST IF PT(1) IS AT NOS(1)***
2516         720  IF (NSPMIN - NSPAR + 2.0) 721,800,800
2517         721  ELM(2) = ELM(1)
2518              DO 722 I=1,11
2519              SPB(I+11) = SPB(I)
2520              SPN(I+11) = SPN(I)
2521              SXLUO(I+11) = SXLUO(I)
2522              SXLLO(I+11) = SXLLO(I)
2523         722  CONTINUE
2524        C
2525              NSPAR = NSPAR - ACCLN1
2526              IF (NSPMIN - NSPAR + 2.0) 723,723,725
2527         723  DO 724 I=1,11
2528              SPN(I) = NSPAR
2529              SPB(I) = NO(1,1)/(NSPAR - 1.0)
2530         724  CONTINUE
2531              GO TO 3
2532        C
2533        C                **NEXT PT = PT(1) - DELTA NOS(2)**
2534        C                **NEXT PT = PT(1) + DELTA NOS(2)**
2535        C                 *SET NB =1, NT(3)=2*NT(2)**
2536         725  NB = 1
2537              ELM(3) = 2.0*ELM(2)
2538              NSPAR = NSPAR + ACCLN1 - ACCLN2
2539              IF (NSPMIN - NSPAR + 2.0) 723,723,800
2540        C
2541        C
2542        C              ***LOOP 2---TEST FOR MIN PT FROM NO(1), NO(1-1), NO(1-2)***
2543        C                *LOOP FOR FINAL PASS IF MIN IS NO(1-1) OR NO(1-2)*
2544        C                *SET FLAG TO 0*
2545        C                *FOR EQUAL NTSS USE PT WITH LARGER B*
2546         750  FLAG = 0.0
2547              IF (ELM(3) - ELM(2)) 751,754,754
2548         751  IF (ELM(3) - ELM(1)) 752,800,800
2549        C
2550        C                **USE PT(3).  SET B,NOS(1) = B,NOS(1-2)**
2551         752  DO 753 I=1,11
2552              SPB(I) = SPB(I+22)
2553              SPN(I) = SPN(I+22)
2554              SXLUO(I) = SXLUO(I+22)
```

CARD NO **** CONTENTS ****

```
      SKLLO(I) = SKLLO(I+22)
  753 CONTINUE
      GO TO 3
C
C            **PT(I) AND PT(I-1)**
  754 IF (ELW(2) - ELW(1)) 755,800,800
  755 DO 756 I=1,11
      SPB(I) = SPB(I+11)
      SPN(I) = SPN(I+11)
      SKLUO(I) = SKLUO(I+11)
      SKLLO(I) = SKLLO(I+11)
  756 CONTINUE
      GO TO 3
C
C
C           ***CALC STIFFNESS DATA***
C            *CALL SUBR ASTIFF*
  800 CALL ASTIFF
C
C
  999 RETURN
      END
C*************************************************************************
C
C       *****SUBROUTINE ACWFDH*****
C  ***FULL-DEPTH HC SECTION OPTIMIZATION - ADV. COMP. ANALYSIS***
C
C*************************************************************************
C
      SUBROUTINE ACWFDH (N)
C
C          ****SUBR FOR SIZING OF FULL DEPTH HONEYCOMB TORQUE-BOX****
C            **CHECK SECTION COVER AND CORE REQMTS FOR CORE STABILITY*
C              *     WRINKLING AND CRUSHING*
C
C           ***SIZEINDS TO BE BASED ON STATUS OF SIZING ID--ACFDHC***
C            **ACFDHC = D(43)**
C              * 1. OPTIMUM SKIN/CORE COMBINATION--ID=0
C              * 2. CONSTANT CORE/VARIABLE SKIN--ID=1
C              * 3. CONSTANT SKIN/VARIABLE CORE DENSITY--ID=2
C
C
      COMMON T(2060),D(2060),CD(2000),ND(100),TW(900),CT(2048)
C
C
       DIMENSION ENP(9),ENH(6),ENC(3),
      1EL(15),END(5,20),
      2STRESS(6,11,20),CRLC(7,11),SPCRUH(11),P(20),
      3FCR(10,11),W(2,11),
      4CNT(91),TFCOV(2),
      5SPB(33),SPN(33),
      8TF(40)
C
       EQUIVALENCE (ENP(1),D(1155)),(ENH(1),D(1186)),(ENC(1),CT(2043)),
      1(EL(1),T(1300)),(END(1,1),TW(60)),(STRESS(1,1,1),CT(1)),
      2(CRLC(1,1),T(980)),(SPCRUH(1),T(1632)),(P(1),T(1896)),
      3(FCR(1,1),T(1100)),(CNT(1),T(1154)),(C3,CNT(3)),(C8,CNT(23)),
      4(W(1,1),CT(1981)),
      5(SPB(1),T(1232)),(SPN(1),T(1265)),
      8(ACFDHC,D(43)),(ILCASE,ND(4))
C
       EQUIVALENCE (TF(1),T(702)),
      1(CAX,TF(7)),(CRHO,TF(9)),(HPL,TF(8)),(TFCOV(1),TF(10)),
      2(CRMAX,TF(18)),(PCRUSH,TF(19)),(PCRUA,TF(20)),
      3(RCH,TF(21)),(RCC,TF(22)),
      4(RHOCH,TF(23)),(RHOCC,TF(24)),(HC,TF(25)),
      5(CRHOCP,TF(28)),(CRPCCP,TF(29)),
      8(NMAX,ND(3)),
      9(RHOMAX,TF(30))
C
C
```

CARD NO **** CONTENTS ****

```
C
C          **** NOTE    TF(31,??) MUST NOT BE USED   USED BY ACHEDH****
C           *** N = [illegible]TAT***
C
C
C           ***SIZE UPPER AND LOWER COVER IN TWO PASSES***
C            **SAVE FCRC FOR COMPRESSION FMAX LESS THAN U
C            **SAVE FCRC FOR COMPRESSION FMAX LESS THAN 1 IF NOT
C            **      CRITICAL FOR WRINKLING OR CRUSHING**
C             *IS = STABILITY ID AT LOAD FOR SKINS. 1=NO, 2=YES*
C             *IC = STABILITY ID AT LOAD FOR CORE, 1=NO, 2=YES*
C
C            **SETUP DATA FOR LOAD LOOP AND CKSFDH SUBR**
C
C
      DO 201 I=1,40
      TF(I) = 0.0
  201 CONTINUE
      NS = N12,N)
      C(N) = S[illegible](N+1)
      FCR(1,N) = 0.0
      FCR(3,N) = 0.0
      FCR(7,N) = 0.0
      CRLC(3,N) = CRLC(1,N)
C
C           ***UPR/LWR COVER LOOP***
C            **NS = SKIN ID--DO UPR FIRST***
      NS = 1
      NS2 = 1
      DO 202 I=1,6
      TF(I) = EL(I)
  202 CONTINUE
C
C           ***LOAD CHECK LOOP***
  210 DO 209 L=1,ILCASE
      IS = 1
      IC = 1
      IF (STRESS(NS,N,L)) 209,209,211
  211 CNX = STRESS(NS,N,L)
C
      CALL CKSFDH(L)
C****CCCC
C
C           ***TEMP MAX POINT TEST***
      IF (NMAX - 1000) 933,933,299
  933 CONTINUE
C
C****CCCC
      P(L) = PCRUSH
C           **CHECK INITIAL MARGINS*
      IF (RCW - 1.0) 212,212,230
  212 IF (IS - 1) 213,213,215
C
C           **CHECK FOR MAX ALLOABLE LOAD FOR COVERS**
  213 IF (FCR(NS2,N) - CRWX) 214,215,215
  214 FCR(NS2,N) = CRWX
      FCR(NS2+1,N) = CFWX
      IF (NS - 1) 2140,2140,215
 2140 CRLC(3,N) = L
C
C           **COVER OK FOR WRINKLING.  CHECK CRUSHING**
  215 IF (RCC - 1.0) 216,216,220
  216 IF (IC - 1) 217,217,209
  217 IF (FCR(7,N) - PCRUA) 218,209,209
  218 FCR(7,N) = PCRUA
      FCR(8,N) = PCRUA
      SPCRUH(N) = PCRUSH
      CRLC(5,N) = L
      GO TO 209
C
C          ***CORE CRITICAL FOR CRUSHING, OK FOR WRINKLING**
```

```
CARD NO  ****                          CONTENTS                          ****
 2698      C              *CHECK TYPE OF DESIGN *
 2699       220  IC = 2
 2700            FCR(7,N) = CRPCCP
 2701            CRLC(5,N) = L + 20
 2702            IF (1 - ACFDHC) 221,260,270
 2703      C
 2704      C             ***CONSTANT SKIN, VARY CORE DENSITY- USE CALC RHO CORE***
 2705       221  CRHO = RHOCC
 2706            GO TO 289
 2707      C
 2708      C             ***WRINKLING CRITICAL--CHECK CRUSHING**
 2709       230  IS = 2
 2710            IF (RCC - 1.0) 231,231,250
 2711       231  IF (IC - 1) 232,232,240
 2712       232  IF (FCR(7,N) - PCRUA) 233,240,240
 2713       233  FCR(7,N) = PCRUA
 2714            FCR(8,N) = PCRUA
 2715            SPCRUH(N) = PCRUSH
 2716            CRLC(5,N) = L
 2717      C
 2718      C             ***CORE WRINKLING CRITICAL, OK FOR CRUSHING--CHECK TYPE***
 2719       240  FCRINS,N) = CRHXCP
 2720            IF (NS - 1) 241,241,242
 2721       241  CRLC(3,N) = L + 20
 2722       242  IF (1.0 - ACFDHC) 243,260,270
 2723      C
 2724      C              **CONSTANT SKIN DESIGN--USE CALC CORE**
 2725       243  CRHO = RHOCH
 2726            GO TO 289
 2727      C
 2728      C             ***CORE CRITICAL IN WRINKLING AND CRUSHING--CHECK FOR
 2729      C               *CRITICAL DESIGN CRITERIA***
 2730       250  IC = 2
 2731            FCRINS2,N) = CRHXCP
 2732            IF (NS - 1) 251,251,252
 2733       251  CRLC(3,N) = L + 20
 2734       252  FCR(7,N) = CRPCCP
 2735            CRLC(5,N) = L+20
 2736            IF (1.0 - ACFDHC) 253,260,270
 2737       253  CRHO = RHOMAX
 2738            GO TO 289
 2739      C
 2740      C             ***VARY SKIN ONLY--ADD ONE L-PLY IN STEPS***
 2741       260  TF(1) = TF(1) + 1.0
 2742            TF(3) = INT((TF(1) + 2.0*T).../1)*C8 + C3)
 2743      C
 2744      C
 2745            CALL CKSFDH(L)
 2746      C****CCCC
 2747      C
 2748      C             ***TEMP MAX POINT TEST***
 2749            IF (NMAX - 1000) 890,890,299
 2750       890  CONTINUE
 2751      C
 2752      C****CCCC
 2753            IF (IS - 2) 261,261,263
 2754       261  FCRINS2,N) = CRHXX
 2755            IF (NS - 1) 262,262,263
 2756       262  CRLC(3,N) = L + 20
 2757       263  IF (IC - 2) 264,264,265
 2758       264  FCR(7,N) = PCRUA
 2759            SPCRUH(N) = PCRUSH
 2760            CRLC(5,N) = L + 20
 2761      C
 2762      C             **CHECK MARGINS**
 2763       265  IF (RCH - 1.0) 266,268,268
 2764       266  IF (1.0 - RCC) 268,289,289
 2765      C
 2766      C
 2767      C             ***VARY SKIN AND CORE--ADD ONE L-PLY IN STEPS***
 2768       270  TF(32) = EXP(B1*TFCOV(1) + RHOMAX*HC
```

```
CARD NO  ****                          CONTENTS                          ****
 2769      271  TF(31) = TF(32)
 2770           TF(1) = TF(1) + 1.0
 2771           TF(3) = INT((TF(1) + 2.0*TF(2))*C8 + C3)
 2772      C
 2773      C
 2774           CALL CKSFDH(L)
 2775      C****CCCC
 2776      C
 2777      C            ***TEMP MAX POINT TEST***
 2778           IF (NMAX - 10001 991,991,299
 2779       991 CONTINUE
 2780      C
 2781      C****CCCC
 2782           TF(32) = EXP(B)*TFCOV(1) + RHOMAX*HC
 2783      C
 2784      C             **TEST WT(1) WITH WT(I-1)**
 2785           IF (TF(31) - TF(32)) 272,273,271
 2786      C
 2787      C             **RESIZE TO L-PLY(I-1) SET**
 2788       272 TF(1) = TF(1) - 1.0
 2789           TF(3) = INT((TF(1) + 2.0*TF(2))*C8 + C3)
 2790      C
 2791      C
 2792           CALL CKSFDH(L)
 2793      C****CCCC
 2794      C
 2795      C            ***TEMP MAX POINT TEST***
 2796           IF (NMAX - 10001 992,992,299
 2797       992 CONTINUE
 2798      C
 2799      C****CCCC
 2800      C
 2801      C             **CRITICAL LOADS TESTS**
 2802       273 IF (IS - 2) 274,274,276
 2803       274 FCR(NS2,N) = CRHOCP
 2804           IF (NS - 1) 275,275,276
 2805       275 CRLC(3,N) = L + 20
 2806       276 IF (IC - 2) 277,277,278
 2807       277 FCR(7,N) = CRPCCP
 2808           SPCRUH(N) = CRPCCP
 2809           CRLC(5,N) = L + 20
 2810       278 P(N) = PCRUSH
 2811      C
 2812      C            ***LOOP FOR NEXT LOAD CONDITION***
 2813       289 CONTINUE
 2814      C
 2815      C            * *CHECK SKIN STATUS***
 2816       290 IF (NS - 1) 291,291,295
 2817      C
 2818      C             **UPPER COVER.  SAVE DATA AND SETUP FOR LOWER**
 2819       291 DO 292 I=1,3
 2820           EL(I) = TF(I)
 2821           TF(I+3) = TF(I)
 2822           TF(I) = EL(I+3)
 2823       292 CONTINUE
 2824           IF (ACFDHC) 294,293,294
 2825       293 CRHO = RHOMAX
 2826       294 NS = 2
 2827           NS2 = 3
 2828           GO TO 210
 2829      C
 2830      C             **LOWER COVER**
 2831       295 IF (ACFDHC) 297,296,297
 2832       296 CRHO = RHOMAX
 2833       297 EL(4) = TF(1)
 2834           EL(5) = TF(2)
 2835           EL(6) = TF(3)
 2836      C
 2837      C            ***SETUP FINAL CORE DATA***
 2838       298 SPN(N+22) = CRHO
 2839           SPN(N) = CRHO*1728.0
```

```
CARD NO  ****                          CONTENTS                          ****

2840            SPBIN+22) = CRHO/SFD(N+1)/CHH(6)
2841          C
2842          C
2843          C
2844          C
2845          C            ***EXIT***
2846           299  RETURN
2847               END
2848          C*************************************************************************
2849          C
2850          C       *****SUBROUTINE CKSFDH*****
2851          C   ***STABILITY EVAL FOR FULL DEPTH HC CORE/SKIN - ADV. COMP. ANALYSIS***
2852          C
2853          C*************************************************************************
2854          C
2855               SUBROUTINE CKSFDH(LCASE)
2856          C
2857          C           ****SUBR FOR FULL DEPTH HONEYCOMB DESIGN****
2858          C            ***CALC SKIN AND CORE STABILITY ALLOWABLES AND REQMTS***
2859          C             **GIVEN COMPRESSION SKIN L,M,N PLIES, RX, CORE DENSITY**
2860          C              *CALC ALLOWABLE WRINKLING AND CRUSHING LOADS FOR
2861          C              *     SPECIFIED SKIN AND CORE DENSITY*
2862          C              *CALC REQUIRED CORE DENSITIES FOR WRINKLING AND CRUSHING
2863          C              *     FOR GIVEN SKIN LOADS AND STIFFENESSES*
2864          C
2865          C
2866               COMMON T(2060),D(2060),CD(2000),ND(100),TW(900),CT(2048)
2867          C
2868               DIMENSION ENP(9),ENH(6),ENQ(5,20),
2869              1FDHCY(20),FDHFE(20),FDHFG(20),
2870              2APRTID(12),
2871              3TF(40),TFCOV(2)
2872          C
2873               EQUIVALENCE (ENP(1),D(1155)),(ENH(1),D(1164)),(ENQ(1,1),TW(601)),
2874              1(FDHCY(1),TW(841)),(FDHFE(1),TW(861)),(FDHFG(1),TW(881)),
2875              3(TF(1),T(2021)),(CNX,TF(7)),(CRHO,TF(8)),(HML,TF(9)),
2876              4(TFCOV(1),TF(10)),(E11,TF(12)),(E22,TF(13)),(EB,TF(14)),
2877              5(CEP,TF(15)),(CGP,TF(16)),(FCH,TF(17)),(CRHX,TF(18)),
2878              6(PCRUSH,TF(19)),(PCRUA,TF(20)),(RCH,TF(21)),(RCC,TF(22)),
2879              7(CRHOCP,TF(28)),(CRPCCP,TF(29)),(RHOMAX,TF(30)),
2880              8(APRTID(1),T(1070)),(NMAX,ND(3)),(NSTAT,ND(55)),
2881              9(RHOCH,TF(23)),(RHOCC,TF(24)),(HC,TF(25))
2882          C
2883          C
2884          C
2885          C           ***L = LOAD CASE INDEX****
2886          C
2887          C            ***CALC SKIN THICKNESSES AND STIFFNESSES***
2888               L = LCASE
2889               NMAX = NMAX + 1
2890          C
2891           200  DO 201 I=1,2
2892               N = I*3 - 2
2893               TFCOV(I) = 2.0*ENP(9)*(TF(N) + 2.0*TF(N+1) + TF(N+2))
2894           201  CONTINUE
2895               HC = HML - TFCOV(1) - TFCOV(2)
2896          C
2897               E11 = (TF(1)*ENQ(1,L) + 2.0*TF(2)*ENQ(4,L) + TF(3)*ENQ(2,L))*D(2)*
2898              1ENP(9)/TFCOV(1)
2899               E22 = (TF(1)*ENQ(2,L) + 2.0*TF(2)*ENQ(4,L) + TF(3)*ENQ(1,L))*D(2)*
2900              1ENP(9)/TFCOV(1)
2901               EB = SQRT(E11*E22)
2902          C
2903          C            ***CORE PROPERTIES***
2904               TF(26) = CRHO/ENH(1)
2905               IF (TF(26) - 0.0338) 202,203,203
2906           202  CGP = 2.43*TF(26)**1.54*FDHFG(L)
2907               GO TO 204
2908           203  CGP = 0.40*TF(26)*FDHFG(L)
2909           204  CEP = 2.13*TF(26)**1.415*FDHFE(L)
2910          C
```

```
CARD NO  ****                          CONTENTS                          ****
2911        C             ***CALC ALLOWABLES FOR GIVEN CORE DENSITIES***
2912        C              **WRINKLING**
2913              FCH = 0.43*(CEP*COP*EB)**0.3333
2914              CRWNX = TFCOV(I)*FCH
2915              RLW = CNX/CRWNX
2916        C
2917        C              **CRUSHING.  CALC CRUSHING LOAD**
2918              PCRUSH = CNX**2/(TFCOV(I)*HC*E(I))*2.0
2919              PCRUA = TFCOV(I)*2.31*TF(28)**1.464*FDHCY(L)/HC**0.160
2920              RCC = PCRUSH/PCRUA
2921        C
2922        C              **COMPUTE CORE DENSITY REQUIRED FOR GIVEN LOADS AND SKIN
2923        C               *WRINKLING.  TEST DENSITY FOR CORRECT EQUATION*
2924         205  RHOCH = ENH(I)*((CNX/TFCOV(I)/0.43)**3/5.E7/EB/FDHFG(L)/FDHFE(L))*
2925             1*0.3304
2926              TF(27) = RHOCH/ENH(I)
2927        C
2928        C               *CHECK CALC DENSITY*
2929              IF (TF(27) - 0.0338) 206,207,207
2930         206  RHOCH = ENH(I)*((CNX/TFCOV(I)/0.43)**3/0.852/EB/FDHFG(L)/FDHFE(L))
2931             1**0.4141
2932        C
2933        C              **CRUSHING**
2934         207  RHOCC = ENH(I)*(PCRUSH/2.31*HC**0.160/FDHCY(L))**0.6831
2935        C
2936        C             ***SELECT MAX DENSITY FROM CRHO, RHOCH AND RHOCC***
2937        C              **CALC ALLOWABLE WRINKLING AND CRUSHING LOAD AT RHOMAX**
2938         210  CRWNCP = CRWNX
2939              CRPCCP = PCRUA
2940              RHOMAX = CRHO
2941              IF (RHOCH - CRHO) 211,211,213
2942         211  IF (CRHO - RHOCC) 212,290,290
2943         212  RHOMAX = RHOCC
2944              GO TO 215
2945         213  RHOMAX = RHOCH
2946              IF (RHOCH - RHOCC) 214,215,215
2947         214  RHOMAX = RHOCC
2948        C
2949        C              **CALC CORE E AND G**
2950         215  TF(27) = RHOMAX/ENH(I)
2951              IF (TF(27) - 0.0338) 216,217,217
2952         216  TF(34) = 2.43*TF(27)**1.54*FDHFG(L)
2953              GO TO 218
2954         217  TF(34) = 0.40*TF(27)*FDHFG(L)
2955         218  TF(33) = 2.13*TF(27)**1.415*FDHFE(L)
2956        C
2957              CRHOCP = TFCOV(I)*0.43*(TF(33)*TF(34)*EB)**0.3333
2958              CRPCCP = TFCOV(I)*2.31*TF(27)**1.464*FDHCY(L)/HC**0.160
2959        C
2960        C             ***BREAKPOINT PRINT***
2961        C             ***PRINT SECTION DATA ON APRTID(NSTAT) = 1***
2962         290  IF (APRTID(NSTAT)) 299,299,294
2963         294  WRITE (6,295)NSTAT,L,NMAX
2964         295  FORMAT (1H0/,24H0  ***CKSFDH SUBR -- STA,I2,12H  LOAD CASE ,I2,8H
2965             1 PT NO=I4,4H*** ,/8H0  TF )
2966         296  FORMAT (3X,I2,3X,5E10.8)
2967        C
2968              DO 297 K=1,40,5
2969              KK = K + 4
2970              WRITE (6,296)K,(TF(J),J=K,KK,1)
2971         297  CONTINUE
2972        C
2973        C
2974        C
2975        C             ****EXIT****
2976         299  RETURN
2977              END
2978        C*************************************************************************
2979        C
2980        C        *****SUBROUTINE WEIGHT*****
2981        C   ***SECTION WT PER INCH FOR ADV. COMP. H/SPAR/FDH TORQUE-BOX***
```

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CARD NO  ****                          CONTENTS                          ****
 2982    C
 2983    C*************************************************************
 2984    C
 2985          SUBROUTINE WEIGHT (WE1,NSTAT)                              WEIG1010
 2986    C
 2987    C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
 2988    C          FULL DEPTH HONEYCOMB TORQUE-BOX DESIGNS****
 2989    C             ***TYPE ID   PLATES--SPCODE=1 AND SPCODE = 1 OR 2*
 2990    C               *          HC/PNL--SPCODE=2 AND SPCODE = 1 OR 2*
 2991    C               *          FULL DEPTH HC--SPCODE=1 AND SPCODE = 3*
 2992    C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
 2993    C
 2994    C                                                                 WEIG1020
 2995    C                                                                 WEIG1030
 2996          COMMON T(9100)                                              WEIG1040
 2997    C                                                                 WEIG1050
 2998          DIMENSION D(2000),CT(2048),ND(100),                         WEIG1060
 2999         1ENP(9),ENH(6),ENC(3),EL(15),                                WEIG1061
 3000         2W(30),                                                      WEIG1062
 3001         3SLCFS(5),SHBCP(2),SHRMS(2),SHDCF(2),                        WEIG1063
 3002         4SPB(33),SPN(33),                                            WEIG1064
 3003         5APRTID(12),                                                 WEIG1065
 3004         6W(12,11),CNT(38)                                            WEIG1069
 3005    C                                                                 WEIG1070
 3006          EQUIVALENCE (D(1),T(2061)),(CT(1),T(1712)),(ND(1),T(612)),  WEIG1080
 3007         1(ENP(1),D(1155)),(ENH(1),D(1164)),(ENC(1),CT(2043)),        WEIG1081
 3008         2(EL(1),T(1300)),(CNT(1),T(1154)),(PFFSCV,CT(2047)),         WEIG1082
 3009         3(PFFSSP,CT(2048)),(DORHO,D(1464)),(CFRIB,D(1400)),(SHDCF(1),D(1427)),WEIG1083
 3010         4(TCPNLV,CNT(29)),(TCPNLL,CNT(30)),(TCPNLI,CNT(31)),         WEIG1084
 3011         5(TCPNLF,CNT(32)),(TCPNLR,CNT(33)),(C4,CNT(4)),(NSPAR,CNT(2)),WEIG1085
 3012         6(HS,CNT(24)),(HF,CNT(25)),(HR,CNT(26)),                     WEIG1086
 3013         7(SFCODE,ND(45)),(SRCODE,ND(46)),                            WEIG1087
 3014         8(W(1,1),CT(1981)),                                          WEIG1088
 3015         9(SKCODE,ND(42)),(SPCODE,ND(43))                             WEIG1089
 3016         A,(C9,CNT(34)),(C10,CNT(35)),(C7,CNT(22)),(DRHR,D(24))       WEIG1090
 3017         B,(SLCFS(1),D(1470)),(SHDCP(1),D(1423)),(SHRMS(1),D(1410))   WEIG1091
 3018         C,(SPB(1),T(1232)),(SPN(1),T(1265))                          WEIG1092
 3019         D,(APRTID(1),T(1070))                                        WEIG1094
 3020    C                                                                 WEIG1099
 3021    C                                                                 WEIG1090
 3022          INTEGER SPCODE,SKCODE
 3023          INTEGER SFCODE,SRCODE
 3024          REAL NSPAR                                                  WEIG1110
 3025    C                                                                 WEIG1120
 3026          DO 380 I=1,30
 3027          W(I) = 0.0
 3028     380  CONTINUE
 3029    C
 3030    C            ***SETUP CONSTANTS FOR WIDTH AND NO OF SPARS***
 3031    C             **SPB(12-22) = CELL SIZE FOR FDH**
 3032    C             **SPN(12-22) = CORE DENSITY FOR FDH**
 3033          W(17) = NSPAR - D(2)
 3034          W(18) = W(1,NSTAT) + C4
 3035    C
 3036    C            ***CALC THICKNESSES***
 3037          DO 381 I=1,5
 3038          IN = 1*3 - 2
 3039          W(I) = (EL(IN) + 2.0*EL(IN+1) + EL(IN+2))*ENP(9)*D(2)
 3040     381  CONTINUE
 3041    C
 3042    C             **FILLER THICKNESS AT SPARS = 2*L-PLY THICKNESS**
 3043    C              *FASTENER LENGTH = T(SKIN) + T(FILLER) + T(RIB WEB) +
 3044    C              *   TCPNL(U,L) + LEFF(HEAD,GRIP,RETAINERS)+0.625 IN.)*
 3045    C              *FILLER = 0.0 FOR FDH AND HC/PNL, ATT = 0.0 FOR FDH*
 3046    C              *INITIAL SETUP FOR H/SPAR-PLATES*
 3047          W(5) = C7*W(1)
 3048          W(21) = 4.0*ENP(9)*EL(1)
 3049          W(22  = 4.0*ENP(9)*EL(4)
 3050          W(27) = W(1) + W(21)/2.0 + W(15) + TCPNLU + 0.625
 3051          W(28) = W(2) + W(22)/2.0 + W(15) + TCPNLL + 0.625
 3052    C
```

```
CARD NO  ****                          CONTENTS                          ****
3053     C            ***CAPS FOR F/S AND R/S***
3054     C             **FOR HC/PNL, C9 AND C10 ARE INSERT AREAS**
3055     C               *C9 AND C10 = 0.0 FOR PLATES*
3056     C               *C7, C9, C10 = 0.0 FOR FDH*
3057      300  DO 303 I=1,2
3058           W(20) = W(I)*SLCFS(4)
3059           IF (W(20) - SLCFS(3)) 391,392,392
3060      391  W(20) = SLCFS(3)
3061      392  W(I+10) = W(20)*SWDCP(1) + W(3)*SWDCP(3)/D(2)
3062           W(I+12) = W(20)*SWDCP(2) + W(5)*SWDCP(2)/D(2)
3063      303  CONTINUE
3064           W(1) = W(1) + C9
3065           W(2) = W(2) + C10
3066           W(3) = W(3) + C9
3067           W(4) = W(4) + C10
3068     C
3069     C            ***I-SPAR CAPS = F(C7,TSKU,INSERTS AS REQD)***
3070     C              *FOR FDH W(I)=SPAR CAPS) = DOUBLE WEIGHT*
3071     C              *SET TF(FILLER) AND L(ATT) = 0.0*
3072           IF (ND(3) - SPCODE) 3930,3930,3931
3073      3930 W(17) = SPSPINSTAT+11)
3074           W(15) = W(1,NSTAT)*DEPTH*ENP(8)
3075           W(21) = 0.0
3076           W(22) = 0.0
3077           W(27) = 0.0
3078           W(28) = 0.0
3079           GO TO 3939
3080     C
3081      3931 W(15) = W(17)*(D(2)*W(15) + C9 + C10)
3082     C
3083     C            **CONVERT TO WEIGHT**
3084      3939 DO 394 I=1,5
3085           W(I) = W(I)*ENP(8)
3086           W(I+10) = W(I+10)*ENP(8)
3087      394  CONTINUE
3088     C
3089     C
3090     C            ***COVERS***
3091     C              *FOR FDH, SPCODE=3 AND SKCODE=1*
3092           W(1) = W(1)*W(18)
3093           W(2) = W(2)*W(18)
3094           W(6) = PFFSCV*W(18)
3095           W(7) = PFFSCV*W(18)
3096     C
3097     C            **TEST FOR HC/PNL COVERS AND FDH**
3098           IF (ND(3) - SPCODE) 400,400,4000
3099     C
3100     C            **FULL DEPTH HONEYCOMB***
3101     C              *SPAR WT= CORE HEIGHT*
3102     C              *W(17)*CELL SIZE AND INITIAL VALUE OF W(16)=    0.0 *
3103      400  W(4) = W(I,NSTAT)*HS*SPN(INSTAT+22)
3104           W(9) = 0.0
3105           W(16) = 0.0
3106           GO TO 403
3107     C
3108     C            **TEST FOR HC/PNL OR PLATES.  SKCODE=2 FOR HC/PNL**
3109      4000 IF (ND(2) - SKCODE) 4001,4001,401
3110     C
3111     C            **HONEYCOMB PANEL COVERS**
3112     C              *CORRECT L(ATT) TO L(CALC) - TF(FILLER, SET TF(FILLER)=0.0
3113      4001 W(6) = W(18)*(TCPNLU*ENC(1) + DCRHO) + W(6)
3114           W(7) = W(18)*(TCPNLL*ENC(1) + DCRHO) + W(7)
3115           W(27) = W(27) - W(21)
3116           W(28) = W(28) - W(22)
3117           W(21) = 0.0
3118           W(22) = 0.0
3119     C
3120     C            **SPARS--CORRU OR H/PNL**
3121     C              *INTERM. SPARS*
3122      401  W(9) = PFFSSP*HS*CFRIB*W(17)
3123           W(4) = W(4)*HS*CFRIB*W(17)
```

```
CARD NO  ****                          CONTENTS                          ****
 3124            IF (ND(2) - SFCODE) 4021,4022,4020
 3125     4021 W(9) = WS*(TCPNLE*ENC(1) + DBRHO) - 7) + W(9)/CFRIB
 3126          W(9) = W(9)/CFRIB
 3127     4020 W(16) = (DWMIR - D(1))*(W(9) + W(15))
 3128     C
 3129     C             **FILLER AND ATT .TS**
 3130     4021 DO 4022 I=1,2
 3131          W(I+22) = W(I+20)*ENP(I)*W(17)
 3132          W(I+24) = 0.001473*W(17)*WET*.76)
 3133     4022 CONTINUE
 3134     C
 3135     C
 3136     C              *FRONT SPAR*
 3137     4023 W(8) = PFFSSP*HF*SWBCF(1)
 3138          W(3) = W(3)*HF*SWBCF(1)
 3139          IF (ND(2) - SFCODE) 4024,4025,4025
 3140     4024 W(8) = HF*(TCPNLE*ENC(1) + DBRHO) + W(8)/SWBCF(1)
 3141          W(3) = W(3)/SWBCF(1)
 3142     C
 3143     C              *REAR SPAR*
 3144     4025 W(10) = PFFSSP*HR*SWBCF(2)
 3145          W(5) = W(5)*HR*SWBCF(2)
 3146          IF (ND(2) - SRCODE) 4026,4027,4027
 3147     4026 W(10) = HR*(TCPRE.R*ENC(1) + DBRHO) + W(10)/SWBCF(2)
 3148          W(5) = W(5)/SWBCF(2)
 3149     C
 3150     C            ***WIMISC) FOR I-SPAR, F/S AND R/S***
 3151     4027 W(6) = W(6) + (SWKMS(1) - D(1))*(W(3) + W(11) + W(12)) + (SWKMS(
          12) - D(1))*(W(5) + W(13) + W(14))
 3153     C
 3154     C            ***SUM***
 3155     C
 3156          WEI = W(16) + W(23) + W(24) + W(25) + W(26)
 3157          DO 4028 I=1,15
 3158          WEI = WEI + W(I)
 3159     4028 CONTINUE
 3160     C
 3161     C
 3162     C            ***PRINT SECTION DATA ON APRTID(NSTAT) = 1***
 3163     4490 IF (APRTID(NSTAT)) 4499,4493,4494
 3164     4494 WRITE (6,4951NSTAT,NSPAR,WEI
 3165     C
 3166     4495 FORMAT (2HO  ***WEIGHI SUBR -- STA,I3,8H  NSPAR=,F7.1,8H  MT/(N=,
 3167         1F8.4,4H*** ,/6HO   W )
 3168     4496 FORMAT (3X,I2,2X,5F12.4)
 3169     4497 FORMAT (12HO  EL(I-15)=,3F6.1,2X,3F6.1,2X,3F5.1,2X,3F5.1,2X,3F5.1)
 3170     C
 3171          DO 4498 N=1 10,5
 3172          K = J + 4
 3173          WRITE (6,4961N,(W(I),I=N,K,1)
 3174     4498 CONTINUE
 3175          WRITE (6,4971(EL(I),I=1,15)
 3176     C
 3177     C
 3178     4499 RETURN
 3179          END
 3180     C*************************************************************************
 3181     C
 3182     C       *****SUBROUTINE ACWRBS*****
 3183     C   ***W/RIB TORQUE-BOX SYNTHESIS - ADV. COMP. ANALYSIS***
 3184     C
 3185     C*************************************************************************
 3186     C
 3187          SUBROUTINE ACWRBS                                          ACST0010
 3188     C
 3189     C            ***ADV. COMP. BOX SYNTHESIS--STR/RIB CONST***      ACST0020
 3190     C
 3191     C            ***COVER CONSTRUCTION ID--KSTRU AND KSTRL***
 3192     C             **WORKING ID=SKCODE--1=1, 2=2, 3=T, 4=HAT*
 3193     C
 3194     C                                                              ACST0030
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```
CARD NO  ****                          CONTENTS                          ****
 3195          COMMON T(19168)                                          ACST0040
 3196     C                                                             ACST0050
 3197          DIMENSION D(2500),CD(2000),ND(100),TH(900),CT(2040),     ACST0060
 3198         1ENP(5),ENH(6),CNT(9),                                    ACST0061
 3199         2ENO(5,20),ENX(3,20),EL(15),WS(8),EIC(3),ELW(12),XEL(10), ACST0062
 3200         3P(20),WEIGH(11),SPCRUH(11),FCR(10,11),IEL(15,11),        ACST0064
 3201         5DVFS(11),DVPS(11),DVFSRS(11),SLCFS(5),                   ACST0065
 3202         6TBFS(11),TBRS(11),YST(11),                               ACST0066
 3203         7SPB(33),SPN(33),DCBST(11),DCNOS(11),WEIGP(10),           ACST0067
 3204         8THICK(4),SKLUO(33),SKLLO(33),STLUO(33),STLLO(33),        ACST0068
 3205         9N(2,11),VC3,11,20),STRESS(6,11,20),CRLC(7,11),STRING(2,10,11) ACST0069
 3206         A,YBJ(11),YBL(11)                                         ACST0070
 3207         B,DOP2(4),DOP3(4)                                         ACST0071
 3208         C,APRTID(12)                                              ACMS0072
 3209         D,SHDCP(2),DNDU(11),DNDL(11)                              ACST0072
 3210         E,TX(160),TXS(100)                                        ACST0074
 3211     C                                                             ACST0079
 3212          EQUIVALENCE (D(1),T(206)),(CD(1),T(4123)),(ND(1),T(6123)), ACST0080
 3213         1(TH(1),T(622)),(CT(1),T(712)),(THICK(1),T(1916)),        ACST0081
 3214         2(ENP(1),D(1155)),(ENH(1),D(1164)),                       ACST0082
 3215         3(ENO(1,1),TH(601)),(ENX(1,1),TH(701)),(ENC(1),CT(2043)), ACST0083
 3216         4(EL(1),T(1300)),(WS(1),T(1315)),(CNT(1),T(1541)),        ACST0084
 3217         5(STRING(1,1,1),T(1676)),(WEIGH(1),T(1665)),(SPCRUH(1),T(1632)), ACST0085
 3218         6(CRLC(1,1),T(1960)),(P(1),T(1836)),(IEL(1,1),TH(1)),     ACST0086
 3219         7(VC(1,1,1),CT(1321)),(W(1,1),CT(1981)),(STRESS(1,1,1),CT(1)), ACST0087
 3220         8(FCR(1,1),T(1100)),(ELW(1),T(1643)),                     ACST0088
 3221         9(ILCASE,ND(91)),(XEL(1),T(1323)),(WEIGP(1),T(1655))      ACST0089
 3222         A,(SPCODE,ND(93)),(SJCODE,ND(95)),(SRCODE,ND(96)),(SKCODE,ND(92)) ACST0090
 3223         B,(TYPE,ND(94)),(XXCODE,CNT(19)),(XPCODE,CNT(20)),(XFCODE,CNT(27)) ACST0091
 3224         C,(XRCODE,CNT(28)),(NSTR,CNT(21)),(XSTRU,CNT(1)),(XSTRL,CNT(2)) ACST0092
 3225         D,(XTYPE,CNT(10)),(BRMIN,CNT(3))                          ACST0093
 3226         E,(BRMAX,CNT(4)),(BSMIN,CNT(5)),(BSMAX,CNT(6)),(BHMAX,CNT(7)) ACST0094
 3227         F,(C1,CNT(11)),(C2,CNT(12)),(C3,CNT(13)),(C4,CNT(14))     ACST0095
 3228         G,(NSTRMN,CNT(17)),(NSTRMX,CNT(18)),(HS,CNT(24))          ACST0096
 3229         H,(HF,CNT(25)),(HR,CNT(26))                               ACST0097
 3230         I,(TCPNLI,CNT(31)),(TCPNLF,CNT(32)),(TCPNLR,CNT(33))      ACST0098
 3231     C                                                             ACST0099
 3232          EQUIVALENCE (SPB(1),T(1232)),(SPN(1),T(1265)),           ACSR0100
 3233         1(DCBST(1),D(765)),(DCNOS(1),D(776)),                     ACST0101
 3234         2(TBFS(1),T(153)),(TBRS(1),T(165)),(YST(1),T(51)),        ACST0102
 3235         3(DVFS(1),D(842)),(DVRS(1),D(853)),(DVFSRS(1),CD(1924)),  ACST0103
 3236         4(SLCFS(1),D(1470)),(ACSSID,D(1438)),                     ACST0104
 3237         5(YBJ(11),T(679)),(YBL(11),T(690)),                       ACST0105
 3238         7(DOP2(4),D(1367)),(DOP3(4),D(1371)),                     ACST0107
 3239         8(ACDLN1,DOP2(3)),(ACDLN2,DOP2(4)),                       ACST0108
 3240         9(ACDLB1,DOP3(3)),(ACDLB2,DOP3(4))                        ACST0109
 3241         A,(TX(1),CD(1)),(TXS(1),CD(161)),(BS,TX(30)),(WIDE,TX(31)) ACST0110
 3242         B,(SKLUO(1),CD(261)),(SKLLO(1),CD(29)),(STLUO(1),CD(327)) ACST0111
 3243         C,(STLLO(1),CD(360)),(SLUMIN,CNT(8)),(SLLMIN,CNT(         ACST0112
 3244         D,(STUMIN,CNT(15)),(STLMIN,CNT(16)),(B,TX(30))            ACST0113
 3245         E,(SHDCP(1),D(1423)),(DNDU(1),D(1931)),(DNDL(1),D(1942))  ACST0114
 3246         F,(APRTID(1),T(1107)),(NMAX,ND(3)),(NSTAT,ND(55)),(ISE[illegible],ND(62)) ACST0115
 3247     C                                                             ACST0120
 3248     C
 3249     -
 3250          INTEGER     SPCODE,SKCODE,TYPE
 3251          INTEGER SFCODE,SRCODE
 3252          INTEGER FLAG
 3253     C
 3254          REAL NSTR
 3255          REAL NSTRMN,NSTRMX,ILL
 3256     C
 3257          SPCODE = XPCODE
 3258          TYPE = XTYPE
 3259          SFCODE = XFCODE
 3260          SRCODE = XRCODE
 3261     C
 3262     C
 3263     C              ***SETUP SEARCH DATA--TEST ID FOR TYPE OF DESIGN***
 3264     C                *ID=D(1438)=ACSSID.  0=SEARCH, 1=INPUT B, 2=INPUT NOS*
 3265     C                *IF SEARCH, USE TYPE AS CONTROL ID--1=CONST NOS, 2=B
```

CARD NO **** CONTENTS ****

```
C
C
      DO 300 I=1,22
      SPB(I) = 0.0
      SPN(I) = 0.0
  300 CONTINUE
C
C           ***CLEAR TX AND TXS ARRAYS***
      DO 3001 I=1,160
      TX(I) = 0.0
 3001 CONTINUE
      DO 3002 I=1,100
      TXS(I) = 0.0
 3002 CONTINUE
C
C           ***INITIALIZE LISKINS,STR)***
      DO 3003 I=1,11
      SALLO(I) = SLMIN
      SPLLO(I) = SLMIN
      STLLO(I) = STMIN
      STLLO(I) = STLMIN
 3003 CONTINUE
C
      FLAG = 0.0
      IF (ACSSID - D(1)) 305,301,303
C
C             *INPUT B*
  301 DO 302 I=1,11
      SPB(I) = DCBST(I)
      SPN(I) = W(1,I)/SPB(I) - 1.0
  302 CONTINUE
      GO TO 350
C
C              *INPUT NOS*
  303 DO 304 I=1,11
      SPN(I) = DCNOS(I)
      SPB(I) = W(1,I)/(SPN(I) + 1.0)
  304 CONTINUE
      GO TO 350
C
C              *SEARCH--TEST TYPE OF ORIENTATION--CONST B OR NOS*
  305 FLAG = 1
      IF (TYPE - 2) 308,306,306
C
C              *CONST B -- SEARCH BMIN TO BMAX--NO ROUND ON NOS*
  306 DO 307 I=1,11
      SPB(I) = BSMIN
      SPN(I) = W(1,I)/SPB(I) - 1.0
  307 CONTINUE
      GO TO 350
C
C              *CONST NOS---SEARCH FROM NOSMAX TO NOSMIN*
  308 IF (NSTRMN - NSTRMX) 309,309,310
  309 FLAG = 0.0
  310 DO 311 I=1,11
      SPN(I) = NSTRMX
      SPB(I) = W(1,I)/(NSTRMX + 1.0)
  311 CONTINUE
      GO TO 350
C
C
C
C           ***INITIALIZE DATA***
  350 NB = 0.0
      DO 3500 I=1,12
      ELM(I) = 0.0
 3500 CONTINUE
C
C           ***PRINT CONSTANTS ON APRTID(12) = 1***
 3501 IF (APRTID(12)) 3503,3503,3502
 3502 WRITE (6,105)
```

```
CARD NO  ****                          CONTENTS                          ****
 3337          DO 109 K=1,38,5
 3338          J = K + 4
 3339          WRITE (6,1061K,(CNT(KK),KK=K,J,1)
 3340   109  CONTINUE
 3341   C
 3342          WRITE (6,102)(ENP(K),K=1,9)
 3343   C
 3344          WRITE (6,103)
 3345          DO 107 K=1,100,5
 3346          J = K + 4
 3347          WRITE (6,1061K,(THICK*C00),KK=K,J,1)
 3348   107  CONTINUE
 3349   C
 3350          WRITE (6,104)
 3351          DO 108 K=1,60,5
 3352          J = K + 4
 3353          WRITE (6,1061K,(THICK*700),KK=K,J,1)
 3354   108  CONTINUE
 3355   C
 3356    3503 NMAX = 0.0
 3357   C
 3358   C
 3359   C            ***SEARCH LOOP***
 3360      3  ELN(1) = 0.0
 3361   C
 3362   C            ***M/RIB ANALYSIS--TIP TO ROOT***
 3363   CCC
 3364          DO 35 ISEC=1,11
 3365   C
 3366          NSTAT = 12 - ISEC
 3367   C
 3368          DO 4 I=1,6
 3369          CRLC(I,NSTAT) = 0.0
 3370          XEL(I) = 1.0
 3371      4   CONTINUE
 3372          CRLC(7,NSTAT) = 0.0
 3373          MIDL=MI(1,NSTAT)
 3374   C
 3375   C            ***ESTIMATED EFFECTIVE DEPTHS + FEYBAR COVER)***
 3376   C             **WEB DEPTHS ASSUMED TO BE 0-2*(DELTA YBAR)**
 3377   C              *MIN EFF DEPTH = 1.0 IN.*
 3378    351  DELCOV = YBU(INSTAT) + YBL(INSTAT)
 3379          MI = MI2,NSTAT) - DELCOV
 3380          IF (MI - D(1)) 3511,3512,3512
 3381    3511 MI = D(1)
 3382    3512 MS = MI2,NSTAT) - 2.0*DELCOV
 3383          IF (MS - D(1)) 3513,3514,3514
 3384    3513 MS = D(1)
 3385    3514 MF = TBFS(NSTAT) - 2.0*DELCOV
 3386          IF (MF - D(1)) 3515,3516,3516
 3387    3515 MF = D(1)
 3388    3516 MR = TBRS(NSTAT) - 2.0*DELCOV
 3389          IF (MR - D(1)) 3517,3519,3519
 3390    3517 MR = D(1)
 3391   C
 3392   C            ***SETUP CONSTANTS (C1,C2,C4) I-11***
 3393    3519 B = SPB(NSTAT)
 3394          NSTR = SPN(NSTAT)
 3395          C1 = DVFS(NSTAT)*DVFSRS(NSTAT)/D(19)
 3396          C2 = DVRS(NSTAT)*(D(1) - DVFSRS(NSTAT))/D(19)
 3397          C4 = SLCFS(5)*(SLCFS(1) + SLCFS(2) + SWBCP(1) + SWBCP(2)
 3398   C
 3399          DO 15 LCASE=1,ILCASE
 3400          WS(1)=V(2,NSTAT,LCASE)/(MI*(WIDE*C4))*DNXU(NSTAT)
 3401          WS(2)=-WS(1)*DROL(NSTAT)/DNXU(NSTAT)
 3402          WS(3)=V(3,NSTAT,LCASE)/(2.*WIDE*MI)
 3403   C
 3404          WS(0) = V(1,NSTAT,LCASE)/2.0
 3405          WS(4) = ABS(C1*WS(0)/MF + WS(3))
 3406          WS(5) = 0.0
 3407          WS(6) = ABS(C2*WS(0)/MR - WS(3))
```

```
CARD NO  ****                          CONTENTS                          ****
 3408      C
 3409       356  DO 0 I=1,6
 3410            STRESS(I,NSTAT,LCASE)=WS(I)
 3411        0   CONTINUE
 3412      C
 3413            IF (WS(1)) 9,11,10
 3414        9   EL(1) = WS(1)/ENX(2,LCASE) + C3
 3415            GO TO 11
 3416       10   EL(1) = WS(1)/ENX(1,LCASE) + C3
 3417         11 IF (WS(2))12,13,14
 3418       12   EL(2) = WS(2)/ENX(2,LCASE) + C3
 3419            GO TO 13
 3420       14   EL(2) = WS(2)/ENX(1,LCASE) + C3
 3421         13 CONTINUE
 3422      C
 3423            DO 60 I=3,6
 3424            EL(I) = ABS(WS(I)/ENX(3,LCASE)) + C3
 3425        60  CONTINUE
 3426      C
 3427            DO 151 I=1,6
 3428            IF (CRLC(I,NSTAT)) 150,150,151
 3429       150  CRLC(I,NSTAT) = LCASE
 3430       151  IF (EL(I).LE.XEL(I)) GO TO 159
 3431            XEL(I)=EL(I)
 3432            CRLC(I,NSTAT)=LCASE
 3433       159  CONTINUE
 3434      C
 3435         15 CONTINUE
 3436      C
 3437            DO 600 I=1,6
 3438            XEL(I) = INT(XEL(I))
 3439       600  CONTINUE
 3440      C
 3441            EL(1)=XEL(1)
 3442            EL(2)=XEL(3)
 3443            EL(3)=XN(1,2)
 3444            EL(4)=XEL(2)
 3445            EL(5)=EL(2)
 3446            EL(6)=XN(4,5)
 3447            EL(8)=XEL(4)
 3448            EL(10)=XEL(5)
 3449            EL(11)=XEL(6)
 3450      C
 3451      C
 3452      C            ***PRINT SECTION CNSTANTS JN APRTID(12) = 1***
 3453       1000 IF (APRTID(12)) 1009,1009,1001
 3454       1001 WRITE (6,100)(WS(K),K=1,8)
 3455       100  FORMAT (7H0   WS=,4E18.8,/7X,4E18.8)
 3456       101  FORMAT (7H0  XEL=,8E18.8)
 3457       102  FORMAT (7H0  ENP=,5E18.8,/7X,4E18.8)
 3458      C
 3459       103  FORMAT (6H0  END)
 3460       104  FORMAT (6H0  ENX)
 3461       105  FORMAT (6H0  CNT)
 3462      C
 3463       108  FORMAT (1H ,3X,13,5E18.8)
 3464      C
 3465            WRITE (6,101)(XEL(K),K=1,8)
 3466      C
 3467       1009 CONTINUE
 3468      C
 3469      C
 3470      C
 3471      C
 3472      C
 3473      C          ****SYNTHESIZE UPR/LWR STR COVERS AND RIBS****
 3474       500  CALL ACWSTR
 3475      C
 3476      C            ***SAVE SKIN AND STR L-PLY DATA***
 3477            SKUO(NSTAT) = EL(1)
 3478            SKLO(NSTAT) = EL(4)
```

```
CARD NO      ****                          CONTENTS                          ****
  3479            STLUG(NSTAT) = STRNG(1,IC,NSTAT)
  3480            STLLO(NSTAT) = STRNG(6,IC,NSTAT)
  3481      C
  3482      C
  3483      C             ***FRONT SPAR DESIGN***
  3484      C               *CORRUGATION OR HC/PNL*
  3485       601  FACT = 1.21
  3486            IF (SPCODE.EQ.2)  FACT=2.5
  3487      C
  3488      C             ***SETUP ALLOWABLE STABILITY LOADS AT CRITICAL P/A COND***
  3489       610  LCASE = CRLC(4,NSTAT)
  3490            CALL CKSTAB (R,HF,EL(7),EL(8),EL(9),PILCASE),STRESS(4,NSTAT,LCASE)
  3491           1,FACT,FCRC,FCRS,LCASE,TCP(&F)
  3492            FCR(5,NSTAT)=FCRC
  3493            FCR(6,NSTAT)=FCRS
  3494      C
  3495      C             **CHECK ALL LOADS FOR STABILITY**
  3496            DO 615 LCASE=1,TLCASE
  3497            I = 1
  3498       611  CALL CKSTAB (R,HF,EL(7),EL(8),EL(9),PILCASE),STRESS(4,NSTAT,LCASE)
  3499           1,FACT,FCRC,FCRS,LCASE,TCP(&F)
  3500            IF (1.0 - RI 612,613,613
  3501       612  I = 2
  3502            EL(8) = EL(8) + 1.0
  3503            EL(9) = XN(7,8)
  3504            GO TO 611
  3505      C
  3506       613  IF (2 - I) 614,614,615
  3507       614  FCR(5,NSTAT)=FCRC
  3508            FCR(6,NSTAT)=FCRS
  3509            CRLC(4,NSTAT)=20+LCASE
  3510       615  CONTINUE
  3511      C
  3512      C
  3513      C
  3514      C             ***REAR SPAR DESIGN***
  3515      C               *CORRUGATION OR HC/PNL*
  3516       633  FACT = 1.21
  3517            IF (SPCODE.EQ.2)  FACT=2.5
  3518      C
  3519      C             ***SETUP ALLOWABLE STABILITY LOADS AT CRITICAL P/A COND***
  3520            LCASE = CRLC(6,NSTAT)
  3521            CALL CKSTAB (R,HR,EL(13),EL(14),EL(15),PILCASE),STRESS(6,NSTAT,LCA
  3522           1SE),FACT,FCRC,FCRS,LCASE,TCP(&R)
  3523            FCR(9,NSTAT)=FCRC
  3524            FCR(10,NSTAT)=FCRS
  3525      C
  3526      C             **CHECK ALL LOADS FOR STABILITY**
  3527            DO 635 LCASE=1,TLCASE
  3528            I = 1
  3529       631  CALL CKSTAB (R,HR,EL(13),EL(14),EL(15),PILCASE),STRESS(6,NSTAT,LCA
  3530           1SE),FACT,FCRC,FCRS,LCASE,TCP(&R)
  3531            IF (1.0 - RI 632,633,633
  3532       632  I = 2
  3533            EL(14) = EL(14) + 1.0
  3534            EL(15) = XN(13,14)
  3535            GO TO 631
  3536      C
  3537       633  IF (2 - I) 634,634,635
  3538       634  FCR(9,NSTAT)=FCRC
  3539            FCR(10,NSTAT)=FCRS
  3540            CRLC(6,NSTAT)=20+LCASE
  3541       635  CONTINUE
  3542      C
  3543      C
  3544      C             ***CALC WT/IN AND WT/PNL***
  3545       690  CALL WEIGH2 (WEIGH(NSTAT),NSTAT)
  3546            IF (1 - ISEC) 691,692,692
  3547       691  WEIGP(NSTAT) = (WEIGH(NSTAT+1) + WEIGH(NSTAT))*(YST(NSTAT+1) - YST
  3548           1(NSTAT))/2.0
  3549            ELM(1) = ELM(1) + WEIGP(NSTAT)
```

CARD NO **** CONTENTS ****

```
C
C              ***SAVE PLY DATA***
  692 DO 693 I=1,15
      IEL(I,NSTAT)=EL(I)
  693 CONTINUE
C
C              ****LOOP FOR NEXT STATION****
   35 CONTINUE
C
C              ***PRINT WEIGHT SUMMARY DATA ON APRTID(12) = 1***
 6990 IF (APRTID(12)) 6999,6999,6991
 6991 WRITE (6,17)ELM(1)
  17  FORMAT (15H  CALC WEIGHT=F10.4)
      WRITE (6,18)(WEIGP(I),I=1,10),(WEIGH(I),I=1,11),(SPB(I),I=1,11),(S
     1PN(I),I=1,11)
  18  FORMAT (1CH0   WP/L= 10F9.3,/10H0  WT/IN= 11F9.3,/10H0       B= 11F
     1S.3,/10H0    NOS= 11F9.3)
C
C
C              ***TEST ID --0=NO TEST***
 6999 IF (FLAG) 700,800,700
C
C              **TEST NB FOR LOOP 1 OR 2.  0=LOOP 1**
  700 IF (NB) 701,701,750
  701 IF (ELM(2)) 710,710,702
C
C              *TEST WT(I) WITH WT(I-1)*
  702 IF (ELM(1) - ELM(2)) 710,703,703
C
C              **CALC INTERM PT.  USE DELTA B2 OR DELTA NOS2**
C               *SET NB TO 1 AND MOVE (I-1) DATA TO (I-2),
C               *      (I) DATA TO (I-1)*
  703 NB = 1
      DO 704 I=1,11
      SPB(I+22) = SPB(I+11)
      SPN(I+22) = SPN(I+11)
      SPB(I+11) = SPB(I)
      SPN(I+11) = SPN(I)
      SKLUO(I+22) = SKLUO(I+11)
      SKLLO(I+22) = SKLLO(I+11)
      STLUO(I+22) = STLUO(I+11)
      STLLO(I+22) = STLLO(I+11)
      SKLUO(I+11) = SKLUO(I)
      SKLLO(I+11) = SKLLO(I)
      STLUO(I+11) = STLUO(I)
      STLLO(I+11) = STLLO(I)
  704 CONTINUE
      ELM(3) = ELM(2)
      ELM(2) = ELM(1)
C
C              ***TYPE = STR. ID--- 1=CONST NOS, 2=CONST B SEARCH***
      IF (TYPE - 2) 707,705,705
C
C              *CONST B*
  705 DO 706 I=1,11
      SPB(I) = SPB(I) - ACOLB2
      SPN(I) = W(1,I)/SPB(I) - 1.0
  706 CONTINUE
      GO TO 3
C
C              *CONST NOS*
  707 DO 708 I=1,11
      SPN(I) = SPN(I) + ACOLN2
      SPB(I) = W(1,I)/(SPN(I) + 1.0)
  708 CONTINUE
      GO TO 3
C
C              ***PT(I) = FIRST POINT OR WT(I) LESS THAN WT(I-1)***
  710 IF (TYPE - 2) 720,711,711
C
C              **CONST B SEARCH---TEST IF PT(I) IS AT BMAX**
```

```
CARD NO      ****                          CONTINUE                          ****
    3621       711  IF (B - BSMAX) 712,800,800
    3622       712  ELM(2) = ELM(1)
    3623            DO 713 I=1,11
    3624            SPB(I+11) = SPB(I)
    3625            SPN(I+11) = SPN(I)
    3626            SKLUO(I+11) = SKLUO(I)
    3627            SKLLO(I+11) = SKLLO(I)
    3628            STLUO(I+11) = STLUO(I)
    3629            STLLO(I+11) = STLLO(I)
    3630       713  CONTINUE
    3631         C
    3632            IF (B - BSMAX + ACOLB2) 714,717,800
    3633         C
    3634         C              *TEST B(I) + DELTA B1 WITH BMAX*
    3635         C              *IF LESS THAN BMIN, USE THIS POINT*
    3636       714  IF (B - BSMAX + ACOLB1) 715,715,717
    3637       715  B = B + ACOLB1
    3638            DO 716 I=1,11
    3639            SPB(I) = B
    3640            SPN(I) = W(1,1)/SPB(I) - 1.0
    3641       716  CONTINUE
    3642            GO TO 3
    3643         C
    3644         C              *B(I+1)=B+DELTA B2.  SET NB=1, WT(3)=I*WT(2)*
    3645       717  NB = 1
    3646            ELM(3) = 2.0*ELM(2)
    3647            B = B - ACOLB1 + ACOLB2
    3648            IF (BSMAX - B) 800,715,715
    3649         C
    3650         C           ***CONST NOS SEARCH---TEST IF PT(I) IS AT NOSMIN***
    3651       720  IF (NSTRMN - NSTR) 721,800,800
    3652       721  ELM(2) = ELM(1)
    3653            DO 722 I=1,11
    3654            SPB(I+11) = SPB(I)
    3655            SPN(I+11) = SPN(I)
    3656            SKLUO(I+11) = SKLUO(I)
    3657            SKLLO(I+11) = SKLLO(I)
    3658            STLUO(I+11) = STLUO(I)
    3659            STLLO(I+11) = STLLO(I)
    3660       722  CONTINUE
    3661         C
    3662            NSTR = NSTR - ACOLN1
    3663            IF (NSTRMN - NSTR) 723,723,725
    3664       723  DO 724 I=1,11
    3665            SPN(I) = NSTR
    3666            SPB(I) = W(1,1)/(NSTR + 1.0)
    3667       724  CONTINUE
    3668            GO TO 3
    3669         C
    3670         C              **NEXT PT = PT(I) - DELTA NOS(2)**
    3671         C               *SET NB =1, WT(3)=2*WT(2)**
    3672       725  NB = 1
    3673            ELM(3) = 2.0*ELM(2)
    3674            NSTR = NSTR + ACOLN1 - ACOLN2
    3675            IF (NSTRMN - NSTR) 723,723,800
    3676         C
    3677         C
    3678         C            ***LOOP 2---TEST FOR MIN PT FROM W(I), W(I-1), W(I-2)***
    3679         C              *LOOP FOR FINAL PASS IF MIN IS W(I-1) OR W(I-2)*
    3680         C               *SET FLAG TO 0*
    3681         C               *FOR EQUAL WTS0 USE PT WITH LARGER B*
    3682       750  FLAG = 0.0
    3683            IF (ELM(3) - ELM(2)) 751,754,754
    3684       751  IF (ELM(3) - ELM(1)) 752,800,800
    3685         C
    3686         C              **USE PT(3).  SET B,NOS(I) = B,NOS(I-2)**
    3687       752  DO 753 I=1,11
    3688            SPB(I) = SPB(I+22)
    3689            SPN(I) = SPN(I+22)
    3690            SKLUO(I) = SKLUO(I+22)
    3691            SKLLO(I) = SKLLO(I+22)
```

```
      STLUO(I) = STLUO(I+22)
      STLLO(I) = STLLO(I+22)
  753 CONTINUE
      GO TO 3
C
C             **PT(I) AND PT(I-1)**
  754 IF (ELM(2) - ELM(1)) 755,800,800
  755 DO 756 I=1,11
      SPB(I) = SPB(I+11)
      SPN(I) = SPN(I+11)
      SKLUO(I) = SKLUO(I+11)
      SKLLO(I) = SKLLO(I+11)
      STLUO(I) = STLUO(I+11)
      STLLO(I) = STLLO(I+11)
  756 CONTINUE
      GO TO 3
C
C
C             ***CALC STIFFNESS DATA***
C               *CALL SUBR ASTIFF*
  800 CALL ASTIFF
C
C
  899 RETURN
      END
C*******************************************************************/****
C
C       *****SUBROUTINE ACWSTR*****
C   ***SKIN-STR/RIB SECTION OPTIMIZATION - ADV  COMP. ANALYSIS***
C
C*************************************************************************
C
      SUBROUTINE ACWSTR                                                ACWS0010
C
C           ****SUBR FOR COVER AND ROB SIZING--H/RIB DESIGN****
C
C
      COMMON T(2060),D(2060),CD(2000),ND(100),TH(900),CT(2048)
C
       DIMENSION EL(15),ENP(9),END(5,20),ENX(3,20),ENH(6),ENC(3),DC(100),
      1STRESS(6,11,20),CRLC(7,11),P(20),SPCRUN(11),FCR(10,11),
      2STRING(2,10,11),THICK(4),CNT(5),IEL(15,11),
      3TX(160),TXS(100),
      4SKOOU(11),SKOOL(11),STROU(11),STROL(11),
      5FSKU(11),FSTU(11),FSKL(11),FSTL(11),
      6ESK(20),STFNH(5),STFNF(5),
      7SKLUO(33),SKLLO(33),STLUO(33),STLLO(33),
      8PSK(20),PSTR(20),
      9APRTID(12)
      A,BRRU(11),BRRL(11)
C
       EQUIVALENCE (EL(1),T(1300)),(ENP(1),D(1195)),(END(1,1),TH(80)),
      1(ENX(1,1),TH(701)),(STRESS(1,1,1),CT(1)),(CRLC(1,1),T(960)),
      2(P(1),T(1096)),(SPCRUN(1),T(1632)),(FCR(1,1),T(1100)),
      3(STRING(1,1,1),T(1678)),(THICK(1),T(1916)),(CNT(1),T(1941)),
      4(TX(1),CD(1)),(TXS(1),CD(161)),
      5(XSTRU,CNT(1)),(XSTRL,CNT(2)),(BRMIN,CNT(3)),(BRMAX,CNT(4)),
      6(BMMAX,CNT(7)),(BMMIN,CNT(40)),(BFMAX,CNT(41)),(BFMIN,CNT(42)),
      7(NSTR,CNT(21)),(C3,CNT(13)),(C8,CNT(23)),
      8(SPCODE,ND(93)),(ILCASE,ND(94)),(ITYPE,ND(96)),
      9(APRTID(1),T(1070)),(NSTAT,ND(95)),(NMAX,ND(3))
      A,(DC(1),D(1401)),(STFNH(1),D(1390)),(STFNF(1),D(1353))
      B,(SKLUO(1),CD(261)),(SKLLO(1),CD(294))
      C,(STLUO(1),CD(327)),(STLLO(1),CD(360)),(CFIX,D(1407))
C
       EQUIVALENCE (ENH(1),D(1184)),(ENC(1),CT(2043)),(IEL(1,1),TH(1)),
      1(NS,CNT(24)),(ICPNL1,CNT(3)),
      2(CFRIB,D(1400)),(DBRHO,D(1404)),(PFFSCV,CT(2047)),(PFFSSP,CT(2048)),
      4(SKOOU(1),TH(168)),(STROU(1),TH(177)),
      5(FSKU(1),TH(188)),(FSTU(1),TH(199)),(SKOOL(1),TH(210)),
      8(STROL(1),TH(221)),(FSKL(1),TH(232)),(FSTL(1),TH(243)),
```

```
CARD NO  ****                          CONTENTS                          ****
  3763          7(XSTIFF,CNT+NB)),
  3764          8(NSTIFF,ND(33)),(ILS,ND(34)),(NLS,ND(35)),(NLR,ND(36)),
  3765          9(ISKIN,ND(32)),(LCCR,ND(29))
  3766          A,(PSK(1),TX(101)),(PSTR(1),TX(121)),(ASAL,TX(6)),(LSTRCR,ND(37))
  3767          B,(BWDTS,TX(76)),(DDTA,TX(78))
  3768          C,(BRRU(1),TW(25+1)),(EPRL(1),TW(25))
  3769      C
  3770           EQUIVALENCE (BS,TX(30)),(WIDE,TX(31)),(ELL,TX(32)),(ELO,TX(33)),
  3771          1(EMO,TX(34)),(ENO,TX(35)),(ELSF,TX(36)),(EPSK,TX(37)),
  3772          2(EWSA,TX(38)),(DELL,TX(39)),(ASTRA,TX(40)),(SKMNL,TX(41)),
  3773          3(DLSK1,TX(42)),(SKLUMI,TX(43)),(SKLLMN,TX(44)),(STRLUM,TX(45)),
  3774          4(STRLLM,TX(46)),(DRIDR,TX(47)),(DLSTRL,TX(48)),(ASTRO,TX(49)),
  3775          5(STRLO TX(50)),(STRLTO,TX(51)),(BRIBSN,TX(52)),(BRIEMX,TX(53)),
  3776          6(BRIB,TX(54)),(ASTR,TX(55)),(STRL,TX(56)),(STRLT,TX(57)),
  3777          7(AESTR,TX(58)),(TBSTR,TX(59)),(TSTR,TX(60)),(FSTR,TX(61)),
  3778          8(BW,TX(62)),(B",TX(63)),(ISTR,TX(64)),(TDAR,TX(65)),
  3779          9(YPLATE,TX(66)),(TRIB,TX(67)),(EIRECD,TX(68)),(EIRIB,TX(69))
  3780          A,(ERID,TX(70)),(TBTOT,TX(71)),(TBCOV,TX(72)),(TBRIB,TX(73))
  3781          B,(TBFIL,TX(74)),(TBATT,TX(75))
  3782          C,(ESK(1),TX(81)),(TSK,TX(41)),(ASKT,TX(5)),(DLEMI,TX(11))
  3783          D,(DLEN1,TX(12)),(PSKCRL,TX(43)),(PSTCRL,TX(15))
  3784          E,(PCCRI,TX(10)),(PSCRI,TX(19)),(RSTPOA,TX(8)),(RSTPOA,TX(9))
  3785          F,(STENT,TX(79)),(TSTRO,TX(80))
  3786          G,(BAL,TXS(30)),(BWT,TXS(31)),(RAL,TXS(32))
  3787      C
  3788      C
  3789           REAL ISTR,NSTR,IEL
  3790      C
  3791           INTEGER SPCODE,TYPE
  3792      C
  3793      C
  3794      C
  3795      C            ****M/RIB STATION ANALYSIS -- TIP TO ROOT****
  3796      C             ***SETUP INITIAL EST FOR SKIN AND STR L-PLIES***
  3797      C               **SELECT STA(I) STARTING L-PLIES AS LARGER OF--
  3798      C               *1.  FINAL SKIN/STR L-PLIES FOR BSTR PASS J-1.
  3799      C               * 2.  CURRENT PASS STA(I-1) FINAL L(PLIES LESS 1 OR IF
  3800      C               *     CURRENT TOTAL ST PLIES LESS THAN OUTBD
  3801      C               *     START AT BASIC MIN L-PLIES FOR CURRENT STATION*
  3802      C               *3.  MIN SPECIFIED L-PLIES--SETUP IN L-PLY ARRAYS*
  3803      C
  3804       100  SKLUMN = SKLUO(NSTAT)
  3805            SKLLMN = SKLLO(NSTAT)
  3806            STRLUM = STLUO(NSTAT)
  3807            STRLLM = STLLO(NSTAT)
  3808      C
  3809      C             **TEST FOR TIP STATION**
  3810            IF (1 - NSTAT) 101,101,102
  3811      C
  3812      C             **INITIAL SKIN DELTA M-PLIES = 0.0 FOR TIP STATION**
  3813       101  TXS(21) = 0.0
  3814            TXS(22) = 0.0
  3815            GO TO 200
  3816      C
  3817      C             ***STATIONS 1-10.  CHECK FOR OUTBD L-PLY VALUES FOR
  3818      C               *   CURRENT STATION STARTING VALUES***
  3819       102  SLKO = TXS(17) - 1.0
  3820            SLTO = TXS(18) - 1.0
  3821            SLDO = TXS(18) - EL(1)
  3822            IF (SLDO) 103,103,107
  3823       103  IF (SKLUMN - SLKO) 104,105,105
  3824       104  SKLUMN = SLKO
  3825       105  IF (STRLUM - SLTO) 106,107,107
  3826       106  STRLUM = SLTO
  3827      C
  3828       107  SLKO = TXS(17) - 1.0
  3829            SLTO = TXS(18) - 1.0
  3830            SLDO = TXS(18) - EL(4)
  3831            IF (SLDO) 108,109,200
  3832       108  IF (SKLLMN - SLKO) 110,111,111
  3833       110  SKLLMN = SLKO
```

```
CARD NO  ****                          CONTENTS                          ****
3034      111  IF (STRLLM - SLTO) 112,200,200
3035      112  STRLLM = SLTO
3036      C
3037      C
3038      C            ***COVER SIZING LOOP--INITIAL COVER = UPPER.  ISKIN=1***
3039       200 ISKIN = 1
3040           XSTIFF = XSTRU
3041           BRIBMX = BRMAX
3042           BRIBMN = BRMIN
3043           ELL = EL(1)
3044           EMO = EL(2)
3045           END = EL(3)
3046           STRLO = STRLUM
3047           SKOML = SKLUMN
3048           DLEMI = TXS(21)
3049           GO TO 300
3050      C
3051      C            ***LOWER COVER SIZING LOOP--ISKIN = 2***
3052       250 ISKIN = 2
3053           XSTIFF = XSTRL
3054           BRIBMX = BRIB
3055           BRIBMN = BRIB
3056           ELL = EL(4)
3057           EMO = EL(5)
3058           END = EL(6)
3059           STRLO = STRLLM
3060           SKOML = SKLLMN
3061           DLEMI = TXS(22)
3062           GO TO 300
3063      C
3064      C            ***SKIN SIZING LOOP--L(PLY) SEARCH--SETUP STR GEOM DATA***
3065      C            ***STR LT K(ISTR)=0 FOR ISTR, *STFNH FOR Z, T, HAT***
3066       300 NSTIFF = XSTIFF
3067           STFNT = 0.0
3068           IF (2 - NSTIFF) 3000,3000,3001
3069       3000 STFNT = STFNH(NSTIFF)
3070      C
3071      C            ***ABS MIN SKIN L-PLIES = 1***
3072       3001 IF (SKOML - 1.0) 3002,3003,3003
3073       3002 SKOML = 1.0
3074      C
3075      C             **L-PLY SEARCH ID=ILS.  0=INITIAL PASS**
3076      C              *DELTA L(I) = 2 OR 4*
3077       3003 ILS = 0.0
3078           DLSKI = 4.0
3079           IF (ELL - SKOML - 4.0) 301,302,302
3080       301 DLSKI = 2.0
3081      C
3082      C            **SETUP AVAILABLE STR AREA**
3083       302 ELO = SKOML
3084      C
3085       304 DLEMI = INT(CB*(ELO + EMO + DLEMI) + C3) - END
3086           IF (DLEMI) 3040,3041,3041
3087       3040 DLEMI = 0.0
3088       3041 TSTRO = ENP(9)*STRLO
3089           STRLTO = BMMIN*STFNH(NSTIFF) + BFMIN*STFNF(NSTIFF) + STFNT*TSTRO
3090           ASTRO = TSTRO*STRLTO
3091           STRL = STRLO
3092           TSTR = TSTRO
3093           STRLT = STRLTO
3094           ASTR = ASTRO
3095           DELL = ELL - ELO
3096           IF (DELL) 320,320,305
3097       305 ASTRA = 2.0*DELL*ENP(9)*DS
3098           IF (ASTR - ASTRA) 306,320,320
3099      C
3100      C            **CALC STR CONFIG FROM AVAILABLE L-SKIN PLY AREA**
3101       306 ASTR = ASTRA
3102       3060 STRL = INT(ASTR/(ENP(9)*BMMIN))
3103           IF (2 - NSTIFF) 307,307,308
3104       307 STRL = ENP(9)*(STFNH(NSTIFF)*BMMIN + STFNF(NSTIFF)*BFMIN)
```

```
CARD NO  ****                          CONTENTS                          ****
 3905          STRLT = STFNT*ENP(9)*ENP(9)
 3906          STRL = (SQRT(STRL*STRL + 4.0*STRLT*ASTR) - STRL)/2.0*STRLT
 3907          STRL = INT(STRL)
 3908      300 IF (STRL - STRLO) 309,310,310
 3909      309 STRL = STRLO
 3910      310 TSTR = ENP(9)*STRL
 3911          STRLT = BHMIN*STFNH(NSTIFF) + BFMIN*STFNF(NSTIFF) + STFNT*TSTR
 3912          STRLTO = STRLT
 3913          ASTR = TSTR*STRLT
 3914      C
 3915      C            ***CHECK SKIN-STR CONFIG FOR LOAD DIST AND P/A STRESSES***
 3916      C            ***ASSUME L-STR = MIN UNTIL P/A STRESSES ARE SATISFIED***
 3917      C             **RESIZE AS REQD BY INCREASING STR AREA--L PLIES**
 3918      320 NLS = 0.0
 3919          CALL ACMRSK(ASTR,STRL)
 3920          IF (1.0 - RSKPOA) 321,322,322
 3921      321 IF (1.020 - RSKPOA) 330,360,360
 3922      322 IF (1.0 - RSTPOA) 323,400,400
 3923      323 IF (1.020 - RSTPOA) 330,360,360
 3924      C
 3925      C             **SEARCH FOR STR AREA**
 3926      C              *INITIAL DELTA STR L-PLY=16 MIN OR STRL)*
 3927      330 DLSTRL = 16.0
 3928          IF (DLSTRL - STRL) 331,332,332
 3929      331 DLSTRL = STRL
 3930      332 STRL = STRL + DLSTRL
 3931          TSTR = ENP(9)*STRL
 3932          STRLT = BHMIN*STFNH(NSTIFF) + BFMIN*STFNF(NS    ) + TSTR*STFNT
 3933          ASTR = STRLT*TSTR
 3934          STRLTO = STRLT
 3935      333 CALL ACMRSK(ASTR,STRL)
 3936          IF (1.0 - RSKPOA) 334,335,335
 3937      334 IF (1.020 - RSKPOA) 332,360,360
 3938      335 IF (1.0 - RSTPOA) 336,400,337
 3939      336 IF (1.020 - RSTPOA  332,360,360
 3940      C
 3941      C             **SIZING(1) OR   CHECK STR(L) - .5*DELTA L.**
 3942      337 IF (DLSTRL - 4.0) 338,338,339
 3943      338 STRL = STRL - DLSTRL
 3944          GO TO 360
 3945      C
 3946      C            ***P/A OK FOR PT 1.  CHECK STR GEOM FOR LOCAL STABILITY***
 3947      339 CALL ACSTRO(LSTID)
 3948          IF (LSTID) 340,340,401
 3949      C
 3950      340 DLSTRL = INT(DLSTRL/2.0)
 3951          STRL = STRL - DLSTRL
 3952      341 TSTR = ENP(9)*STRL
 3953          STRLT = BHMIN*STFNH(NSTIFF) + BFMIN*STFNF(NSTIFF) + TSTR*STFNT
 3954          ASTR = STRLT*TSTR
 3955          STRLTO = STRLT
 3956          CALL ACMRSK(ASTR,STRL)
 3957          IF (1.0 - RSKPOA) 342,343,343
 3958      342 IF (1.020 - RSKPOA) 345,360,360
 3959      343 IF (1.0 - RSTPOA) 344,400,337
 3960      344 IF (1.020 - RSTPOA) 345,360,360
 3961      345 IF (4.0 - DLSTRL) 348,360,360
 3962      348 DLSTRL = INT(DLSTRL/2.0)
 3963          STRL = STRL + DLSTRL
 3964          GO TO 341
 3965      C
 3966      C              *NLS = SEARCH CONTROL ID.  0=FIRST PASS*
 3967      C              *   1=RESIZING BY L-PLY INCREASE BY 2*
 3968      C              *   2=RESIZING BY L-STR DECREASE BY 1*
 3969      350 NLS = 0.0
 3970          CALL ACMRSK(ASTR,STRL)
 3971          IF (RSKPOA - 1.0) 351,351,380
 3972      351 IF (1.0 - RSTPOA) 380,400,400
 3973      C
 3974      C             **INCREASE STR L BY 2.  NLS=1**
 3975      380 NLS = 1
```

```
CARD NO  ****                          CONTENTS                          ****
  3976      361 STRL = STRL + 2.0
  3977      362 TSTR = ENP(9)*STRL
  3978          STRLT = BAMIN*STFNH(NSTIFF) + BFMIN*STFNF(NSTIFF) + STFNT*TSTR
  3979          ASTR = TSTR*STRLT
  3980          STRLTO = STRLT
  3981          CALL ACMRSK(ASTR,STRL)
  3982          IF (RSKPOA - 1.0) 363,363,364
  3983      363 IF (1.0 - RSTPOA) 364,366,366
  3984      364 IF (2 - NLS) 365,365,361
  3985      365 STRL = STRL + 1.0
  3986          GO TO 362
  3987        C
  3988        C          ***SIZING OK--RESIZE FOR L-1 IF NLS=1.  SET NLS=2***
  3989      366 IF (NLS - 1) 367,367,400
  3990      367 NL   2
  3991          STRL = STRL - 1.0
  3992          GO TO 362
  3993        C
  3994        C          ***P/A CHECK OK--SETUP FOR STR LOCAL INSTABILITY CHECK***
  3995        C          ***INITIAL STR AREA CONVERGENCE LOOP FOR LOCAL STABILITY**
  3996        C           **SIZE WEB AND FLANGE LENGTHS AND STR PROPERTIES**
  3997      400 TBSTR = ASTR/BS
  3998          CALL ACSTRG(LSTID)
  3999          IF (LSTID) 800,800,401
  4000        C
  4001        C            *MIN INITIAL DELTA L-PLY = 16 OR STR L(1)*
  4002      401 DLSTRL = STRL
  4003          IF (STRL - 16.0) 402,403,403
  4004      402 DLSTRL = 16.0
  4005      403 STRL = STRL + DLSTRL
  4006          TSTR = ENP(9)*STRL
  4007          STRLT = BAMIN*STFNH(NSTIFF) + BFMIN*STFNF(NSTIFF) + TSTR*STFNT
  4008          ASTR = STRLT*TSTR
  4009          STRLTO = STRLT
  4010          CALL ACMRSK(ASTR,STRL)
  4011          CALL ACSTRG(LSTID)
  4012          IF (LSTID) 405,405,404
  4013      404 IF (BOTA - BAOTS - 0.10) 410,410,403
  4014        C
  4015        C          **STR OK.  CHECK AT DELTA L/2**
  4016      405 IF (DLSTRL - 4.0) 406,406,407
  4017      406 STRL = STRL - DLSTRL
  4018          GO TO 410
  4019        C
  4020      407 DLSTRL = INT(DLSTRL/2.0)
  4021          STRL = STRL - DLSTRL
  4022      408 TSTR = ENP(9)*STRL
  4023          STRLT = BAMIN*STFNH(NSTIFF) + BFMIN*STFNF(NSTIFF) + TSTR*STFNT
  4024          ASTR = STRLT*TSTR
  4025          STRLTO = STRLT
  4026          CALL ACMRSK(ASTR,STRL)
  4027          CALL ACSTRG(LSTID)
  4028          IF (LSTID) 405,405,409
  4029      409 IF (BOTA - BAOTS - 0.10) 410,410,4090
  4030      4090 IF (4.0 - DLSTRL) 4091,410,410
  4031      4091 DLSTRL = INT(DLSTRL/2.0)
  4032          STRL = STRL + DLSTRL
  4033          GO TO 408
  4034        C
  4035        C
  4036        C          ***STR AREA TOO SMALL.  INCREASE L-PLIES.  P/A OK***
  4037      410 STRL = STRL + 2.0
  4038          TSTR = ENP(9)*STRL
  4039          STRLT = BAMIN*STFNH(NSTIFF) + BFMIN*STFNF(NSTIFF) + STFNT*TSTR
  4040          ASTR = TSTR*STRLT
  4041          TBSTR = ASTR/BS
  4042          CALL ACMRSK(ASTR,STRL)
  4043          CALL ACSTRG(LSTID)
  4044          IF (LSTID) 411,411,410
  4045      411 STRL = STRL - 1.0
  4046      412 TSTR = ENP(9)*STRL
```

```
CARD NO      ****                    CONTENTS                    ****
 4047            STRLT = EXMIN*STIFF(4)*STIFF) + BFMIN*STIFB(INSTIFF) + STFNT*TSTR
 4048            ASTR = TSTR*STRLT
 4049            TBSTR = ASTR/DS
 4050            CALL ACMRSK(ASTR,STRL)
 4051            CALL ACSTRG(LSTID)
 4052            IF (LSTID) 600,600,413
 4053          413 STRL = STRL + 1.0
 4054            GO TO 412
 4055          C
 4056          C
 4057          C          ***CHECK GENL INSTABILITY AND SIZE RIBS FOR CRUSHING
 4058          C            *   AND COLUMN SUPPORT***
 4059          C           **STRINGER AREA CONTROL ID=NLR**
 4060          600 NLR = 0.0
 4061            RIBCUT = 0.0
 4062          601 EMSK = EMO * DLEMI
 4063            ENSK = END * DLENI
 4064            BRIB = 0.0
 4065          C
 4066          C           **MIN COL LENGTH FOR ALL LOADS**
 4067            DO 604 L=1,ILCASE
 4068            IF (STRESS(ISKIN,NSTAT,L)) 604,604,602
 4069          602 AESTI = ENO(1,L)*TDSTR
 4070            YPLATI = AESTI*(YBAR*TSK/2.0)/(AESTI + ESK(L)*TSK)
 4071            DII = ENO(1,L)*ISTR/DS + ESK(L)*TSK**3/12.0 + AESTI*(YBAR - YPLATI
 4072           1)**2 + ESK(L)*TSK*YPLATI**2
 4073            BR = SQRT(CFI)*9.869*DII/STRESS(ISKIN,NSTAT,L))
 4074            IF (BRIB) 603,603,6020
 4075          6020 IF (BR - BRIB) 603,604,604
 4076          603 BRIB = BR
 4077            BRIBR = BR/BRMAX
 4078            IF ( BRIBR .LT. 1.0 ) BRIBR = 1.0
 4079            YPLATE = YPLATI
 4080            AESTR = AESTI
 4081          604 CONTINUE
 4082          C
 4083          C           **CHECK IF COL LENGTH IS BETWEEN MIN/MAX REQD***
 4084            IF (BRIB - BRIBMX) 605,610,610
 4085          605 IF (BRIB - BRIBMN) 606,6100,6100
 4086          C
 4087          C           **COL LENGTH LESS THAN REQD.  SIZE WITH LARGER STR**
 4088          C            *CHECK STATUS OF STR ID NLR*
 4089          606 IF (2 - NLR) 607,607,609
 4090          607 STRL = STRL + 1.0
 4091            GO TO 609
 4092          608 NLR = 1
 4093            STRL = STRL + 2.0
 4094          609 TSTR = ENP(9)*STRL
 4095            STRLT = BMMIN*STIFB(INSTIFF) + BFMIN*STIFF(INSTIFF) + STFNT*TSTR
 4096            STRLTO = STRLT
 4097            ASTR = TSTR*STRLT
 4098            TBSTR = ASTR/BS
 4099            CALL ACMRSK(ASTR,STRL)
 4100            CALL ACSTRG(LSTID)
 4101            GO TO 601
 4102          C
 4103          C           **COL LENGTH OK.  CHECK STATUS OF STR ID NLR**
 4104          C            *EXIT ON 0 OR 2.  LOOP ON 1**
 4105          610 BRIB = BRIBMX
 4106          6100 IF (NLR - 1) 612,611,612
 4107          611 NLR = 2
 4108            STRL = STRL - 1.0
 4109            GO TO 609
 4110          C
 4111          C          ***STR AREA OK.  DESIGN RIBS FOR STRENGTH AND STIFFNESS***
 4112          612 SPCRUH(NSTAT) = 0.0
 4113            PH = 0.0
 4114            ELSK = ELO
 4115          C
 4116            DO 616 L=1,ILCASE
 4117            PIL) = 0.0
```

```
CARD NO  ****                          CONTENTS                          ****
 4118            IF (STRESS(ISKIN,NSTAT,L)) 6,6,613
 4119     613  PP = STRESS(ISKIN,NSTAT,L)**2*ERIB/(ESP(L) * TBSTR(END(I,L))*
                HS)*2.0
 4121            IF (P(L) - PP) 614,616,616
 4122     614  P(L) = PP
 4123            PL = INT(P(L)/ENX(I,L) + .5)
 4124            IF (PM - PL) 615,615,616
 4125     615  SPCRIB(NSTAT) = P(L)
 4126            CRLC(7,NSTAT) = L
 4127            PM = PL
 4128     616  CONTINUE
 4129          C
 4130          C              **SETUP L AND M PLIES FOR RIBS,F/SPAR AND R/SPAR**
 4131          C               *MIN NO OF L-PLIES = 1*
 4132          C              **MIN M-PLIES FOR RIBS = 1.0***
 4133          C              **CHECK FOR TENSION COVER**
 4134            IF (I - ISKIN) 6160,6160,619
 4135     6160 EL(10) = PM
 4136            EL(11) = 1.0
 4137            IF (EL(10) - 1.0) 617,618,618
 4138     617  EL(10) = 1.0
 4139     618  EL(7) = EL(10)
 4140            EL(13) = EL(10)
 4141            EL(12) = XN(10,11)
 4142            EL(9) = XN(7,8)
 4143            EL(15) = XN(13,14)
 4144            GO TO 620
 4145          C
 4146          C              **TENSION COVER.  M-PLIES OF, CHECK L-PLIES**
 4147     619  IF (EL(10) - PM) 6190,620,620
 4148     6190 EL(10) = PM
 4149            EL(12) = XN(10,11)
 4150          C
 4151          C              ***RIB WEB DESIGN***
 4152     620  FACT = 2.5
 4153            IF (*PCODE - 1) 6200,6200,6201
 4154     6200 FACT = 1.21
 4155          C
 4156          C              ***SETUP ALLOWABLE STABILITY DATA AT MAX CRUSHING LOAD***
 4157     6201 LCASE = CRLC(7,NSTAT)
 4158            CALL CKSTAB (R,HS,EL(10),EL(11),EL(12),PILCASE),DC(3),FACT,FCRC,FC
 4159           1RS,LCASE,TCPNL1)
 4160            FCR(7,NSTAT)=FCRC
 4161            FCR(8,NSTAT)=FCRS
 4162          C
 4163          C              **CHECK ALL LOADS FOR STABILITY**
 4164            DO 625 LCASE=1,ILCASE
 4165            I = 1
 4166     621  CALL CKSTAB (R,HS,EL(10),EL(11),EL(12),PILCASE),DC(3),FACT,FCRC,FC
 4167           1RS,LCASE,TCPNL1)
 4168            IF (I.N - R) 622,623,623
 4169     622  I = 2
 4170            EL(11) = EL(11) + 1.0
 4171            EL(12) = XN(10,11)
 4172            GO TO 621
 4173          C
 4174     623  IF (2 - I) 624,624,625
 4175     624  FCR(7,NSTAT)=FCRC
 4176            FCR(8,NSTAT)=FCRS
 4177            CRLC(5,NSTAT) = 20 + LCASE
 4178     625  CONTINUE
 4179          C
 4180          C
 4181          C              ***DESIGN RIBS FOR SUPT STIFFNESS**
 4182     630  TRIB = 2.0*ENP(9)*(EL(10) + 2.0*EL(11) + EL(12))
 4183            DO 634 L=1,ILCASE
 4184            IF (STRESS(ISKIN,NSTAT,L)) 634,634,631
 4185     631  CIREQD = WIDE**4/125.0*STRESS(ISKIN,NSTAT,L)/BRIB
 4186     632  ERIB = (EL(12)*END(I,L) + 2.0*EL(11)*END(4,L) + EL(10)*END(2,L))*E
 4187           1NP(9)/TRIB*2.0
 4188            CIRIB = ERIB*(HS**3/12.0*TRIB + 2.0*TRIB*(HS/2.0)**2)
```

```
CARD NO  ****                          CONTENTS                          ****
 4189          IF (ETRIB - EIRCOD) 633,634,634
 4190     633  EL(1) = EL(1) + 1.0
 4191          EL(2) = XN(10,1)
 4192          CRLC (5,NSTAT) = 20 + L
 4193          GO TO 632
 4194     634  CONTINUE
 4195     C
 4196     C            ***CALC TBAR RIB AND TOTAL TBAR***
 4197     C             **INCLUDE COVER ATT FILLER, ATT AND PROTECTIVE FINISH*
 4198     640  CF = CFRIB
 4199          TBRIB = 0.0
 4200          IF (1.0 - SPCODE) 641,642,642
 4201     641  CF = 1.0
 4202          TBRIB = HS/ENP(8)*(TCPNL(*ENC(1) + DORHO)
 4203     642  TBRIB = (HS*CF*(TRIB + PFFSSP/ENP(8)) + 2.0*TRIB + TBRIB)/BRIB
 4204          TBCOV = TSK + PFFSCV/ENP(8) + NSTR/WIDE*(ASTR*(PFFSSP/ENP(8)*BALT)
 4205          TBFIL = 4.0*ELO*ENP(9)
 4206          TBATT = 0.01473/BRIB*ITSK + TBFIL + TRIB + 0.625)/ENP(8)
 4207          TBFIL = TBFIL/BRIB
 4208     C
 4209          TBTOT = TBCOV + TBRIB + TBFIL+ TBATT
 4210     C    RIBCUT = 0.0 INDICATES 1ST RIB SIZING
 4211     C    RIBCUT = 1.0 INDICATES 2ND, 3RD, ETC. RIB SIZING IN THE SEARCH FOR
 4212     C    MINIMUM TBTOT
 4213     C    RIBCUT = 2.0 INDICATES THAT THE MINIMUM TBTOT HAS BEEN FOUND
 4214     C
 4215     6420 IF ( RIBCUT - 1.0 ) 6430,6425,6435
 4216     6430 IF ( BRIB .GE. BRIBMX ) GO TO 6435
 4217     6431 TBTOT1 = TBTOT
 4218          ASTR1 = ASTR
 4219          STRL1 = STRL
 4220          STRL = STRL + 1.0
 4221          RIBCUT = 1.0
 4222          GO TO 609
 4223     6425 IF ( TBTOT1 - TBTOT ) 6440,6435,6431
 4224     6440 RIBCUT = 2.0
 4225          TBTOT =TBTOT1
 4226          ASTR = ASTR1
 4227          STRL = STRL1
 4228          GO TO 609
 4229     C
 4230     C            ***COVER SIZING COMPLETED--CHECK FOR L-SKIN SEARCH**
 4231     C
 4232     C
 4233     C***CCC***
 4234     6435 NN = 0
 4235     C
 4236     8000 IF (APRTID(12)) 8009,8009,8001
 4237     8001 WRITE (6,801)ILS,NSTAT,NMAX,ISKIN
 4238     801  FORMAT (26H1  ***ACWSTR SUBR-----ILS=12,6H  STA=12,6H   PT=14,10H
 4239         )  COV ID=12,/6H0  TX )
 4240     802  FORMAT (6H0  TXS)
 4241     803  FORMAT (3X,13,3X,5E16.8)
 4242     C
 4243          DO 804 N=1,160,5
 4244          K = N + 4
 4245          WRITE (6,803)N,(TX(I),I=N,K,1)
 4246     804  CONTINUE
 4247     C
 4248          WRITE (6,802)
 4249          DO 805 N=1,100,5
 4250          K = N + 4
 4251          WRITE (6,803)N,(TXS(I),I=N,K,1)
 4252     805  CONTINUE
 4253     C
 4254     8009 IF (NN) 700,700,999
 4255     C
 4256     C***CCC***
 4257     C
 4258      700  IF (ILS - 1) 701,702,730
 4259     C
```

CARD NO	**** CONTENTS ****
0260	C **INITIAL SIZING--SAVE TBAR TOTAL,EL,M,NI SKIN
0261	C * AND STR CONFIG DATA**
0262	C **INCREASE L-SKIN BY 1 FOR SLOPE TEST**
0263	C * SET ILS = 1*
0264	701 ILS = 1
0265	7011 TXS(2) = ELO
0266	ELO = ELO + 1.0
0267	7010 TXS(1) = TBTOT
0268	TXS(3) = EMSK
0269	TXS(4) = EMSK
0270	TXS(5) = TSK
0271	TXS(6) = ASTR
0272	TXS(7) = STRL
0273	TXS(8) = STRLT
0274	TXS(9) = TSTR
0275	TXS(10) = BRIB
0276	TXS(23) = DLEMI
0277	TXS(24) = DLEMI
0278	GO TO 304
0279	C
0280	C **SECOND PASS--CHECK WT SLOPE**
0281	702 IF (TXS(1) - TBTOT) 703,710,732
0282	C
0283	C **USE PT 1. RESET DATA AND RE-CALC**
0284	703 ELO = ELO - 1.0
0285	ASTR = TXS(6)
0286	STRL = TXS(7)
0287	STRLT = TXS(8)
0288	DLEMI = TXS(23)
0289	DLEMI = TXS(24)
0290	ILS = 4
0291	GO TO 350
0292	C
0293	C ***FINAL COVER DESIGN--SAVE DATA AND CHECK FOR
0294	C * TENSION COVER DESIGN***
0295	710 STRING(ISKIN,3,NSTAT) = YPLATE
0296	STRING(ISKIN,4,NSTAT) = ISTR
0297	STRING(ISKIN,5,NSTAT) = YBAR
0298	STRING(ISKIN,6,NSTAT) = BH
0299	STRING(ISKIN,7,NSTAT) = BF
0300	STRING(ISKIN,8,NSTAT) = BWT
0301	STRING(ISKIN,9,NSTAT) = ASTR
0302	STRING(ISKIN,10,NSTAT) = BAL
0303	IF (ISKIN - 1) 711,711,712
0304	711 STRING(1,1,NSTAT) = BS
0305	STRING(1,2,NSTAT) = BRIB
0306	STRING(2,1,NSTAT) = FSTR
0307	BRRU(NSTAT) = BRIBR
0308	C
0309	C **SAVE CRITICAL LOAD DATA**
0310	SKOOU(NSTAT) = PSKCRL/BS
0311	STOOU(NSTAT) = PSTCRL/BS
0312	FSKU(NSTAT) = PSKCRL/ASKL
0313	FSTU(NSTAT) = PSTCRL/ASTR
0314	CRLC(3,NSTAT) = LCCR
0315	FCR(1,NSTAT) = PCCRI
0316	FCR(2,NSTAT) = PSCRI
0317	C
0318	C **SAVE STA(I) VALUES FOR SETUP OF STARTING VALUES AT
0319	C * STA(I+1)***
0320	TXS(1) = ELL
0321	TXS(2) = ELSK
0322	TXS(3) = BAL
0323	TXS(4) = ASTR
0324	TXS(5) = STRLT
0325	TXS(21) = DLEMI
0326	EL(1) = ELSK
0327	EL(2) = EMSK
0328	EL(3) = EMSK
0329	C
0330	GO TO 250

CARD NO **** CONTENTS ****

```
      C
      712  STRING(2,2,NSTAT) = FSTR
           BRK(NSTAT) = BRIBR
      C
      C             **MAX TENSION STRESS FOR LOWER COVER**
           SKNOL(NSTAT) = PSK(LSTRCR)/BS
           STNOL(NSTAT) = PSTR(LSTRCR)/BS
           FSKL(NSTAT) = PSK(LSTRCR)/ASPL
           FSTL(NSTAT) = PSTR(LSTRCR)/ASTR
           FCR(3,NSTAT) = PCCRI
           FCR(4,NSTAT) = PSCRI
      C
      C             **SAVE STA(I) VALUES FOR SETUP OF STARTING VALUES AT
      C               *  STA(I+1)***
           TXS(16) = ELL
           TXS(17) = ELSK
           TXS(18) = BWL
           TXS(19) = ASTR
           TXS(20) = STRLT
           TXS(22) = DLEMI
           EL(4) = ELSK
           EL(5) = EMSK
           EL(6) = ENSK
      C
           GO TO 800
      C
      C             ***ILS = 2,3,4.  CHECK STATUS***
      730  IF (ILS - 3) 731,740,710
      C
      C             ***ILS = 2.  CHECK TBAR SLOPE***
      731  IF (TBTOT - TXS(1)) 732,733,734
      C
      C             ***INCREASE SKIN L-PLIES
      C
      732 ILS = 2
           TXS(2) = ELO
           ELO = ELO + DLSK1
           GO TO 7010
      C
      C             ***MIN BETWEEN LSK(I-1) AND LSK(I)***
      C              **SETUP SECOND LOOP CONTROL ON ILS=3***
      733 ELOMAX = ELO
           GO TO 7340
      734 ELOMAX = ELO - 1.0
      7340 ELO = TXS(2) + 1.0
           ILS = 3
           GO TO 304
      C
      C             ***ILS=3.  LOOP 2 SEARCH***
      C              **CHECK SLOPES ***
      C
      740 IF ( TBTOT - TXS(1) ) 742,710,703
      742 IF ( ELO - ELOMAX ) 7011,710,710
      C
      800  CONTINUE
      C
      C***CCC***
           NN = 1
           GO TO 8000
      C***CCC***
      C
      C
      C
      900  RETURN
           END
      C*************************************************************** ss.****
      C
      C        *****SUBROUTINE ACMPSK*****
      C   ***SKIN-STR LOAD DIST, SKIN STABILITY - ADV. COMP. ANALYSIS***
      C
      C*****************************************************************
```

CARD NO **** CONTENTS ****

```
C
      SUBROUTINE ACMRSK(ASTR,STRL)
C
C          ***SUBR TO CHECK AND SIZE SKINS FOR STABILITY AND
C               CALC RESULTING LOAD DISTRIBUTIONS BETWEEN SKIN-STR
C               BASED ON FINAL SKIN(L,M,N) AND GIVEN STR AREA***
C
C           **STR AREA AND NO OF SKIN L-PLIES REMAINS CONSTANT**
C            *M,N(SKINS) VARIES AS NEED TO SATISFY STABILITY
C               AND INTERACTION EQUATION --(RC + RS**2) = 1.0**
C
      COMMON T(20601),D(20601),CD(2500),ND(1001),TH(900),CT(20+8)
C
      DIMENSION ENP(9),END(5,20),E(3,3,20),STRESS(6,11,20),
     1G(20),CNT(9),
     2TX(160),ESK(20),PSK(20),PSTR(20),SHR(20),
     3EBOT(20),
     4APRTID(12)
C
      EQUIVALENCE (ENP(1),D(1155)),(END(1,1),TH(601)),(G(1),CT(2023)),
     1(STRESS(1,1,1),CT(1)),(ENX(1,1),TH(701)),(CNT(1),T(1541)),
     2(C3,CNT(13)),(C8,CNT(23)),(TX(1),CD(1)),(ESK(1),TX(81)),
     3(PSK(1),TX(101)),(PSTR(1),TX(121)),(SHR(1),TX(141)),
     4(BS,TX(30)),(ELO,TX(33)),(EM3,TX(34)),(END,TX(35)),
     5(EMI,TX(1)),(ENI,TX(2)),(SIGSK,TX(3)),(TSK,TX(4)),(ASKT,TX(5)),
     6(ASKL,TX(6)),(ASTRL,TX(7)),(PSXPOA,TX(8)),(RSTPOA,TX(9)),
     7(RAE,TX(10)),(EOO,TX(29)),
     8((ISKIN,ND(32)),(ILCASE,ND(41)),(LCCR,ND(29)),
     9(APRTID(1),T(1070)),(NMAX,ND(3)),(NSTAT,ND(55)),(NMAXI,ND(30))
C
      EQUIVALENCE (ESKCRL,TX(13)),(PSKCRL,TX(14)),(PSTCRL,TX(15)),
     1(PMXCRL,TX(16)),(QSKCRL,TX(17)),(PCCRI,TX(18)),(PSCRI,TX(19)),
     2(RMAX,TX(20)),(RI TX(21)),(RCI,TX(22)),(RSI,TX(23)),
     3(PC1,TX(24)),(PMX1,TX(25)),(PMXY,TX(26)),
     4(DLEMI,TX(11)),(DLENI,TX(12)),
     5(FSTR,TX(61)),(BMOTS,TX(76)),(BFOTS,TX(77)),
     6(LSTRCR,ND(37)),
     7(DSTRC5,D(1598)),(DSTRC6,D(1599)),
     8(EBOT(1),TH(819)),
     9(RASKI,TX(27)),(RASTI,TX(28))
     A,(DPOAEP,D(445))
C
C
C            ***INITIALIZE DATA***
    1 EMI = EMO + DLEMI
      ENI = ENO + DLENI
      TSK = 2.0*ENP(9)*(ELO + 2.0*EMI + ENI)
      ASKT = TSK*BS
      NMAX = NMAX + 1
      NMAXI = 0.0
C
C             **PRINT INITIAL DATA ON APRTID(NSTAT) = I**
      IF (APRTID(NSTAT)) 100,100,193
  190 WRITE (6,191)NSTAT,NMAX,ISKIN,BS,ELO,EMO,ENO,TSK ASKT,ASTR,STRL
  191 FORMAT (1H0,//2HO ***ACMRSK SUBR---STA=I2,6H PT=I4,10H COV I
     1D=I2,8H BSTR=F8.3,4H ***,/8X,3F6.1,3F9.4,F6.1)
C
C            ***STABILITY CHECK--SIZING LOOP. NL=1***
  100 NL = 1
      NCR = 0.0
      LCCR = 0.0
      SKRMX = 0.0
      PMXCRL = 0.0
      RMAX = 0.0
C
  109 DO 120 N=1,ILCASE
  110 E11 = (ELO*END(1,N) + 2.0*EMI*END(4,N) + ENI*END(2,N))*ENP(9)*2.0
      E22 = (ELO*END(2,N) + 2.0*EMI*END(4,N) + ENI*END(1,N))*2.0*ENP(9)
      E12 =(G(NI)*(ELO+ENI) + 0.5*EMI*(END(1,N) + END(2,N) -2.
     1*END(3,N) ))*2.*ENP(9)
      E13 = ((ELO+ENI)*END(3,N) + END(5,N)*EMI*2. )*2.*ENP(9)
```

CARD NO	**** CONTENTS ****
9473	EOO = (E11-E12/E22*E12)/TSA
9474	C
9475	XX= TSA*TSA/12
9476	D11 = E11*XX
9477	D22 = E22*XX
9478	D12 =(E12+2 *G12)*XX
9479	C
9480	C **CALC LOAD RATIOS**
9481	PNXYI = STRESS(I3,NSTAT,N)
9482	PNXI = STRESS(ISKIN,NSTAT,N)
9483	PCI = 65*PNXI
9484	RAE = ASKT/ASTR*EOO/ENO(I,N)
9485	SKR(N) = RAE/(1.0 + RAE)
9486	IF (SKRMX - SKR(N)) 111,1110,1110
9487	111 SKRMX = SKR(N)
9488	1110 PSK(N) = SKR(N)*PCI
9489	PSTR(N) = PCI - PSK(N)
9490	PNXI = PNXI*SKR(N)
9491	IF (PNXI) 112,1120,1120
9492	112 PNXI = 0.0
9493	1120 ESK(N) = EOO
9494	NMAX1 = NMAX1 + 1
9495	C
9496	IF (NCR) 113,113,115
9497	113 IF (PNXCRL - PNXI) 114,115,115
9498	114 PNXCRL = PNXI
9499	LCCR = N
9500	QSKCRL = FNXYI
9501	PSKCRL = PSK(N)
9502	PSTCRL = PSTR(N)
9503	ESKCRL = ESK(N)
9504	C
9505	C **CHECK STABILITY**
9506	115 THETA = SQRT(D11*D22)/D12
9507	PCCRI = 19.739/BS*D12/BS*(THETA + 1.0)
9508	IF (THETA - 1.0) 116,116,117
9509	116 PSCRI = 4.0/BS*SQRT(D22*D12)/BS*((.938*THETA + .582)*THETA + 11.7)
9510	GO TO 118
9511	117 PSCRI = 4.0/BS*SQRT((THETA*D12*D22)/BS*18.125 + 5.05/THETA)
9512	C
9513	C **INTERACTION RATIOS**
9514	118 RCI = PNXI/PCCRI
9515	RSI = ABS(PNXYI/PSCRI)
9516	RI = RCI + RSI*RSI
9517	C
9518	C **PRINT POINT DATA ON APRT(IDINSTAT) = 1**
9519	IF (APRT(IDINSTAT)) 119,119,1180
9520	1180 WRITE (6,1181)N,NMAX1,ELO,EMI,ENI,TSK,ASKT,EOO,ENO(I,N),RAE,SKR(N)
9521	1,PSK(N),PSTR(N),PNXI,PNXYI,RI,RCI,RSI,FMAX,SKRMX,PCCRI,PSCRI,D11,D
9522	212,D22,THETA,E11,E22,E12,G12
9523	1181 FORMAT (1H0,2X,I2,2X,I4,2X,3F7.1,2F9.4,4E16.8,/12X,2F11.1,2F9.1,4E
9524	116.8,/12X,F9.4,13X,2F9.1,4E16.8/52X,4E16.8)
9525	C
9526	C **CHECK FOR MARGIN**
9527	119 IF (1.0 - RI) 120,123,123
9528	120 IF (RI - 1.0 - DPDAEP) 121,121,122
9529	121 RI = 1.0
9530	C
9531	C **STABILITY CRITICAL--ADD M-PLIES AND CALC NEW N-PLIES**
9532	122 EMI = EMI + 1.0
9533	ENI = INT(C0*(ELO + EMI) + C1)
9534	TSK = 2.0*ENP(9)*(ELO + 2.0*EMI + ENI)
9535	ASKT = TSK*BS
9536	NCR = 1
9537	GO TO 110
9538	C
9539	123 IF (NCR - 1) 124,124,129
9540	124 IF (RMAX - RI) 125,129,129
9541	125 RMAX = RI
9542	PSKCCR = PCCRI
9543	PSKSCR = PSCRI

```
CARD NO  ****                          CONTENTS                          ****
 4544            LCCR = M
 4545       C
 4546        129  CONTINUE
 4547       C
 4548       C             ***CHECK FOR LOOP STATUS AND LOOP IF NL=1 AND NCR=1***
 4549       C              **IF NCR = 0, CHECK DLEMI AND RMAX***
 4550       C
 4551       C               *SECOND LOOP REQD FOR RECALC OF LOAD DIST WITH NEW SKIN*
 4552            IF (1 - NCR) 140,130,132
 4553        130  IF (NL - 1) 131,131,140
 4554        131  NL = 2
 4555            NCR = 2
 4556            SKRMX = 0.0
 4557            GO TO 109
 4558       C
 4559       C              **IF RMAX = 1, OK.  IF NOT CHECK DLEMI FOR NON-ZERO NO.**
 4560       C              **IF DLEMI NOT ZERO, DECREASE M-PLIES BY 1 AND RECALC**
 4561        132  IF (RMAX - 1.0) 133,140,133
 4562        133  IF (DLEMI) 140,140,134
 4563        134  EMI = EMI - 1.0
 4564            DLEMI = DLEMI - 1.0
 4565            ENI = INT(CB*(ELO + EMI) + C3)
 4566            TSK = 2.0*ENP(9)*(ELO + 2.0*EMI + ENI)
 4567            ASKT = TSK*DS
 4568            GO TO 100
 4569       C
 4570       C             ***CHECK L-PLY APPLIED/ULT P/A STRESSES AND RATIOS***
 4571       C              **CALC MIN B/T REQD**
 4572        140  RSKPOA = 0.0
 4573            RSTPOA = 0.0
 4574            FSTR = 0.0
 4575            BKOTS = 0.0
 4576            BFOTS = 0.0
 4577            FSTRL = 0.0
 4578            ASKL = 2.0*ENP(9)*ELO*DS
 4579            ASTRL = ASTR/(STRL*ENP(8))
 4580       C
 4581       C              **SETUP DELTA NO OF M AND N PLIES**
 4582            DLEMI = EMI - EMO
 4583            DLENI = ENI - ENO
 4584            IF (DLENI) 1400,1401,1401
 4585        1400 DLENI = 0.0
 4586       C
 4587       C              **PRINT SUMMARY DATA ON APRTID(NSTAT) = 1**
 4588        1401 IF (APRTID(NSTAT)) 141,141,1402
 4589        1402 WRITE (6,1403)LCCR,SKRMX,ELO,EMI,ENI,TSK,ASKT,ASKL,ASTR,ASTRL,STRL
 4590           1,PSKCRL,PSTCRL,ESKCRL,PNXCRL,QSKCRL,PSKCCR,PSKSCR
 4591        1403  FORMAT (1H0,//2X,I2,2X,F8.4,3F7.1,6F9.4,/7X,2F11.1,E16.8,4F11.1)
 4592       C
 4593        141  DO 149 N=1,ILCASE
 4594            I = 1
 4595            IF (PSK(N)) 142,143,143
 4596        142  I = 2
 4597        143  SKAPL = PSK(N)/ASKL
 4598            STAPL = PSTR(N)/ASTR
 4599            SKALL = ENX(I,N)*0.50/ENP(9)
 4600            STALL = SKALL
 4601            RASKI = SKAPL/SKALL
 4602            RASTI = STAPL/STALL
 4603            IF (RSKPOA - RASKI) 144,145,145
 4604        144  RSKPOA = RASKI
 4605        145  IF (RSTPOA - RASTI) 148,147,147
 4606        148  RSTPOA = RASTI
 4607       C
 4608       C              **MAX COMP STRESS.  SAVE LOAD ID FOR MAX STRESS**
 4609       C              **CRITICAL B/T STRESS = F(MAX STR STRESS)**
 4610        147  IF (STAPL) 1475,1478,1470
 4611        1478 IF (FSTR - STAPL) 1471,1472,1472
 4612        1471 FSTR = STAPL
 4613       C
 4614       C              **B/T CHECK**
```

```
CARD NO  ****                          CONTENTS                          ****

 4615      1472 EOTA = EBOT(IN)/STAPL
 4616           BOTI = SQRT(DSTR(5*EOTA)
 4617           IF (BWOTS) 1474,1474,1473
 4618      1473 IF (BOTI - BWOTS) 1474,1474,1489
 4619      1474 BWOTS = BOTI
 4620           LSTRCR = N
 4621      1489 BFOTI = SQRT (DSTR(6*G(N)/STAPL )
 4622           IF ( BFOTS ) 1490,1490,1491
 4623      1491 IF ( BFOTI - BFOTS ) 1490,1490,1492
 4624      1490 BFOTS = BFOTI
 4625           GO TO 1479
 4626      C
 4627      C              **TEST FOR LND COVER.  SAVE MAX TENSION STRESS FOR LWR**
 4628      1475 IF (2 - ISKIN) 1476,1476,1479
 4629      1476 IF (STAPL - FSTRL) 1477,1477,1479
 4630      1477 FSTRL = STAPL
 4631      C
 4632      C              **PRINT LOAD SUMMARY DATA ON APRTID(NSTAT) = 1**
 4633      1479 IF (APRTID(NSTAT)) 149,149,148
 4634      148  WRITE (6,1480)N,RSKPOA,RASKT,PSKIN1,SKAPL,SKALL,RSTPOA,RASTI,PSTR(
 4635           IN),STAPL,STALL
 4636      1480 FORMAT (3X,I2,2X,2F8.4,3F11.1,2X,2F8.4,3F11.1)
 4637      C
 4638      149  CONTINUE
 4639      C
 4640      C
 4641      199  RETURN
 4642           END
 4643      C**************************************************  **************************
 4644      C
 4645      C        *****SUBROUTINE ACSTRG*****
 4646      C   ***STRINGER GEOMETRY/SECTION PROPERTIES - ADV. COMP. ANALYSIS***
 4647      C
 4648      C*****************************************************************************
 4649      C
 4650           SUBROUTINE ACSTRG(ID)
 4651      C
 4652      C            ****STRINGER GEOMETRY SUBROUTINE****
 4653      C             ***CALC AREA DISTRIBUTIONS BASED ON CRIPPLING B/T***
 4654      C              **TYPE OF STR= I, Z, T, HAT**
 4655      C              **STRINGER ID = NSTIFF.  1=I, 2=Z, 3=T, 4=HAT**
 4656      C
 4657      C             ***DISTRIBUTION ID = ID.  0=OK, 1=STR AREA TOO SMALL***
 4658      C
 4659           COMMON T(2000),D(2060),CD(2000),ND(100),TW(900),CT(2048)
 4660      C
 4661           DIMENSION TX(160),TXS(100),CNT(91),
 4662          2STFNM(5),STFNF(5),
 4663          3APRTID(12),
 4664          4ENP(9)
 4665      C
 4666           EQUIVALENCE (ENP(1),D(1155)),(TX(1),CD(1)),(TXS(1),CD(181)),
 4667          1(CNT(1),T(1541)),
 4668          2(SMMAX,CNT(7)),(DMMIN,CNT(40)),(BFMAX,CNT(41)),(BFMIN,CNT(42)),
 4669          3(STRLO,TX(50)),(ASTR,TX(55)),(STRL,TX(56)),(STRLT,TX(57)),
 4670          4(TSTR,TX(60)),(BW,TX(62)),(DF,TX(63)),(ISTR,TX(64)),(YBAR,TX(65)),
 4671          5(BWOTS,TX(76)),(BFOTS,TX(77)),(BOTA,TX(78)),(STFNT,TX (79)),
 4672          6(BWL,TXS(30)),(BWT,TXS(31)),(BWLT,TXS(32)),
 4673          7(BWLI,TXS(35)),(BWTI,TXS(36)),(BWLTI,TXS(37)),
 4674          8(STFNM(1),D(1348)),(STFNF(1),D(1353)),
 4675          9(NSTIFF,ND(33))
 4676          A,(BWI,TXS(38)),(BFI,TXS(39)),(BOTF,TXS(40))
 4677          B,(APRTID(1),T(1070)),(NSTAT,ND(55))
 4678          C,(DBOTEP,D(1444))
 4679      C
 4680      C
 4681           REAL ISTR
 4682      C
 4683      C            ***TYPE OF STRINGER TEST***
 4684           TREQD = 0.0
 4685           TREQD1= 0.0
```

```
CARD NO      ****                          CONTENTS                          ****
 4686              ILDEL = 3
 4687          %20 ID = 0.0
 4688              BAL = STRL
 4689              BMT = ISTR
 4690              BALT = STRLT
 4691              BOTA = BAMIN/BMT
 4692              IF (NSTIFF - 1) %10,%10,500
 4693        C
 4694        C              ***INTEGRAL I STRINGER***
 4695          %10 BAOTS = BFOTS
 4696        C
 4697          %11 IF (BOTA - BAOTS) %12,%20,%17
 4698          %12 IF (BALT - BAMAX) %13,%20,%20
 4699           %13 BALT = BAL - 3.0
 4700          %130 IF (STRLO - BALT) %14,%14,%200
 4701          %14 BMTI = ENP(9)*BALI
 4702              BALTI = ASTR/BMTI
 4703              IF (BALTI - BAMAX) %15,%15,%20
 4704          %15 IF (BALTI/BMTI - BAOTS) %16,%16,%20
 4705          %16 BAL = BALI
 4706              BMT = BMTI
 4707              BALT = BALTI
 4708              BOTA = BALT/BMT
 4709              GO TO %11
 4710        C
 4711        C              **B/T AVAILABLE TOO LARGE.  INCREASE L-PLIES IF POSSIBLE*
 4712        C              **CHECK B/T TOL**
 4713          %17 IF (BAOTS + DBOTEP - BOTA) %18,%20,%20
 4714          %18 BAL = BAL + 1.0
 4715              BMT = ENP(9)*BAL
 4716              BALT = ASTR/BMT
 4717              IF (BAMIN - BALT) %19,%19,598
 4718          %19 BOTA = BALT/BMT
 4719              IF (BAOTS-BOTA) %17,%20,%20
 4720        C
 4721        C     CHECK PLIES WHICH WERE SKIPPED DURING SEARCH FOR MAX. INERTIA
 4722        C
 4723          %200 IF ( ILDEL .EQ. 1 )  GO TO %20
 4724              ILDEL = ILDEL - 1
 4725              BALI = BALI + 1.0
 4726              GO TO %130
 4727        C
 4728        C
 4729        C              ***I-STR SECTION PROPERTIES ---
 4730          %20 BW = BALT
 4731              BF = 0.0
 4732              ISTR = ASTR*BW/12.0*BW
 4733              YBAR = BW/2.0
 4734              GO TO 599
 4735        C
 4736        C
 4737        C              ***INTEGRAL Z, T, OR HAT STIFFENERS.  CHECK FOR HAT***
 4738          500 BW = BAMIN
 4739              BF = BFMIN
 4740              BOTF = BFMIN/BMT
 4741              IF (4 - NSTIFF) 501,501,510
 4742          501 BFOTS = BAOTS
 4743        C
 4744        C
 4745        C              ***B/T AVAILABLE TOO LARGE.  INCREASE L-PLIES IF POSSIBLE*
 4746        C               **CHECK B/T TOL**
 4747          510 IF (BAOTS + DBOTEP - BOTA) 5100,518,515
 4748          5100 BAL = BAL + 1.0
 4749              BMT = ENP(9)*BAL
 4750              BW = BAOTS*BMT
 4751              BF = BFOTS*BMT
 4752              BHA = BMT*(STFNH*NSTIFF)*BW + STFNF(NSTIFF)*BF + STFNT*BMT)
 4753              IF (BHA - ASTR) 511,512,598
 4754          511 BALT = ASTR/BMT
 4755                TREQD = (BALT -STFNT*BMT) / (STFNH*NSTIFF)*BAOTS+STFNF(NSTIFF
 4756             1*BFOTS)
```

```
CARD NO  ****                          CONTENTS                          ****
 4757            IF (TREQDO .GT. BWTI) GO TO 5100
 4758            BW = BWOTS * BWT
 4759            IF ( BW .GT. BWMAX ) BW=BWMAX
 4760            BF =(BWLT - STFNT*BWT - STFNH(NSTIFF)*BWT)/STFNF(NSTIFF)
 4761            IF ( BF*BW.BWMAX-BFMAX ) 1000,1000,1005
 4762       1000 IF ( BF .GT. BFMAX ) BF = BFMAX
 4763            BW =(BWLT - STFNT*BWT - STFNF(NSTIFF)*BF)/STFNH(NSTIFF)
 4764            GO TO 512
 4765       1005 BF = BFMAX
 4766            BW = BWMAX
 4767            B = STFNF(NSTIFF)*BF + STFNH(NSTIFF)*BW
 4768            BWT = (SQRT (B**2 + 4.*ASTR*STFNT) - B) / (2.*STFNT)
 4769            BWL = INT(BWT/ENP(9))
 4770            BWT = BWL*ENP(9)
 4771            IF ( STRLO .GT. BWL ) GO TO 598
 4772        512 IF (BWMIN - BW) 513,513,598
 4773        513 BOTA = BW/BWT
 4774            IF (BFM,N-BF) 514,514,598
 4775       C
 4776       C              **BW OK.  CHECK BF**
 4777        514 IF (BOTA - BWOTS - DBOTEP) 515,516,5100
 4778        515 BOTF = BF/BWT
 4779            IF (BOTF - BFOTS - DBOTEP) 520,580,5100
 4780        516 BOTF = BF/BWT
 4781            IF (BOTF - BFOTS - DBOTEP) 580,580,5100
 4782       C
 4783       C              **B/T AVAILABLE AT BMIN OK**
 4784       C              **CHECK L-PLY(I-1) FOR LARGER BW/BF AT CONSTANT AREA***
 4785        520 BWLI = BWL - 3.0
 4786        5200 IF ( STRLO - BWLI ) 521,521,5800
 4787        521 BWTI = ENP(9)*BWLI
 4788            BWLTI = ASTR/BWTI
 4789            TREQDI= (BWLTI - STFNT*BWTI ) / (STFNH(NSTIFF)*BWOTS +
 4790           (STFNF(NSTIFF)*BFOTS)
 4791            IF ( TREQDI.GT. BWTI ) GO TO 5800
 4792            BWI = BWOTS*BWTI
 4793            IF ( BWI .LT. BWMIN ) GO TO 5800
 4794            IF ( BWI .GE. BWMAX ) BWI = BWMAX
 4795            BFI =(BWLTI - STFNT*BWTI - STFNH(NSTIFF)*BWTI)/STFNF(NSTIFF)
 4796            IF ( BFI .LT. BFMIN ) BFI = BFMIN
 4797            BWI =(BWLTI - STFNT*BWTI - STFNF(NSTIFF)*BFI)/STFNH(NSTIFF)
 4798            IF ( BWI .LT. BWMIN ) GO TO 5800
 4799       C
 4800       C              **CHECK IF BWI,BFI WITHIN MAX LIMITS**
 4801            IF (BWMAX - BWI) 522,522,526
 4802        522 BWI = BWMAX
 4803            BFI =(BWLTI - STFNT*BWTI - STFNH(NSTIFF)*BWTI)/STFNF(NSTIFF)
 4804            IF (BFI - BFMAX) 527,523,5000
 4805        523 IF (BWI/BWTI - BWOTS - DBOTEP) 524,524,5800
 4806        524 IF (BFI/BWTI - BFOTS - DBOTEP) 525,525,5800
 4807       C
 4808       C              **BWMAX AND BFI.  MOVE TO FINAL LOC**
 4809        525 BWL = BWLI
 4810            BWT = BWTI
 4811            BWLT = BWLTI
 4812            BW = BWI
 4813            BF = BFI
 4814            BOTA = BW/BWT
 4815            BOTF = BF/BWT
 4816            GO TO 580
 4817       C
 4818       C              **BW LESS THAN MAX.  CHECK BF**
 4819        526 IF (BFI - BFMAX) 527,527,530
 4820        527 IF (BWI/BWTI - BWOTS - DBOTEP) 528,524,5800
 4821        528 IF (BFI/BWTI - BFOTS - DBOTEP) 5e2,525,5800
 4822        529 BWL = BWLI
 4823            BWT = BWTI
 4824            BWLT = BWLTI
 4825            BW = BWI
 4826            BF = BFI
 4827            BOTA = BW/BWT
```

```
CARD NO  ****                          CONTENTS                          ****
 4828          BOTF = BF/BHT
 4829          GO TO 520
 4830      C
 4831      C            **BF AT BF MAX.  CHECK STATUS OF BH**
 4832       930  BFI = BFMAX
 4833          BHI =(BALTI - STFNT*BHTI - STFNF(NSTIFF)*BFI)/STFNH(NSTIFF)
 4834          IF (BHI -BHMAX) 527,523,5800
 4835      C
 4836      C     CHECK PLIES WHICH WERE SKIPPED DURING SEARCH FOR MAX. INERT
 4837      C
 4838       5800 IF ( ILDEL .EQ. 1 ) GO TO 580
 4839          ILDEL = ILDEL - 1
 4840          BAL1 = BAL1 + 1.0
 4841          GO TO 5200
 4842      C
 4843      C
 4844      C            ***STRINGER SECTION PROPERTIES--COMMON FOR Z, T, HAT***
 4845       580  AH = BHT*BH
 4846          AF = BHT*(BF + STFNT*BHT)
 4847          YBAR = (STFNH(NSTIFF)*AH/2.0*BH + STFNF(NSTIFF)*AF*(BHT/2.0 + BH))
 4848         1/ASTR
 4849      C
 4850          ISTR = STFNH(NSTIFF)*AH*(BH/12.0*BH + (BH/2.0 - YBAR)**2) + STFNF(
 4851         1NSTIFF)*AF*(BHT/12.0*BHT + (BH + BHT/2.0 - YBAR)**2)
 4852          GO TO 599
 4853      C
 4854      C
 4855      C            ***STR AREA TOO SMALL.  SET EXIT ID=1***
 4856       590  ID = 1
 4857      C
 4858      C
 4859      C            ***PRINT ON APRTID(NSTAT) = 1***
 4860       599  IF (APRTID(NSTAT)) 5999,5999,5990
 4861       5990 WRITE (6,5991)NSTAT,NSTIFF,ID,ASTR,STRL,STRLT,ISTR,BMDTS,BFOTS
 4862       5991 FORMAT (2H0   ***ACSTRO SUBR---STA,I3,10H   NSTIFF=,I2,8H   ID=,I
 4863          2,8H   ASTR=F8.5,4H ***,//8X,5F18.5)
 4864       5992 FORMAT (8X,4F12.5,/8X,6F12.5,/8X,6F12.5,I4)
 4865      C
 4866          WRITE (6,5992)BH,BF,ISTR,YBAR,BAL,BHT,BALT,BAL1,BHTI,BALTI,BHI,BFI
 4867         1,BOTA,BOTF,TREQD ,TREQDI,ILDEL
 4868      C
 4869      C
 4870       5999 RETURN
 4871          END
 4872      C**********************************************************************
 4873      C
 4874      C        *****SUBROUTINE WEIGH2*****
 4875      C   ***SECTION WT PER INCH FOR ADV. COMP. H/RIB TORQUE-BOX***
 4876      C
 4877      C**********************************************************************
 4878      C
 4879          SUBROUTINE WEIGH2 (WEI,NSTAT)                                  WEIG2010
 4880      C
 4881      C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
 4882      C
 4883      C  SUBROUTINE TO CALCULATE THE WEIGHT OF A RIB-STRINGER TYPE WING BOX
 4884      C
 4885      C  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
 4886      C
 4887      C                                                                 WEIG2020
 4888      C                                                                 WEIG2030
 4889          COMMON T(9168)                                                WEIG2040
 4890      C                                                                 WEIG2050
 4891          DIMENSION D(2068),CT(2048),ND(100),                           WEIG2060
 4892         1EMP(9),EMH(8),EMC(3),EL(15),                                  WEIG2061
 4893         2H(35),                                                        WEIG2062
 4894         3BLCFS(5),SWBCP(2),SWBMS(2),SWBCF(2),                          WEIG2063
 4895         4APRTID(12),                                                   WEIG2064
 4896         5SPN(33),
 4897         6H(12,11),STRIND(2,10,11),CNT(38)                              WEIG2069
 4898      C                                                                 WEIG2070
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CARD NO  ****                          CONTENTS                          ****
 4899        EQUIVALENCE (D(1),T(206)),(CT(1),T(712)),(ND(1),T(612)),
 4900       1(ENP(1),D(135)),(ENH(1),D(136)),(ENC(1),CT(204)),
 4901       2(EL(1),T(1300)),(CNT(1),T(154)),
 4902       3(CN,CNT(1)),(HS,CNT(24)),(HF,CNT(25)),(HR,CNT(26)),
 4903       4(SFCODE,ND(45)),(SRCODE,ND(46)),(SPCODE,ND(43)),
 4904       5(CFRIB,D(400)),(SWBCP(1),D(427)),(DDHHO,D(146)),
 4905       6(TCPNL1,CNT(31)),(TCPNLF,CNT(32)),(TCPNLR,CNT(33)),
 4906       7(SLCFS(1),D(147)),(SWBCP(1),D(423)),(SWMS(1),D(410)),
 4907       8(DRMIR,D(24)),(PFFSCV,CT(204)),(PFFSSP,CT(204)),
 4908       9(W(1),1),CT(198)),(STRING(1,1,1),T(1676))
 4909       A,(AFRTID(1),T(1070))
 4910       B,(SPN(1),T(1265))
 4911      C
 4912      C
 4913        INTEGER SPCODE,SFCODE,SRCODE
 4914      C
 4915        DO 100 I=1,35
 4916        W(I) = 0.0
 4917  100  CONTINUE
 4918      C
 4919      C            ***EFFECTIVE WIDTH***
 4920        W(18) = W(1,NSTAT) + CN
 4921      C
 4922      C            ***THICKNESSES**
 4923        DO 101 I=1,5
 4924        IW = I*3 - 2
 4925        W(I) = (EL(IW) + 2.0*EL(IW+1) + EL(IW+2))*ENP(9)*D(2)
 4926  101  CONTINUE
 4927      C
 4928      C            ***CAPS FOR FS AND RS--FLT-BAR COVERS)***
 4929        W(19) = W(1) + STRING(1,9,NSTAT)/STRING(1,1,NSTAT)
 4930        W(20) = W(2) + STRING(2,9,NSTAT)/STRING(2,1,NSTAT)
 4931        DO 106 I=1,2
 4932        W(25) = W(I+18)*SLCFS(4)
 4933        IF (W(25) - SLCFS(3)) 104,104,105
 4934  104  W(25) = SLCFS(3)
 4935  105  W(I+10) = W(25)*SWBCP(1) + W(3)*SWBCP(1)/D(2)
 4936        W(I+12) = W(25)*SWBCP(2) + W(5)*SWBCP(2)/D(2)
 4937  106  CONTINUE
 4938      C
 4939      C             **FILLER THICKNESS AT RIB=2*L-PLY THICKNESS**
 4940      C              *FASTENER LENGTH = T(SKIN) + T(FILLER) + T(RIB WEB) +
 4941      C              *     LEFF(HEAD,GRIP,RETAINER)+0.625 IN.)*
 4942        W(26) = 4.0*ENP(8)*EL(1)
 4943        W(27) = 4.0*ENP(9)*EL(4)
 4944        W(32) = W(1) + W(26)/2.0 + W(4) + 0.625
 4945        W(33) = W(2) + W(27)/2.0 + W(4) + 0.625
 4946      C
 4947      C            ***CONVERT THICKNESSES TO WEIGHT***
 4948        DO 107 I=1,5
 4949        W(I) = W(I)*ENP(8)
 4950        W(I+10) = W(I+10)*ENP(8)
 4951  107  CONTINUE
 4952      C
 4953      C
 4954      C             *PROCESS COVERS*
 4955        W(1) = W(1)*W(18)
 4956        W(2) = W(2)*W(18)
 4957        W(6) = PFFSCV*W(18)
 4958        W(7) = PFFSCV*W(18)
 4959      C
 4960      C             **STRINGERS**
 4961        W(15) = STRING(1,9,NSTAT)*SPN(NSTAT)*ENP(8)
 4962        W(17) = STRING(2,9,NSTAT)*SPN(NSTAT)*ENP(8)
 4963        W(21) = PFFSSP*D(2)*STRING(1,9,NSTAT)/STRING(1,8,NSTAT)*SPN(NSTAT)
 4964        W(22) = PFFSSP*D(2)*STRING(2,9,NSTAT)/STRING(2,8,NSTAT)*SPN(NSTAT)
 4965      C
 4966      C            ***INTERM. RIBS.  SETUP RIB COL LENGTH***
 4967      C              *TEST FOR CORRUG. OR HC/PNL**
 4968        W(25) = STRING(1,2,NSTAT)
 4969      C
```

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CARD NO  ****                          CONTENTS                          ****
 4970    C            **FILLER AND ATT WTS**
 4971     109  DO 1090 I=1,2
 4972          W(I+27) = W(I+25)*(EXP(B)/W(25)*W(I),NSTAT)
 4973          W(I+29) = 0.03473*W(I+3)/W(25)*W(I),NSTAT)
 4974     1090 CONTINUE
 4975    C
 4976          W(34) = 2.0*W(4)*W(I),NSTAT)
 4977          W(25) = WS*W(I),NSTAT)/W(25)*CFRIB
 4978          W(4) = W(4)*W(25)
 4979          W(8) = PFFSSP*W(25)
 4980          IF (SPCODE - 1) 111,111,110
 4981     110  W(8) = W(25)/CFRIB*(TCPNLI*ENC(1) + DBPHO) + W(8)/CFRIB
 4982          W(4) = W(4)/CFRIB
 4983     111  W(4) = W(4) + W(34)
 4984    C
 4985    C              *FRONT SPAR*
 4986          W(8) = HF*PFFSSP*SHBCF(1)
 4987          W(3) = W(3)*HF*SHBCF(1)
 4988          IF (SFCODE - 1) 113,113,112
 4989     112  W(8) = HF*(TCPNLF*ENC(1) + DBPHO) + W(8)/SHBCF(1)
 4990          W(3) = W(3)/SHBCF(1)
 4991    C
 4992    C              *REAR SPAR*
 4993     113  W(10) = HR*PFFSSP*SHBCF(2)
 4994          W(5) = W(5)*HR*SHBCF(2)
 4995          IF (SRCODE - 1) 115,115,114
 4996     114  W(8) = HF*(TCPNLR*ENC(1) + DBPHO) + W(10)/SHBCF(2)
 4997          W(5) = W(5)/SHBCF(2)
 4998    C
 4999    C            ***MISC) FOR I-RIBS, F/S AND R/S***
 5000     115  W(16) = (DENSR - D(1))*W(4) + (SHRMS(1) - D(1))*(W(3) + W(11) + W(
 5001         12)) + (SHRMS(2) - D(1))*(W(5) + W(13) + W(14))
 5002    C
 5003    C              ***SUM***
 5004     120  WEI = W(21) + W(22) + W(28) + W(29) + W(30) + W(31)
 5005          DO 121 I=1,17
 5006          WEI = WEI + W(I)
 5007     121  CONTINUE
 5008    C
 5009    C
 5010    C
 5011    C            ***PRINT SECTION DATA ON APRTID(NSTAT) = 1***
 5012     190  IF (APRTID(NSTAT)) 199,199,194
 5013     194  WRITE (6,195)NSTAT,STRING(1,10,NSTAT),WEI
 5014    C
 5015     195  FORMAT (2HHO  **GEIGH2 SUBR -- STA,I3,8H  N/STR=,F7.1,8H  WT/IN=,
 5016         1F8.4,4H*** ,/8H0   W )
 5017     198  FORMAT (3X,12,2X,5F12.4)
 5018     197  FORMAT (12H0  EL(1-15)=,3F6.1,2X,3F6.1,2X,3F5.1,2X,3F5.1,2X,3F5.1)
 5019    C
 5020          DO 198 N=1,35,5
 5021          K = N + 4
 5022          WRITE (6,198)N,(W(I),I=N,K,1)
 5023     198  CONTINUE
 5024          WRITE (6,197)(EL(I),I=1,15)
 5025    C
 5026     199  RETURN
 5027          END                                                    MS002100
 5028    C*************************************************************************
 5029    C
 5030    C       *****SUBROUTINE ASTIFF*****
 5031    C   ***TORQUE-BOX STIFFNESS EVALUATION - ADV. COMP. ANALYSIS***
 5032    C
 5033    C*************************************************************************
 5034    C
 5035          SUBROUTINE ASTIFF                                      ASTF0010
 5036    C                                                            ASTF0020
 5037    C            ***SUBR TO EVALUATE EI AND GJ FOR COMPOSITE DESIGN ***   ASTF0030
 5038    C              *FOR W/SPAR PLATE/HC PNL AND W/RIB STRINGER*           ASTF0040
 5039    C
 5040    C            ***TSF(I) = ACEIGJ SUBR CONTROL ID***
```

```
CARD NO.  ****                          CONTENTS                          ****
 5041     C            **0=CALC SLCT GEOM FOR FIRST ST OF VF PASSES**
 5042     C            **1=SKIP SLCT GEOM CALC**
 5043     C
 5044     C
 5045     C                                                                ASTF0050
 5046          COMMON T(2060),D(20060),CD(20000),ND(1000),TH(900),C(12040)  ASTF0060
 5047     C                                                                ASTF0070
 5048          DIMENSION ENP(9),EL(15),IEL(15,11),
 5049         1TA(40),TSF(60),SPB(33),SPN(33),
 5050         2TBH(11),TBD(11),TBRS(11),TBRS(11),
 5051         3SLCFS(5),SWBCP(2),
 5052         8IHI(4),
 5053         9STRING(2,10,11),CNT(30)
 5054     C                                                                ASTF0090
 5055          DIMENSION GJSTD(11),EISTD(11),GJCD(11),EICD(11),
 5056         1GSTD(11),ESTD(11),GCMD(11),ECMD(11),
 5057         2GJSFO(11),EISFO(11),GJCFO(11),EICFO(11),
 5058         3GSFO(11),ESFO(11),GCFO(11),ECFO(11),
 5059         4GJSFL(11),EISFL(11),GJCFL(11),EICFL(11),
 5060         5GSFL(11),ESFL(11),GCFL(11),ECFL(11),
 5061         6GJVFD(11),EIVFD(11),GVFD(11),EVFD(11),
 5062         7GJVFS(11),EIVFS(11),GVFS(11),EVFS(11),
 5063         8DLRGJM(44),GJROD(11),TEIGJ(4),ENOC(5,4)
 5064     C                                                                ASTF0110
 5065          EQUIVALENCE (ENP(1),D(1155)),(IEL(1),T(1300)),(IEL(1,1),TH(1)),
 5066         1(TA(1),CD(40)),(TSF(1),CD(44)),
 5067         2(SPB(1),T(1232)),(SPN(1),T(1265)),
 5068         3(TBH(1),T(542)),(TBD(1),T(530)),(TBFS(1),T(153)),(TBRS(1),T(165)),
 5069         4(SLCFS(1),D(1470)),(SWBCP(1),D(423)),
 5070         5(CNT(1),T(154)),(C7,CNT(22)),
 5071         6(IHI,IHI(1)),(IH2,IHI(2)),(IH3,IHI(3)),(IH4,IHI(4)),
 5072         7(TCPNLU,CNT(29)),(TCPNLL,CNT(30)),(TCPNLF,CNT(32)),
 5073         8(TCPNLR,CNT(33)),
 5074         9(ACID,D(430)),(STRING(1,1,1),T(1676))
 5075         A,(IPB,ND(2))
 5076     C                                                                ASTF0130
 5077          EQUIVALENCE (GJSTD(1),CD(1)),(EISTD(1),CD(12)),(GSTD(1),CD(23)),
 5078         1(ESTD(1),CD(34)),(GJCD(1),CD(45)),(EICD(1),CD(56)),
 5079         2(GCMD(1),CD(67)),(ECMD(1),CD(78)),
 5080         3(GJVFD(1),CD(89)),(EIVFD(1),CD(100)),(GVFD(1),CD(111)),
 5081         4(EVFD(1),CD(122)),(GJSFO(1),CD(133)),(EISFO(1),CD(144)),
 5082         5(GSFO(1),CD(155)),(ESFO(1),CD(166)),(GJCFO(1),CD(177)),
 5083         6(EICFO(1),CD(188)),(GCFO(1),CD(199)),(ECFO(1),CD(210 ),
 5084         7(GJSFL(1),CD(221)),(EISFL(1),CD(232)),(GSFL(1),CD(2 3)),
 5085         8(ESFL(1),CD(254)),(GJCFL(1),CD(265)),(EICFL(1),CD(276)),
 5086         9(GCFL(1),CD(287)),(ECFL(1),CD(298)),(DLRGJM(1),CD(309))
 5087         A,(GJROD(1),T(668))
 5088         B,(TEIGJ(1),TH(783)),(ENOC(1,1),TH(787))
 5089         C,(GJVFS(1),CD(353)),(EIVFS(1) CD(364)),(VFID,D(25))
 5090         D,(GVFS(1),CD(375)),(EVFS(1),CD(386))
 5091     C                                                                ASTF0150
 5092     C                                                                ASTF0160
 5093          REAL ICL                                                    ASTF0170
 5094     C                                                                ASTF0180
 5095     C
 5096     C            ***EVALUATE STIFFNESS OF DESIGN AT 11 STATIONS***
 5097     C              *CALC AS REQD, ST(EI/GJ/E/G) FOR SELECTED REF TEMP*
 5098     C              *     AND FOR OUTPUT FOR FLUTTER OPT AND FLEX LOADS*
 5099     C              *SAVE CALC DATA IN BOTH ST AND COMPOSITE ARRAY LOC*
 5100     C             **CLEAR CD(1-400)--STIFFNESS DATA REGION**
 5101      790  DO 791 I=1,400
 5102           CD(I) = 0.0
 5103      791  CONTINUE
 5104     C
 5105      800  DO 839 NSTAT=1,11
 5106     C
 5107     C            ***CLEAR TA AND TSF ARRAYS***
 5108           DO 8000 I=1,40
 5109           TA(I) = 0.0
 5110      8000 CONTINUE
 5111           DO 8001 I=1,60
```

CARD NO **** CONTENTS ****

```
5112          TSF(1) = 0.0
5113        8001 CONTINUE
5114           C
5115           C            ***MOVE LAMINATE DATA TO EL ARRAY AND CALC BASIC ST(I)***
5116          DO 801 I=1,15
5117          EL(I) = IEL(I,NSTAT)
5118         801  CONTINUE
5119           C
5120          DO 8012 I=1,4
5121          N = ND(3)*I - ND(2)
5122          IF (I - ND(4)) 8011,8010,8011
5123        8010 N = I*ND(3) + ND(1)
5124        8011 TSF(I+17) = ENP(9)*D(2)*(EL(N) + D(2)*EL(N+1) + EL(N+2))
5125        8012 CONTINUE
5126           C
5127           C             **I(CORE) FOR HC/PNL.  FOR PLATES AND STR, *0.0**
5128          TSF(22) = TCPNLU
5129          TSF(23) = TCPNLL
5130          TSF(24) = TCPNLF
5131          TSF(25) = TCPNLR
5132           C
5133          TSF(26) = (TSF(18) + TSF(22))/D(2)
5134          TSF(27) = (TSF(19) + TSF(23))/D(2)
5135          TSF(20) = (TSF(20) + TSF(21) + TSF(24) + TSF(25))/D(2)
5136           C
5137          TSF(12) = TBO(NSTAT) - TSF(26) - TSF(27)
5138          TSF(16) = TBFS(NSTAT) - TSF(26) - TSF(27)
5139          TSF(17) = TBRS(NSTAT) - TSF(26) - TSF(27
5140          TSF(13) = TBH(NSTAT) - TSF(28)
5141          TSF(14) = TSF(13)
5142          TSF(15) = TSF(13)
5143           C
5144           C            ***I-SPAR CAP OR STRINGER AREA--TEST CONST***
5145           C              *ID = 2 FOR H/SPAR, 1 FOR H/RIB*
5146          TSF(10) = SPN(NSTAT) - D(2)
5147          IF (ACID - D(1)) 802,802,803
5148           C
5149           C             **H/RIB--SETUP STRINGER DATA***
5150         802  TSF(9) = D(1)
5151          TSF(3) = STRING(1,9,NSTAT)/STRING(1,1,NSTAT)
5152          TSF(4) = STRING(2,9,NSTAT)/STRING(1,1,NSTAT)
5153          TSF(5) = STRING(1,4,NSTAT)/STRING(1,1,NSTAT)
5154          TSF(6) = STRING(2,4,NSTAT)/STRING(1,1,NSTAT)
5155          TSF(7) = STRING(1,5,NSTAT)/STRING(1,1,NSTAT)
5156          TSF(8) = STRING(2,5,NSTAT)/STRING(1,1,NSTAT)
5157          GO TO 804
5158           C
5159           C             **H/SPAR--SETUP I-SPAR CAPS**
5160           C              *C7 = 0.0 FOR FDH*
5161         803  TSF(9) = TSF(10)/(TSF(10) + D(1))
5162          TSF(3) = C7*TSF(9)*TSF(18)/SPB(NSTAT)
5163          TSF(4) = TSF(3)
5164          TSF(5) = TSF(3)/D(12)*TSF(3)*TSF(3)
5165          TSF(6) = TSF(5)
5166          TSF(7) = TSF(3)/D(2)
5167          TSF(8) = TSF(7)
5168           C
5169           C              *T-BAR COVERS*
5170         804  TSF(1) = TSF(18) + TSF(3)
5171          TSF(2) = TSF(19) + TSF(4)
5172           C
5173           C            ***FS/RS COVER OVERHANG AND CAP AREAS***
5174          DO 807 I=1,2
5175          TSF(I+34) = SLOPS(I)*TSF(I)
5176          TSF(I+36) = SLOPS(2)*TSF(3)
5177          TSF(I+40) = TSF(I+34)/D(12)*TSF(I)*TSF(I)
5178          TSF(I+42) = TSF(I+36)/D(12)*TSF(I)*TSF(I)
5179           C
5180           C
5181           C              *CAP Y-BAR = 2/3*AREA/L(CAP)*
5182          TSF(I+30) = SLOPS(4)*TSF(I)
```

```
CARD NO  ****                          CONTENTS                          ****
 5183          IF (TSF(I+30) - SLOFS(3)) 805,806,806
 5184     805  TSF(I+30) = SLOFS(3)
 5185     806  TSF(I+20) = TSF(I+30)*SHBOP(1) + TSF(20)*SHBOP(1)/D(2)
 5186          TSF(I+30) = TSF(I+30)*SHBOP(2) + TSF(21)*SHBOP(2)/D(2)
 5187     C
 5188          TSF(34) = TSF(I+28)/SHBOP(1)
 5189          TSF(44) = TSF(I+28)/D(12)*TSF(34)*TSF(34) + TSF(I+28)/36.0
 5190          TSF(32) = 0.667*TSF(34)
 5191          TSF(40) = TSF(I+30)/SHBOP(2)
 5192          TSF(46) = TSF(I+30)/D(12)*TSF(40)*TSF(40) + TSF(I+30)/36.0
 5193          TSF(38) = 0.667*TSF(40)
 5194     807  CONTINUE
 5195     C
 5196     C
 5197     C            ***REF ST STIFFNESS--IDT=1***
 5198     809  IDT = 1
 5199          CALL ACEIGJ(INSTAT,IDT,EISTD(INSTAT),GJSTD(INSTAT),ESTD(INSTAT),GSTD(IN
          ISTAT))
 5201     C
 5202          EICD(INSTAT) = EISTD(INSTAT)
 5203          GJCD(INSTAT) = GJSTD(INSTAT)
 5204          ECMD(INSTAT) = ESTD(INSTAT)
 5205          GCMD(INSTAT) = GSTD(INSTAT)
 5206     C
 5207     C             **SET ACEIGJ CONTROL ID TSF(1) TO 1.0 FOR GEOM CALC SKIP
 5208          TSF(1) = D(1)
 5209     C
 5210     C             **TEST FOR REQD DATA FOR FLUTTER OPT**
 5211          IF (IEIGJ(3)) 820,820,810
 5212     810  IDT = 3
 5213          CALL ACEIGJ(INSTAT,IDT,EISFD(INSTAT),GJSFD(INSTAT),ESFD(INSTAT),GSFD(IN
          ISTAT))
 5215     C
 5216          EICFD(INSTAT) = EISFD(INSTAT)
 5217          GJCFD(INSTAT) = GJSFD(INSTAT)
 5218          ECFD(INSTAT) = ESFD(INSTAT)
 5219          GCFD(INSTAT) = GSFD(INSTAT)
 5220     C
 5221     C             **TEST FOR REQD DATA FOR FLEX LOADS**
 5222     C             **SET ACEIGJ CONTROL ID TSF(1) TO 1.0 FOR GEOM CALC SKIP
 5223     820  IF (IEIGJ(4)) 830,830,821
 5224     821  IDT = 4
 5225          TSF(1) = D(1)
 5226          CALL ACEIGJ(INSTAT,IDT,EISFL(INSTAT),GJSFL(INSTAT),ESFL(INSTAT),GSFL(IN
          ISTAT))
 5228     C
 5229          EICFL(INSTAT) = EISFL(INSTAT)
 5230          GJCFL(INSTAT) = GJSFL(INSTAT)
 5231          ECFL(INSTAT) = ESFL(INSTAT)
 5232          GCFL(INSTAT) = GSFL(INSTAT)
 5233     C
 5234     C
 5235     C            ***TEST FOR FLUTTER GJ REQMT FOR CALC***
 5236     830  DLRGJM(INSTAT) = 0.0
 5237          DLRGJM(INSTAT+11) = 0.0
 5238          DLRGJM(INSTAT+22) = 0.0
 5239          DLRGJM(INSTAT+33) = 0.0
 5240          IF (WFID) 831,839,831
 5241     831  IDT = 2
 5242          CALL ACEIGJ(INSTAT,IDT,EIWFS(INSTAT),GJWFS(INSTAT),EWFS(INSTAT),GWFS(IN
          ISTAT))
 5244          EIWFD(INSTAT) = EIWFS(INSTAT)
 5245          GJWFD(INSTAT) = GJWFS(INSTAT)
 5246          EWFD(INSTAT) = EWFS(INSTAT)
 5247          GWFD(INSTAT) = GWFS(INSTAT)
 5248     C
 5249     C            ***TEST BASIC ST GJ WITH REQD GJ***
 5250          IF (GJWFD(INSTAT) - GJROD(INSTAT)) 832,839,839
 5251     C
 5252     C             **SIZE TO REQD FLUTTER GJ--INCREASE JISTRUCT BY STEPS***
 5253     C             **SETUP ID FOR ORDER OF INCREASE FOR WEBS**
```

```
CARD NO  ****                          CONTENTS                          ****
 5254    C              *SELECTION CRITERIA = THINNEST TO THICKEST WEB*
 5255    C              *ASSUMED INITIAL ORDER = FS, RS, LC, UC*
 5256    C
 5257    C              **INIT(1-4)=(IN1, IN2, IN3, IN4 = ORDER ICS*
 5258    C              *(IN1,IN2,IN3,IN4) WILL CONTAIN 1,2,3,4 TO DENOTE WHICH
 5259    C              *     WEB IS TO BE USED IN THE SEQUENTIAL STEPS*
 5260    C
 5261     832  IN1 = 3
 5262          IN2 = 4
 5263          IN3 = 2
 5264          IN4 = 1
 5265    C
 5266    C              **TSF(53,54,55,56) TO CONTAIN INITIAL TUC,LC,FS,RS)**
 5267          TSF(53) = (EL(1) + D(2)*EL(2) + EL(3))*D(2)
 5268          TSF(54) = (EL(4) + D(2)*EL(5) + EL(6))*D(2)
 5269          TSF(55) = (EL(7) + D(2)*EL(8) + EL(9))*D(2)
  270          TSF(56) = (EL(13) + D(2)*EL(14) + EL(15))*D(2)
 5271    C
 5272    C             ***SELECT WEBS***
 5273          IF (TSF(IN2+52) - TSF(IN1+52)) 8323,8324,8324
 5274     8323 IX = IN1
 5275          IN1 = IN2
 5276          IN2 = IX
 5277    C
 5278    C              **ORDER NOW = 1,2,3,4 OR 2,1,3,4**
 5279     8324 IF (TSF(IN3+52) - TSF(IN1+52)) 8325,8325,8326
 5280     8325 IX = IN1
 5281          IN1 = IN3
 5282          IN3 = IX
 5283          GO TO 8328
 5284     8326 IF (TSF(IN3+52) - TSF(IN2+52)) 8327,8327,8328
 5285     8327 IX = IN2
 5286          IN2 = IN3
 5287          IN3 = IX
 5288    C
 5289    C              **ORDER NOW =  A. (3,1,2,4) OR (3,2,1,4) OR
 5290    C                *    B. (1,2,3,4),(1,3,2,4) OR (2,1,3,4),(2,3,1,4)*
 5291     8328 IF (TSF(IN4+52) - TSF(IN1+52)) 8329,8329,8330
 5292     8329 IX = IN1
 5293          IN1 = IN4
 5294          IN4 = IX
 5295          GO TO 8334
 5296    C
 5297     8330 IF (TSF(IN4+52) - TSF(IN2+52)) 8331,8331,8332
 5298     8331 IX = IN2
 5299          IN2 = IN4
 5300          IN4 = IX
 5301          GO TO 8334
 5302     8332 IF (TSF(IN4+52) - TSF(IN3+52)) 8333,8333,8334
 5303     8333 IX = IN3
 5304          IN3 = IN4
 5305          IN4 = IX
 5306    C
 5307    C             ***INITIALIZE STARTING T(1,2,3,4)***
 5308    C              **SET ACEIGJ SUBR CONTROL ID TSF(11) TO 0.0**
 5309     8334 TSF(11) = 0.0
 5310          TSF(57) = TSF(IN1+52)
 5311          TSF(58) = TSF(IN2+52)
 5312          TSF(59) = TSF(IN3+52)
 5313          TSF(60) = TSF(IN4+52)
 5314          TSF(53) = 0.0
 5315          TSF(54) = 0.0
 5316          TSF(55) = 0.0
 5317          TSF(56) = 0.0
 5318    C
 5319    C
 5320    C             ***SETUP DELTA MU,L,F,P  AND DELTA T(U,L,F,R)***
 5321     834  DO 8344 I=1,4
 5322          N = IN1(I)
 5323          NDL = N*ND(3) - ND(2)
 5324          IF (ND(4) - N) 8340,8340,8341
```

CARD NO **** CONTENTS ****

```
 8340 NEL = NNO(3) + NO(1)
 8341 IF (NO(1) - 1) 8342,8343,8343
 8342 IF ((TSF(1+56) - TSF(1+55)) 8343,8344,8344
 8343 TSF(1+56) = TSF(1+56) + D(4)
      TSF(N+48) = TSF(N+48) + D(1)
      TSF(N+52) = TSF(N+52) + D(4)*CNP(9)
      EL(NEL+1) = EL(NEL+1) + D(1)
 8344 CONTINUE
C
C
C              ***CALC EI, GJ, E, G FOR T(ST) + DELTA(M)***
 8345 CALL ACEIGJ(NSTAT,IDT,EIVFD(NSTAT),GJVFD(NSTAT),EVFD(NSTAT),GVFD(N
     1STAT))
C
C               **TEST CURRENT VALUE OF GJ WITH REQD GJ**
 8346 IF (GJR2(NSTAT) - GJVFD(NSTAT)) 8349,8349,834
C
C
C               **SAVE TOTAL DELTA M LAYERS**
 8349 DLRSUM(NSTAT) = TSF(49)
      DLRSUM(NSTAT+11) = TSF(50)
      DLRSUM(NSTAT+22) = TSF(51)
      DLRSUM(NSTAT+33) = TSF(52)
C
C              ***CALC COMPOSITE EI, GJ, E, G AT BASE TEMP***
C               **SET ACEIGJ CONTROL ID TSF(11) TO 1.0 FOR GEOM CALC SKIP
      TSF(11) = D(1)
      IDT = 1
      CALL ACEIGJ(NSTAT,IDT,EICD(NSTAT),GJCD(NSTAT),ECMD(NSTAT),GCMD(NST
     1AT))
C
C               **CALC COMPOSITE EI, GJ, E, G FOR FL/OPT, FL/LOD AS REQD*
      IF (TEIGJ(3)) 836,836,835
 835  IDT = 3
      CALL ACEIGJ(NSTAT,IDT,EICFO(NSTAT),GJCFO(NSTAT),ECFO(NSTAT),GCFO(N
     1STAT))
C
C                 *FLEX LOADS*
 836  IF (TEIGJ(4)) 839,839,837
 837  IDT = 4
      CALL ACEIGJ(NSTAT,IDT,EICFL(NSTAT),GJCFL(NSTAT),ECFL(NSTAT),GCFL(N
     1STAT))
C
C              ***LOOP FOR NEXT STATION***
 839  CONTINUE
C
C
C              ***PRINT STIFFNESS SUMMARY DATA ON IPB=1***
      IF (IPB) 899,899,8400
 8400 WRITE(6,840)
  840 FORMAT(20H1  ***ASTIFF SUBR***,/6H0   CD)
 841  FORMAT (1H ,1X,I3,2X,5E16.8)
C
      DO 842 N=1,400,5
      K = N + 4
      WRITE (6,841)N,(CD(I),I=N,K,1)
 842  CONTINUE
C
C                                                                  ASTF9900
C              ***EXIT***                                          ASTF9910
 899  RETURN                                                       ASTF9990
      END                                                          ASTF9999
C*********************************************************************
C
C       *****SUBROUTINE ACEIGJ*****
C   ***TORQUE-BOX EI/GJ EVALUATION - ADV. COMP. ANALYSIS***
C
C*********************************************************************
C
      SUBROUTINE ACEIGJ(NS,ID,AEI,AGJ,AE,AG)
C
```

```
CARD NO  ****                          CONTENTS                          ****
   5396  C            ***SUBR TO CALC EI, GJ, E, G ST STA(S), GIVEN L,M,N***
   5397  C             **VALUE OF E, G = F(ID) FOR TEMPERATURE EFFECTS**
   5398  C             **L,M,N FOR UPR, LWR, FS, RS IN EL ARRAY**
   5399  C              *E AND G TO BE OUTPUT AS NOMINAL VALUES---
   5400  C              *     E=EI(CALC)/I(CALC)
   5401  C              *     G=GJ(CALC)/J(CALC)*
   5402  C
   5403  C            ***CONTROL ID = TSF(411).***
   5404  C             **0=CALC SECTION GEOMETRY DATA AND ELEMENT E,G**
   5405  C             **1=SKIP SECTION GEOMETRY CALC.  CALC ONLY ELEMENT E,G**
   5406  C              *     SINLE REQD DATA CALC ON PREVIOUS CALL*
   5407  C
   5408  C
   5409  C
   5410        COMMON T(9168)
   5411  C
   5412        DIMENSION D(2060),CD(2000),ND(100),TW(900),CT(2048),DC(100),
   5413       1ENP(8),EL(15),ENOC(6,4),REFSTE(4),REFSTG(4),
   5414       2TA(40),TSF(60),
   5415       4APRTID(12),
   5416       8TBW(11)
   5417  C
   5418        EQUIVALENCE (D(1),T(2061)),(CD(1),T(4121)),(ND(1),Y(6121)),
   5419       1(TW(1),T(6221)),(CT(1),T(7121)),(DC(1),D(1401)),
   5420       2(ENP(1),D(1155)),(ENOC(1,1),TW(787)),(EL(1),T(1300)),
   5421       3(REFSTE(1),TW(811)),(REFSTG(1),TW(815)),
   5422       4(TA(1),CD(1401)),(TSF(1),CD(441)),
   5423       5(APRTID(1),T(1070)),
   5424       8(TBW(1),T(942)),(DFREIK,DC(1))
   5425  C
   5426  C
   5427  C
   5428  C            ***TEST TSF(11) FOR TYPE OF CALC***
   5429   100  IF (TSF(11)) 101,101,150
   5430  C
   5431  C             **CALC SECTION GEOMETRY DATA FOR FIRST ST PASS OR WF PASS
   5432   101  TA(36) = (TSF(53) + TSF(54))/D(2)
   5433        TA(37) = (TSF(55) + TSF(56))/D(2)
   5434        DO 102 I=1,2
   5435        TA(I+11) = TSF(I+11) - TA(I+35)
   5436        TA(I+13) = TSF(I+13) - TA(37)
   5437        TA(I+15) = TSF(I+15) - TA(36)
   5438        TA(I+17) = TSF(I+17) + TSF(I+52)
   5439        TA(I+19) = TSF(I+19) + TSF(I+54)
   5440        TA(I+33) = TSF(I+25) + TSF(I+52)/D(2)
   5441   102  CONTINUE
   5442  C
   5443        TA(11) = TA(12)*TA(13)*TA(12)*TA(13)
   5444  C
   5445  C            ***J(SECTION)***
   5446        TA(2) = DC(3)
   5447        DO 103 I=1,4
   5448        TA(2) = TA(2) + TA(I+13)/TA(I+17)
   5449   103  CONTINUE
   5450        TA(2) = D(4)*TA(11)/TA(2)
   5451  C
   5452  C             **CALC I(SECTION) DATA**
   5453  C              *I(TOTAL) FOR COVERS*
   5454        DO 104 I=1,2
   5455        TA(I+21) = TBW(6)*TA(I+17)*(TA(I+17)/12.0*TA(I+17)
   5456       1                 + TA(12)/D(4)*TA(12))
   5457  C
   5458        TA(I+23) = TBW(9. (TSF(I+4) + TSF(I+2)*(TA(12)/D(2) - TA(I+33) -
   5459       1TSF(7))**2)
   5460  C
   5461        TA(I+25) = TSF(I+34)*TA(16)/D(4)*TA(16) + TSF(I+48)
   5462        TA(I+27) = TSF(I+38)*TA(17)/D(4)*TA(17) + TSF(I+42)
   5463  C
   5464        TA(I+29) = TSF(I+28)*(TA(18)/2.-TA(I+33)- TSF(I+33))**2 +TSF(I+44)
   5465        TA(I+31) = TSF(I+30)*(TA(17)/2.-TA(I+33)- TSF(I+30))**2 +TSF(I+46)
   5466  C
```

```
CARD NO  ****                          CONTENTS                          ****
 9467          TA(I+2) + TA(I+21) + TA(I+23) + TA(I+25) + TA(I+27) + TA(I+29) + T
 9468         1A(I+31)
 9469      184  CONTINUE
 9470      C
 9471           TA(I) = TA(3) + TA(4)
 9472      C
 9473      C
 9474      C            ***CALC E(UPR,LWR), G(UPR,LWR,FS,RS)*E(L,M,N,MATL PROP)**
 9475       150  DO 159 I=1,4
 9476            N = I*ND(3) - ND(2)
 9477            IF (I - ND(4)) 152,151,152
 9478       151  N = I*ND(3) + ND(1)
 9479       152  IF (I - ND(2)) 153,153,154
 9480      C
 9481      C              *E(UPR/LWR)*
 9482       153  TA(I+4) = (ENOC(1,ID)/1000000.0*EL(N) + ENOC(4,ID) 1000000.0*D(2)*
 9483           1EL(N+1) + ENOC(2,ID)/1000000.0*EL(N+2))*ENP(9)*D(2)/TA(I+17)
 9484      C
 9485      C              *G(UPR,LWR FS,RS)*
 9486       154  TA(I+8) = (REFSTG(ID)/1000000.0*(EL(N) + EL(N+2)) + ENOC(6,ID)/100
 9487           10000.0*D(2)*EL(N+1))*ENP(9)*D(2)/TA(I+17)
 9488       159  CONTINUE
 9489      C            ***CALC SECTION EI, GJ AND NOMINAL E,G***
 9490      C
 9491      C             **E(U,L) = E(SK)*I(SK) + E(STR/CAP)*I(STR/CAP) +
 9492      C             **     E(SK)*I(DEL FS/RS COV) + E(SK)*I(FS/RS)*E*I(FSRS)**
 9493       160  AFI = DC(3)
 9494            DO 161 I=1,2
 9495            AEI = AEI + REFSTE(ID)/1000000.0*TA(I+23) + TA(I+4)*(TA(I+21) + TA
 9496           1(I+25) + TA(I+27) + DIRE(K*(TA(I+29) + TA(I+31)))
 9497       161  CONTINUE
 9498            AE = AEI/TA(1)*1000000.0
 9499            AEI = AEI*1000000.0
 9500      C
 9501      C
 9502      C            **GJ(SECT) = (4*(A**2)/SUM((DS(I)/T(I))/G(I)))**
 9503            AGJ = 0.0
 9504            DO 162 I=1,4
 9505            AGJ = AGJ + TA(I+13)/TA(I+17) TA(I+6)
 9506       162  CONTINUE
 9507            AGJ = D(4)*TA(1)/AGJ
 9508            AG = AGJ/TA(2)*1000000.0
 9509            AGJ = AGJ*1000000.0
 9510      C
 9511      C
 9512      C            ***PRINT SECTION DATA ON APRTID(NS) = I***
 9513       190  IF (APRTID(NS)) 199,199,194
 9514       194  WRITE (6,195)NS,ID
 9515            WRITE (6,198)AEI,AGJ,AE,AG
 9516      C
 9517       195  FORMAT (24H0  **ACEIGJ SUBR -- STA 12,6H  ID= ,11,2H**)
 9518       198  FORMAT (1H0,6X,4E16.8,/6H0  TA )
 9519       1980 FORMAT (6H0 TSF )
 9520       197  FORMAT (3X,12,3X,4E16.8)
 9521      C
 9522            DO 198 N=1,40,5
 9523            K = N + 4
 9524            WRITE (6,197)N,(TA(I),I=N,K,1)
 9525       198  CONTINUE
 9526      C
 9527            WRITE (6,1980)
 9528            DO 1980 N=1,60,5
 9529            K = N + 4
 9530            WRITE (6,197)N,(TSF(I),I=N,K,1)
 9531       1980 CONTINUE
 9532      C
 9533      C
 9534      C            ***EXIT***
 9535       199  RETURN
 9536            END
 9537      C**************************************************************************
```

CARD NO **** CONTENTS ****

```
      C
      C        ****** SUBROUTINE ACNSTR*****
      C    ***SECTION DESIGN DATA/HT ANALYSIS CONTROL - ADV. COMP. ANALYSIS***
      C
      C*************************************************************************
      C
            SUBROUTINE ACNSTR                                                   ACNS0010
      C                                                                         CNSR0100
      C                                                                         CNSR0120
      C                                                                         CNSR0140
            COMMON T(2660),D(2660),CD(2000),TD(1000),TH(3000),CT(2048)          CNSR0150
      C                                                                         CNSR0160
            DIMENSION DC(100),TDC(200),TSC(420),TSS(100),THT(420),TSEC(300),    CNSR0170
           1TC(340),TO(40),TT(20),DEL(30),                                      CNSR0171
           2TEM(11),                                                            CNSR0172
           3DJOINT(11),DELHD(11),SCFS(5),SHSCP(2),SHBCF(2),                     CNSR0173
           4YDJD(11),YSLD(11),YBUD(11),YBLD(11)                                 CNSR0179
      C                                                                         CNSR0180
            DIMENSION CNT(38),SFB(33),SFN(33),SPCMUH(11),DLRSJH(44),            CNSR0189
           1ENP   (20,4),ENC(3),EL(15),                                         CNSR0189
           2IEL(15,11),CRLC(7,11),FCR(10,11),STRESS(6,11,20),                   CNSR0189
           3STRING(2,10,11),                                                    CNSR0183
           4DPRU(11),BPRL(11),                                                  CNSR0184
           5SHMS(12),                                                           CNSR0185
           6SKNDU(11),STNDU(11),SKNDL(11),STNDL(11),                           CNSR0186
           7FSKU(11),FSTU(11),FSKL(11),FSTL(11),                                CNSR0187
           8DDSTR(330),                                                         CNSR0188
           9DDUC(2201),DOLC(2201),DDIS(2201),DDFS(2201),DDRS(2201)              CNSR0189
      C                                                                         CNSR0190
      C                                                                         CNSR0200
            EQUIVALENCE (DC(1),D(1401)),(TDC(1),T(1341)),(TSC(1),D(1154)),      CNSR0210
           1(TSS(1),T(1555)),(THT(1),CD(1101)),(TSEC(1),CD(1501)),              CNSR0211
           2(TC(1),T(1960)),(TO(1),T(1920)),(TT(1),T(1317)),                    CNSR0212
           3(SHBCF(1),D(1427)),(CFRIB,D(1400)),(DEPJD,D(1464)),                 CNSR0213
           4(SHBCP(1),D(1423)),(DELHD(1),D(1501),(DJOINT(1),D(1661)),           CNSR0214
           5(SCFS(1),D(1470)),(DEL(1),THT(2511),(TBM(1),T(1542)),               CNSR0215
           6(CBLHD,THT(2001),(CJOINT,THT(2011),(YDJD(1),TSEC(1331),             CNSR0216
           7(YBLD(1),TSEC(1661),(YPUD(1),T(1679)),(YBLD(1),T(1693),             CNSR0217
           8(DLSKU,DEL(21),(DLSKL,DEL(15  ),(DLFSH,DEL(15)),(DLRSH,DEL(19)),    CNSR0218
           9(ISEC,ND(551),(NDDM,ND(561),(IC,ND(1481),(IPB,ND(1941),(IFN,ND(1931) CNSR0219
           A,(PFFSCV,CT(2047)),(PFFSSP,CT(2048))                                CNSR0220
           B,(SKNDU(1),TH(1661),(STNDU(1),TH(1771),(FSKU(1),TH(1881)            CNSR0221
           C,(FSTU(1),TH(1991),(SKNDL(1),TH(2101),(STND  (1),TH(2211)           CNSR0222
           D,(FSKL(1),TH(2321),(FSTL(1),TH(2431)                                CNSR0223
           E,(BPRU(1),TH(2541),(BPRL(1),TH(2651)                                CNSR0224
      C                                                                         CNSR0230
      C                                                                         CNSR0270
            EQUIVALENCE (ENP(1),D(1155)),(ENH(1),D(1164)),(ENC(1),CT(2043)),    CNSR0280
           1(EL(1),T(1350)),(CNT(1),T(1594)),(C7,CNT(22)),                      CNSR0281
           2(CRLC(1,1),T(960)),(FCR(1,1),T(1100)),(IEL(1,1),TH(1)),             CNSR0282
           3(STRESS(1,1,1),CT(1)),(STRING(1,1,1),T(1676)),                      CNSR0283
           4(SFB(1),T(1232)),(SFN(1),T(1265)),(SPCMUH(1),T(1632)),              CNSR0284
           5(DLRSJH(1),CD(1339)),(SHMS(1),D(1401)),(DKMIR,D(2)),                CNSR0285
           6(C9,CNT(34)),(C10,CNT(35)),                                         CNSR0286
           8(DDUC(1),CD(1)),(DOLC(1),CD(221)),(DDIS(1),CD(441)),                CNSR0288
           9(DDFS(1),CD(65)),(DDRS(1),CD(88))                                   CNSR0289
           A,(TCPNLU,CNT(29)),(TCPNLL,CNT(30)),(TCPNL1,CNT(31))                 CNSR0289
           B,(TCPNLF,CNT(32)),(TCPNLR,CNT(33))                                  CNSR0289
           C,(DDSTR(1),CT(1321)),(ACID,D(430))                                  CNSR0289
           C,(XXCODE,CNT(19)),(XPCODE,CNT(20))                                  CNSR0289
           D,(XFCODE,CNT(27)),(XRCODE,CNT(28))                                  CNSR0289
      C                                                                         CNSR0290
      C                                                                         CNSR0300
      C
            REAL IEL
      C
      C
      C
      C           ***PROCESS SYNTHESIS DATA FOR OUTPUT SUMMARY AND
      C           ***     WEIGHT ANALYSIS***
      C
```

```
CARD NO  ****                          CONTENTS                          ****
 5609      C              *SAVE STIFFNESS DATA ON RCD NO-- 400 CELLS--CD(1-4001*
 5610       600  CALL WRITMS (1,CD(1),400,N3)
 5611      C
 5612      C              **RELOCATE DELTA M LAYERS FOR WF BEFORE CLEAR**
 5613      C               *SAVE IN TSS(1-44)*
 5614            DO 6000 I=1,44
 5615            TSS(I) = DLRGUM(I)
 5616       6000 CONTINUE
 5617      C
 5618      C              *CLEAR CD(1-1100) AND DDSTR(1-2220)*
 5619            DO 601 I=1,1100
 5620            CD(I) = DC(3)
 5621       601  CONTINUE
 5622      C
 5623            DO 6010 I=1,330
 5624            DDSTR(I) = DC(3)
 5625       6010 CONTINUE
 5626      C
 5627      C             ***SETUP DESIGN DATA SUMMARY FOR 11 STATIONS***
 5628      C              **5 BLOCKS OF DATA FOR EAR
 5629      C              **5 BLOCKS OF DATA FOR EACH STATION--20 ITEMS/BLOCK**
 5630      C               *BLOCK 1=UPPER COVER DATA*
 5631      C               *BLOCK 2= LOWER COVER DATA*
 5632      C               *BLOCK 3= INTERM/SPAR DATA*
 5633      C               *BLOCK 4= FRONT SPAR DATA*
 5634      C               *BLOCK 5= REAR/SPAR DATA*
 5635      C
 5636      C              **BLOCK 6=COVER STR DATA FOR H/RIB CONST **
 5637      C
 5638      C               *ID=ACID.  1=H/RIB, 2=H/SPAR*
 5639      C
 5640      C              **PROCESS THICKNESS DATA**
 5641            DO 638 N=1,11
 5642            DO 632 I=1,15
 5643            EL(I) = IEL(I,N)
 5644       602  CONTINUE
 5645      C
 5646      C               *DDUC(1-220)=UPPER COVER ARRAY*
 5647      C               *DDLC(1-220)=LOWER COVER ARRAY*
 5648      C               *DDIS(1-220)=INTERM SPAR ARRAY*
 5649      C               *DDFS(1-220)=FRONT SPAR ARRAY*
 5650      C               *DDRS(1-220)=REAR SPAR ARRAY*
 5651      C
 5652            DDUC(N+66) = EL(1)*D(2)
 5653            DDUC(N+77) = EL(2)*D(4)
 5654            DDUC(N+88) = EL(3)*D(2)
 5655      C
 5656      C               *DELTA M LAYERS FOR WF STORED IN TT(14-24)*
 5657      C               *DELTA M-PLIES STORED IN TSS(1-44)*
 5658            DDUC(N+99) = TSS(N)*D(2)
 5659            DDUC(N+121) = ENP(1)*(DDUC(N+66) + DDUC(N+77) + DDUC(N+88))
 5660            DDUC(N+143) = ENP(9)*DDUC(N+99)
 5661      C
 5662      C               *TEST FOR H/PNL*
 5663            IF (D(2) - XXCODE) 603,603,604
 5664       603  DDUC(N+110) = TCPNLU
 5665            DDLC(N+110) = TCPNLL
 5666      C
 5667      C              **TEST FOR H/RIB OR H/SPAR OR FDH**
 5668       604  IF (ACID - D(1)) 6040,6040,6042
 5669      C
 5670      C             ***H/RIB COVER DATA***
 5671       6040 DDSTR(N) = STRING(1,1,N)
 5672            DDSTR(N+11) = STRING(1,9,N)
 5673            DDSTR(N+22) = STRING(1,8,N)
 5674            DDSTR(N+33) = STRING(1,6,N)
 5675            DDSTR(N+44) = STRING(1,7,N)
 5676            DDSTR(N+55) = STRING(1,10,N)
 5677            DDSTR(N+66) = STRING(1,5,N)
 5678            DDSTR(N+77) = STRING(1,4,N)
 5679            DDSTR(N+88) = STRING(1,2,N)
```

```
CARD NO  ****                          CONTENTS                          ****
   5680          DDSTR(N+99) = DDSTR(N+11)/DDSTR(N)
   5681          DDIS(N+165) = SPN(N)
   5682          DDIS(N+154) = DDSTR(N+88)
   5683          DDSTR(N+220) = SANRU(N)
   5684          DDSTR(N+231) = STNRU(N)
   5685          DDSTR(N+242) = FSAU(N)
   5686          DDSTR(N+253) = FSTU(N)
   5687          DDSTR(N+264) = BRRU(N)
   5688     C
   5689     C              *LOWER COVER*
   5690          DDSTR(N+110) = STRING(1,1,N)
   5691          DDSTR(N+121) = STRING(2,9,N)
   5692          DDSTR(N+132) = STRING(2,8,N)
   5693          DDSTR(N+143) = STRING(2,6,N)
   5694          DDSTR(N+154) = STRING(2,7,N)
   5695          DDSTR(N+165) = STRING(2,10,N)
   5696          DDSTR(N+176) = STRING(2,5,N)
   5697          DDSTR(N+187) = STRING(2,4,N)
   5698          DDSTR(N+198) = STRING(1,2,N)
   5699          DDSTR(N+209) = DDSTR(N+121)/DDSTR(N+110)
   5700          DDSTR(N+275) = SANRL(N)
   5701          DDSTR(N+286) = STNRL(N)
   5702          DDSTR(N+297) = FSKL(N)
   5703          DDSTR(N+308) = FSTL(N)
   5704          DDSTR(N+319) = BRRL(N)
   5705     C
   5706     C              *L(RIB) TEST*
   5707          IF (DDSTR(N+198) - DDIS(N+154)) 6041,6046,6046
   5708    6041 DDIS(N+154) = DDSTR(N+198)
   5709          GO TO 6046
   5710     C
   5711     C
   5712     C              *TEST FOR FULL DEPTH HONEYCOMB*
   5713    6042 IF (D(3) - XPCODE) 6043,6043,6045
   5714    6043 DDIS(N+154) = SPB(N+22)/ENP(1)
   5715          DDIS(N+165) = SPN(N)
   5716          DDIS(N+132) = DBRHO/D(2)*18
   5717          DDIS(N+121) = SPN(N+22)/ENP(1)
   5718          TSEC(241) = D(1)
   5719          TT(1) = 0.0
   5720          GO TO 6046
   5721     C
   5722     C              **NO OF SPARS AND SPACINGS**
   5723     C              ***CAP T-BAR = AREA/B*(NOS/(NOS+1))
   5724    6045 DDIS(N+154) = SPB(N)
   5725          DDIS(N+165) = SPN(N) - D(2)
   5726          TSEC(241) = DDIS(N+165)/(DDIS(N+165) + D(1))
   5727          DDIS (N+132) = C7*DDUC(N+121)
   5728          TT(1) = DDIS(N+132)/DDIS(N+154)*TSEC(241)
   5729     C
   5730     C              **LOWER COVER**
   5731    6046 DDLC(N+66) = EL(4)*D(2)
   5732          DDLC(N+77) = EL(5)*D(4)
   5733          DDLC(N+88) = EL(6)*D(2)
   5734          DDLC(N+99) = TSS(N+11)*D(2)
   5735          DDLC(N+121) = ENP(9)*(DDLC(N+66) + DDLC(N+77) + DDLC(N+88))
   5736          DDLC(N+132) = DDLC(N+121) + TT(1)
   5737          DDLC(N+143) = DDLC(N+99)*ENP(9)
   5738     C
   5739          DDUC(N+132) = DDUC(N+121) + TT(1)
   5740     C
   5741     C              *TEST FOR M/RIB**
   5742          IF (ACID - D(1)) 6047,6047,6048
   5743    6047 DDUC(N+132) = DDUC(N+121) + DDSTR(N+99)
   5744          DDLC(N+132) = DDLC(N+121) + DDSTR(N+209)
   5745          DDUC(N+154) = DDUC(N+121)/D(2) + STRING(1,3,N)
   5746          DDLC(N+154) = DDLC(N+121)/D(2) + STRING(2,3,N)
   5747          GO TO 6049
   5748     C
   5749    6048 DDUC(N+154) = (DDUC(N+121)*(DDUC(N+121) + DDUC(N+110))/D(2) + TT(1
   5750         1)*(TT(1)/D(2) + DDUC(N+121) + DDUC(N+110)))/(DDUC(N+121) + TT(1))
```

```
CARD NO  ****                          CONTENTS                          ****
 5751          DDLC(N+154) = (DDLC(N+121)*(DDLC(N+121) + DDLC(N+110))/D(2) + TT(1
 5752         1)*(TT(1)/D(2) + DDLC(N+121) + DDLC(N+110)))/(DDLC(N+121) + TT(1))
 5753      C
 5754      C              **INTERM SPAR/RIBS**
 5755       6049 DDIS(N+66) = EL(10)*D(2)
 5756            DDIS(N+77) = EL(11)*D(4)
 5757            DDIS(N+88) = EL(12)*D(2)
 5758            DDIS(N+99) = DC(3)
 5759            IF (XPCODE - D(2)) 605,605,6050
 5760       605  DDIS(N+121) = ENP(9)*(DDIS(N+66) + DDIS(N+77) + DDIS(N+88))
 5761            DDIS(N+143) = DC(3)
 5762      C
 5763      C              **TEST FOR H/PNL**
 5764       6050 IF (D(2) - XPCODE) 606,6051,606
 5765       6051 DDIS(N+110) = TCPNLI
 5766      C
 5767      C              **FRONT SPAR**
 5768       606  DDFS(N+66) = EL(7)*D(2)
 5769            DDFS(N+77) = EL(8)*D(4)
 5770            DDFS(N+88) = EL(9)*D(2)
 5771            DDFS(N+99) = TSS(N+22)*D(2)
 5772            DDFS(N+121) = ENP(9)*(DDFS(N+66) + DDFS(N+77) + DDFS(N+88))
 5773            DDFS(N+143) = DDFS(N+99)*ENP(9)
 5774      C
 5775      C              *TEST FOR H/PNL*
 5776            IF (D(2) - XFCODE) 607,607,608
 5777       607  DDFS(N+110) = TCPNLF
 5778      C
 5779      C              **FRONT SPAR CAPS**
 5780       608  TT(1) = DDUC(N+132)
 5781            TT(2) = DDLC(N+132)
 5782            DO 611 I=1,2
 5783            TT(I+2) = TT(I)*SLCFS(4)
 5784            IF (TT(I+2) - SLCFS(3)) 609,610,610
 5785       609  TT(I+2) = SLCFS(3)
 5786       610  TT(I+4) = TT(I+2)*SWDCP(1) + DDFS(N+121)*SWDCP(1)/D(2)
 5787       611  CONTINUE
 5788            DDFS(N+132) = TT(5)
 5789            DDFS(N+154) = TT(6)
 5790      C
 5791      C              *REAR SPAR**
 5792            DDRS(N+66) = EL(13)*D(2)
 5793            DDRS(N+77) = EL(14)*D(4)
 5794            DDRS(N+88) = EL(15)*D(2)
 5795            DDRS(N+99) = TSS(N+33)*D(2)
 5796            DDRS(N+121) = ENP(9)*(DDRS(N+66) + DDRS(N+77) + DDRS(N+88))
 5797            DDRS(N+143) = DDRS(N+99)*ENP(9)
 5798      C
 5799      C              *TEST FOR H/PNL*
 5800            IF (D(2) - XRCODE) 612,612,613
 5801       612  DDRS(N+110) = TCPNLR
 5802      C
 5803      C              *REAR SPAR CAPS*
 5804       613  DO 614 I=1,2
 5805            TT(I+4) = TT(I+2)*SWDCP(2) + DDRS(N+121)*SWDCP(2)/D(2)
 5806       614  CONTINUE
 5807            DDRS(N+132) = TT(5)
 5808            DDRS(N+154) = TT(6)
 5809      C
 5810      C            ***PROCESS LOAD AND STRESS DATA***
 5811      C              *FCH ARRAY=CRITICAL LOAD*
 5812      C              *STRESS ARRAY= REQD LOAD, SPCRUH ARRAY=CRUSHING SP LDS*
 5813      C              *CRLC ARRAY=CRITICAL LOAD ID--I=20=ST, I+20=STABILITY*
 5814      C
 5815      C              *CRITICAL LOAD AND STRESSES*
 5816       620  DO 621 I=1,10
 5817            TT(I) = FCH(I,N)
 5818       621  CONTINUE
 5819            DDUC(N+176) = TT(1)
 5820            DDUC(N+187) = TT(2)
 5821            DDUC(N+198) = TT(1)/DDUC(N+121)
```

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CARD NO  ****                                CONTENTS                                ****
   5822          DDUC(N+209) = TT(2)/DDUC(N+121)
   5823      C
   5824          DDLC(N+176) = TT(3)
   5825          DDLC(N+187) = TT(4)
   5826          DDLC(N+198) = TT(3)/DDLC(N+121)
   5827          DDLC(N+209) = TT(4)/D     (N+121)
   5828      C
   5829          DDIS(N+176) = TT(5)
   5830          DDIS(N+187) = TT(6)
   5831          DDIS(N+198) = TT(5)/DDIS(N+121)
   5832          DDIS(N+209) = TT(6)/DDIS(N+121)
   5833      C
   5834          DDFS(N+176) = TT(7)
   5835          DDFS(N+187) = TT(8)
   5836          DDFS(N+198) = TT(7)/DDFS(N+121)
   5837          DDFS(N+209) = TT(8)/DDFS(N+121)
   5838      C
   5839          DDRS(N+176) = TT(9)
   5840          DDRS(N+187) = TT(10)
   5841          DDRS(N+198) = TT(9)/DDFS(N+121)
   5842          DDRS(N+209) = TT(10)/DDRS(N+121)
   5843      C
   5844      C             **CRITICAL LOAD CONDITION ID**
   5845          DO 622 I=1,7
   5846          TT(I) = CRLC(I,N)
   5847      622 CONTINUE
   5848      C
   5849          DDUC(N) = TT(1)
   5850          DDLC(N) = TT(2)
   5851          DDIS(N) = TT(7)
   5852          DDFS(N) = TT(7)
   5853          DDRS(N) = TT(7)
   5854          DDUC(N+11) = TT(3)
   5855          DDLC(N+11) = TT(3)
   5856          DDIS(N+11) = TT(5)
   5857          DDFS(N+11) = TT(4)
   5858          DDRS(N+11) = TT(6)
   5859      C
   5860      C             **PROCESS CRITICAL LOAD CONDITION LOADS**
   5861          K = TT(1)
   5862          DDUC(N+22) = STRESS(1,N,K)
   5863          DDUC(N+44) = DDUC(N+22)/DDUC(N+121)
   5864          K = TT(2)
   5865          DDLC(N+22) = STRESS(2,N,K)
   5866          DDLC(N+44) = DDLC(N+22)/DDLC(N+121)
   5867      C
   5868          IF (ACID - 1.0) 6220,6220,6221
   5869      6220 DDUC(N+44) = FSKU(N)
   5870          DDLC(N+44) = FSKL(N)
   5871          DDUC(N+165) = FSTU(N)
   5872          DDLC(N+165) = FSTL(N)
   5873      C
   5874      6221 K = TT(7)
   5875          DDIS(N+22) = SPCRUH(K)
   5876          DDFS(N+22) = SPCRUH(K)
   5877          DDRS(N+22)   SPCRUH(K)
   5878          DDIS(N+44) = DDIS(N+22)/DDIS(N+121)
   5879          DDFS(N+44) = DDFS(N+22)/DDFS(N+121)
   5880          DDRS(N+44) = DDRS(N+22)/DDRS(N+121)
   5881      C
   5882      C             *NXY -CHECK FOR STABILITY ID + ID + 20**
   5883          K = TT(3)
   5884          IF (20 - K) 623,624,624
   5885      623 K = K- 20
   5886      624 DDUC(N+33) = STRESS(3,N,K)
   5887          DDLC(N+33) = DDUC(N+33)
   5888          DDUC(N+55) = DDUC(N+33)/DDUC(N+121)
   5889          DDLC(N+55) = DDLC(N+33)/DDLC(N+121)
   5890      C
   5891      C             *I/SPARS*
   5892          K = TT(5)
```

```
CARD NO  ****                          CONTENTS                          ****

 5893          IF ( 0 - K) 625,626,626
 5894    625   K = K - 20
 5895    626   DDIS(N+33) = STRESS(5,N,K)
 5896          DDIS(N+55) = DDIS(N+33)/DDIS(N+121)
 5897    C
 5898    C               *F/SPAR*
 5899          K = TT(4)
 5900          IF (20 - K) 627,628,628
 5901    627   K = K - 20
 5902    628   DDFS(N+33) = STRESS(4,N,K)
 5903          DDFS(N+55) = DDFS(N+33)/DDFS(N+121)
 5904    C
 5905    C               *R/SPAR*
 5906          K = TT(6)
 5907          IF (20 - K)629,630,630
 5908    629   K = K - 20
 5909    630   DDRS(N+33) = STRESS(6,N,K)
 5910          DDRS(N+55) = DDRS(N+33)/DDRS(N+121)
 5911    C
 5912    C             ***LOOP FOR NEXT STATION***
 5913    638   CONTINUE
 5914    C
 5915    C
 5916    C             ***PRINT COMPONENT DATA ARRAYS ON IPB=1***
 5917          IF (IPB) 650,650,639
 5918    639   WRITE (6,6390)
 5919    6390 FORMAT (2BH1  ***SECTION DESIGN DATA***,/6H0 DDUC)
 5920    6391 FORMAT (1H 2X,13,9E10.8)
 5921    6392 FORMAT (6H1 DDLC)
 5922    6393 FORMAT (6H1 DDIS)
 5923    6394 FORMAT (6H1 DDFS)
 5924    6395 FORMAT (6H1 DDRS)
 5925    C
 5926          DO 6398 N=1,220,5
 5927          K = N + 4
 5928          WRITE (6,6391)N,(DDUC(I),I=N,K,1)
 5929    6398 CONTINUE
 5930    C
 5931          WRITE (6,6392)
 5932          DO 6397 N=1,220,5
 5933          K = N + 4
 5934          WRITE (6,6391)N,(DDLC(I),I=N,K,1)
 5935    6397 CONTINUE
 5936    C
 5937          WRITE (6,6393)
 5938          DO 6398 N=1,220,5
 5939          K = N + 4
 5940          WRITE (6,6391)N,(DDIS(I),I=N,K,1)
 5941    6398 CONTINUE
 5942    C
 5943          WRITE (6,6394)
 5944          DO 6399 N=1,220,5
 5945          K = N + 4
 5946          WRITE (6,6391)N,(DDFS(I),I=N,K,1)
 5947    6399 CONTINUE
 5948    C
 5949          WRITE (6,6395)
 5950          DO 6400 N=1,220,5
 5951          K = N + 4
 5952          WRITE (6,6391)N,(DDRS(I),I=N,K,1)
 5953    6400 CONTINUE
 5954    C
 5955    C             **TEST FOR FLYRIB DESIGN**
 5956          IF (ACID - D(1)) 6401,6401,650
 5957    6401 WRITE (6,6402)
 5958    6402 FORMAT (6H1 DDSTR )
 5959          DO 6403 N=1,330,5
 5960          K = N + 4
 5961          WRITE (6,6391)N,(DDSTR(I),I=N,K,1)
 5962    6403 CONTINUE
 5963    C
```

CARD NO **** CONTENTS ****

```
C
C           ***PROCESS WEIGHTS***
C
C            **SETUP REQD DATA FOR WTCAL SUBR**
C             *CALC DATA TIP TO ROOT*
C             *SET IC=1 AND CLEAR TWT(1-153)*
  650 IC = ND(1)
      DO 651 I=1,153
      TWT(I) = DC(3)
  651 CONTINUE
C
C           ***SECTION 1-11=TIP TO ROOT***
      DO 699 ISEC=1,11
      N = ND(12) - ISEC
C
      IF (ND(2) - ISEC) 652,652,653
  652 IC = ND(2)
  653 CBLWD = DBLWD(N)
      CJONT = DJONT(N)
C
      TDC(74) = TSEC(ISEC+66)
C
      TDC(80) = ABS(TSEC(ISEC))
      TDC(79) = ABS(TSEC(ISEC+11))
      TDC(78) = TSEC(ISEC+55)
      TDC(...) = TSEC(ISEC+44)
      TDC(75) = TSEC(ISEC+22)
      TDC(76) = TSEC(ISEC+33)
C
      TDC(69) = TSEC(ISEC+77)
      TDC(70) = TSEC(ISEC+88)
C
C             **MOVE DESIGN SUMMARY DATA FOR WTCAL SUBR**
      TDC(72) = DDUC(N+22)
      TDC(71) = DDLC(N+22)
      TDC(81) = DDIS(N+165)
      TDC(82) = DDIS(N+154)
C
C             **EFF WIDTH WT FACTORS**
      TSEC(240) = (SLCFS(1) + SLCFS(2))/TDC(77)
      TSEC(239) = SLCFS(5)*TSEC(240) + D(1) + (SWBCP(1) + SWBCP(2))/TDC(
     177)
      TSEC(240) = TSEC(240) + D(1)
C
      TSEC(241) = D(1)
      IF (XPCODE - D(2)) 6530,6530,6531
 6530 TSEC(241) = TDC(81)/(TDC(81) + D(1))
 6531 TSEC(243) = TSEC(241)
      TSEC(243) = TSEC(241)
      TSEC(242) = TSEC(240)
      TSEC(233) = TSEC(241)
      TSEC(225) = C9
      TSEC(229) = C10
C
      TDC(83) = DDUC(N+198)
      TDC(84) = DDUC(N+44)
      TDC(85) = DDUC(N+209)
      TDC(86) = DDUC(N+55)
      TDC(88) = DDUC(N+132)
      TDC(87) = DDLC(N+132)
      TDC(114) = DDUC(N+121)
      TDC(112) = DDLC(N+121)
C
C           ***INTERM WEBS--SPARS OR RIBS***
C           ***HC/PNL INSERTS IN T-BAR MISC SKIN(UPR,LWR)***
C             **TEST FOR FOH**
      IF (D(3) - XPCODE) 6532,6532,6533
 6532 TDC(95) = DBRHO/ENP(8)
      TDC(96) = TDC(95)
      TDC(87) = TDC(87) + TDC(95)
      TDC(100) = D(1)
```

```
CARD NO    ****                          CONTENTS                          ****
  6035              GO TO 6534
  6036         6533 TDC(95) = DDIS(N+132) + C9
  6037              TDC(96) = TDC(95)/TDC(82)*TSEC(241)
  6038              TDC(87) = C10/TDC(82)*TSEC(241) + TDC(87)
  6039              TDC(100) = TDC(82)
  6040         6534 TDC(107) = DDIS(N+121)
  6041              TDC(89) = DC(3)
  6042         C
  6043         C
  6044              TDC(109) = DDUC(N+154)
  6045              TDC(110) = DDLC(N+154)
  6046         C
  6047         C              ***PROCESS HC/P&L AND PROTECTIVE FINISH DATA AS READ***
  6048         C                *UPR/LWR INSERT AREA = C9 AND C10- 0.0 FOR PLATES/STR***
  6049              TDC(101) = DDUC(N+110)*ENC(1)/ENP(8)
  6050              TDC(102) = DDLC(N+110)*ENC(1)/ENP(8)
  6051              TDC(103) = DDIS(N+110)*ENC(1)/ENP(8)
  6052              TDC(104) = PFFSCV/ENP(8)
  6053              TDC(105) = PFFSCV/ENP(8)
  6054              TDC(106) = PFFSSP*ENP(8)
  6055              TT(2) = CFRIB
  6056         C
  6057         C                *TT(4,5) = TBAR(FILLER-UPR/LWR) AT SPAR/RIB FOR
  6058         C                *     W/SPAR AND W/RIB ONLY*
  6059         C                *     TT(4,5) = 0.0 FOR FDH*
  6060              TT(4) = D(2)*ENP(9)*DDUC(N+66)
  6061              TT(5) = D(2)*ENP(9)*DDLC(N+66)
  6062              TT(6) = DDUC(N+110) + DDIS(N+132)
  6063              TT(7) = DDLC(N+110) + DDIS(N+132)
  6064              TT(8) = TDC(107)
  6065         C              *FILLER AREA = 2*TOTAL(L-PLIES)*2*T(L)*
  6066         C
  6067          654 IF (D(2) - APCODE) 655,656,657
  6068         C
  6069         C              **FDH**
  6070          655 TT(8) = DDIS(N+121)*ENC(1)/ENP(8)
  6071              TT(1) = D(1)
  6072              TT(2) = D(1)
  6073              TDC(104) = (DBRHO + PFFSCV)/ENP(8)
  6074              TDC(105) = (DBRHO + PFFSCV)/ENP(8)
  6075              TDC(103) = DC(3)
  6076              TDC(106) = DC(3)
  6077              GO TO 659
  6078         C
  6079          656 TDC(106) = (DBRHO + PFFSSP)/ENP(8)
  6080              TT(2) = D(1)
  6081          657  T(1) = TSEC(241)
  6082         C
  6083         C              ***TEST CONST***
  6084              IF (ACID - D(1)) 658,658,659
  6085          658 TT(1) = D(1)
  6086              TT(2) = CFRIB
  6087              TDC(82) = DDSTR(N)
  6088              TDC(95) = DDSTR(N+11)
  6089              TDC(96) = DDSTR(N+29)
  6090              TDC(88) = DDUC(N+121) + TDC(96)
  6091              TDC(173) = DDSTR(N+121)
  6092              TDC(87) = DDLC(N+121) + DDSTR(N+209)
  6093              TT(8) = TDC(107)
  6094              TT(7) = TDC(107)
  6095              TDC(89) = D(2)*TDC(107)/TDC(100)
  6096         C
  6097         C              ***SETUP Y-BAR AND D PRIME DATA AND PROCESS SPAR/RIB DATA*
  6098          659 YBUD(ISEC) = TDC(109)
  6099              YBLD(ISEC) = TDC(110)
  6100              TDC(73) = TDC(78) - TDC(109) - TDC(110)
  6101              TT(3) = TDC(73)*TT(1)/TDC(100)*TT(2)
  6102              TDC(106) = TDC(106)*TT(3)
  6103              TDC(103) = TDC(103)*TT(3)
  6104              TDC(92) = DC(3)
  6105              TDC(89) = TDC(89) + TT(3)*TT(8) + TDC(103) + TDC(106)
```

CARD NO **** CONTENTS ****

```
      IF (XPCODE - D(2)) 6590,6590,6591
 6590 TDC(92) = D(2)*(DYNMIR - D(1))*TDC(89)
 6591 TDC(90) = TDC(101) + TDC(104)
      TDC(109) = TDC(102) + TDC(105)
C
C            ***SPAR/RIB ATT AND SKIN ATT FILLERS--0.0 FOR FDH**
      TDC(91) = DC(3)
      TDC(170) = DC(3)
      TDC(93) = DC(3)
      TDC(171) = DC(3)
      IF (XXCODE - D(1)) 6592,6592,6593
 6592 IF (XPCODE - D(2)) 6593,6593,6599
 6593 TDC(93) = TT(4)/TDC(100)*TT(1)
      TDC(171) = TT(5)/TDC(100)*TT(1)
C
C             **SPAR/RIB ATT--UPR/LWR**
 6594 TDC(91) = 0.001473/ENP(8)*(TDC(114) + TT(4)/D(2) + TT(6) + 0.625)
      TDC(170) = 0.001473/ENP(8)*(TDC(112) + TT(5)/D(2) + TT(7) + 0.625)
C
C             **DELTA T(VF)**
 6599 TDC(116) = DDUC(N+143)
      TDC(117) = DDLC(N+143)
      TDC(118) = DC(3)
      TDC(119) = DC(3)
      TDC(129) = DC(3)
      TDC(175) = DDFS(N+143)
      TDC(176) = DDRS(N+143)
C
C             **SETUP CORRU. FACTORS FOR FS AND RS**
      TT(1) = SWBCF(1)
      IF (D(2) - XFCODE) 660,660,661
  660 TT(1) = D(1)
  661 TT(2) = SWBCF(2)
      IF (D(2) - XRCODE) 662,662,663
  662 TT(2) = D(1)
C
C             **FS/RS CAPS TO INCLUDE INSERTS AREA IF HC/PNL**
  663 TDC(180) = DDFS(N+121)
      TDC(181) = DDFS(N+132) + DDFS(N+154) + C9 + C10
      TDC(187) = DDRS(N+121)
      TDC(188) = DDRS(N+132) + DDRS(N+154) + C9 + C10
      TDC(185) = DDFS(N+110)
      TDC(192) = DDRS(N+110)
      TDC(183) = DDFS(N+55)
      TDC(190) = DDRS(N+55)
      TDC(184) = DDFS(N+209)
      TDC(191) = DDRS(N+209)
C
      DO 666 I=1,2
      K = I*ND(7) - ND(6)
      TDC(K+181) = PFFSSP/ENP(8)
      IF (TDC(K+180)) 665,665,664
  664 TDC(K+181) = (ENC(I)*TDC(K+184) + DBRHO * PFFSSP)/ENP(8)
  665 TDC(I+192) = TT(I)*(TDC(K+179) + TDC(K+181))*(TDC(I+68) - TDC(78)
     1+ TDC(73))
      TDC(K+178) = SWKMS(I)*(TDC(I+192) + TDC(K+180))
      TDC(I+176) = TT(I)*TDC(I+174)*(TDC(I+68) - TDC(78) + TDC(73))
  666 CONTINUE
C
C
C            ***SETUP COMPATIBILITY DATA FOR STCAL***
      TWT(150) = DLSKU*TDC(114)
      TWT(151) = DLSKL*TDC(112)
      TWT(152) = DLFSW*TDC(180)
      TWT(153) = DLRSW*TDC(187)
C
      TSC(36) = DC(3)
      TSC(37) = DC(3)
      TSC(38) = DC(3)
      TSC(39) = DC(3)
C
```

```
CARD NO      ****                          CONTENTS                          ****

 6177        C            ***SETUP TDC(121-139) WITH NO OF PLY DATA FOR PRTB SUBR***
 6178        C              *DATA TO INCLUDE L,M,N PLIES FOR UC,LC,TS,FS,RS AND
 6179        C              *     DELTA MISF)*
 6180              TDC(121) = DDUC(N+66)
 6181              TDC(122) = DDUC(N+77)
 6182              TDC(123) = DDUC(N+88)
 6183        C
 6184              TDC(124) = DDLC(N+66)
 6185              TDC(125) = DDLC(N+77)
 6186              TDC(126) = DDLC(N+88)
 6187        C
 6188              TDC(127) = DDTS(N+66)
 6189              TDC(128) = DDTS(N+77)
 6190              TDC(129) = DDTS(N+88)
 6191        C
 6192              TDC(130) = DDFS(N+66)
 6193              TDC(131) = DDFS(N+77)
 6194              TDC(132) = DDFS(N+88)
 6195        C
 6196              TDC(133) = DDRS(N+66)
 6197              TDC(134) = DDRS(N+77)
 6198              TDC(135) = DDRS(N+88)
 6199        C
 6200              TDC(136) = DDUC(N+99)
 6201              TDC(137) = DDLC(N+99)
 6202              TDC(138) = DDFS(N+99)
 6203              TDC(139) = DDRS(N+99)
 6204        C
 6205        C            ***SET TWT(44) = B(N) FOR ID***
 6206              TWT(44) = TDC(82)
 6207        C
 6208        C            ***SECTION(ISEC) DATA--TYPE B PAGE***
 6209        C             **PRINT ONLY ON IPB=1**
 6210              IF (IPB) 670,670,669
 6211        C
 6212        C              *TYPE B OUTPUT--SECTION DESIGN DETAILS*
 6213         669  CALL PRTB
 6214        C
 6215        C
 6216        C            ***CALC WT/IN AND WT/PANEL***
 6217         670  CALL WTCAL
 6218        C
 6219        C
 6220        C
 6221        C             **PNL(I) SUMMARY--TYPE C PAGE**
 6222        C              *PRINT ONLY IF IPB=1*
 6223              IF (IPB) 672,672,671
 6224         671  CALL PRTC
 6225        C
 6226        C                                                                CNSR2756
 6227        C            ***SAVE SECTION SUMMARIES CALC BY WTCAL AND WTPIN***CNSR2756
 6228        C              *PNL(I) WTS FOR PRINT-TYPE A..  PNLS 1-10, ISEC*2-11*CNSR2757
 6229        C              *STORED BY PANELS-6/PNL-SUM,T8,LE,TE,MISC,VF*      CNSR2757
 6230        C              *PNLS IN TC(142-201) STORED RT-TIP*                CNSR2757
 6231        C              *SUM TOTAL IN TC(134-139).  TC(140)=RT RIB, TC(141)*CSECC) R2757
 6232        C              *ALL WTS=LB/SIDE*                                  CNSR2757
 6233         672  IF (ND(2) - ISEC) 673,673,675                              CNSR2756
 6234         673  K = (ND(12) - ISEC)*ND(6)                                  CNSR2756
 6235              DO 674 I=1,6                                               CNSR2756
 6236              K = K + ND(I)                                              CNSR2756
 6237              TC(K+135) = TWT(I+59)                                      CNSR2756
 6238         674  CONTINUE                                                   CNSR2756
 6239        C                                                                CNSR2756
 6240        C              *SECTION CHORDWISE CONC DATA--TWT(381-391)*       CNSR2757
 6241         675  K = (ND(12) - ISEC)*ND(11) - ND(11)                        CNSR2757
 6242              DO 676 I=1,11                                              CNSR2757
 6243              K = K + ND(I)                                              CNSR2757
 6244              TC(K+219) = TWT(I+380)                                     CNSR2757
 6245         676  CONTINUE                                                   CNSR2757
 6246        C                                                                CNSR2757
 6247        C
```

CARD NO **** CONTENTS ****

```
C             ***LOOP FOR NEXT STATION PANEL***
  699 CONTINUE
C
C
C                                                                       CNSR9900
C              **EXIT**                                                 CNSR9910
  899 RETURN                                                            CNSR9990
      END                                                               CNSR9999
C***********************************************************************
C
C        *****SUBROUTINE ACPRTA*****
C   ***DESIGN DATA PRINT - TYPE A TORQUE-BOX SYNTHESIS SUMMARY - ADV. COMP ***
C
C***********************************************************************
C
      SUBROUTINE ACPRTA                                                 ACPA0010
C      BX PRT SUBR -- TYPE A                                            PRTA0020
C                                                                       PRTA0030
C                                                                       PRTA0150
C                                                                       PRTA0160
C                                                                       PRTA0170
C                                                                       PRTA0190
      COMMON T(2060),D(2060),CD(2000),ND(100),TH(900),CT(2048)          ACPA0200
      COMMON /MISC/ XMISC(100)                                          ACPA0201
C                                                                       PRTA0210
      DIMENSION DC(100),TOC(200),TSC(420),TSS(100),THT(400),TSEC(300),  PRTA0230
     1TC(340),TO(40),TR(40),                                            PRTA0231
     2YSTRC(11),TBMP1(11),GJROD(11),                                    PRTA0232
     3TOGH(3),DGH(3),                                                   PRTA0233
     4TDHV(11),TDHM(11),TDHT(11),                                       PRTA0234
     5ULTPV(11),ULTPM(11),ULTPT(11),                                    PRTA0235
     6ULTNV(11),ULTNM(11),ULTNT(11),                                    PRTA0236
     7YBUI(11),YBLI(11),YBUD(11),YBLD(11),                              PRTA0237
     9R(16)                                                             ACPA0239
C                                                                       PRTA0240
      DIMENSION DDUC(220),DDLC(220),DDIS(220),DDFS(220),DDRS(220),      ACPA0240
     1TEIGJ(4),DDSTR(330),                                              ACPA0241
     2GJSTD(11),EISTD(11),GSTD(11),ESTD(11),                            ACPA0242
     3GJCD(11),EICD(11),GCMD(11),ECMD(11),                              ACPA0243
     4GJVFS(11),EIVFS(11),GVFS(11),EVFS(11),                            ACPA0244
     5GJVFD(11),EIVFD(11),GVFD(11),EVFD(11),                            ACPA0245
     6GJSFO(11),EISFO(11),GSFO(11),ESFO(11),                            ACPA0246
     7GJCFO(11),EICFO(11),GCFO(11),ECFO(11),                            ACPA0247
     8GJSFL(11),EISFL(11),GSFL(11),ESFL(11),                            ACPA0248
     9GJCFL(11),EICFL(11),GCFL(11),ECFL(11)                             ACPA0249
     A,ENH(6)                                                           ACPA0250
C                                                                       ACPA0250
C                                                                       PRTA0250
      EQUIVALENCE (DC(1),D(1401)),(TOC(1),T(1341)),(TSC(1),T(1541)),    PRTA0260
     1(TSS(1),T(1961)),(THT(1),CD(1101)),(TSEC(1),CD(1501)),            PRTA0261
     2(TC(1),T(960)),(TO(1),T(920)),(YSTRC(1),TSEC(166)),               ACPA0262
     3(TOGH(1),D(80)),(DGH(1),D(102)),(DPNZ,T(20)),(DNNZ,T(21)),        PRTA0263
     4(TR(1),T(1300)),(R(1),XMISC(85)),                                 ACPA0264
     5(TDHV(1),CD(1968)),(TDHM(1),CD(1979)),(TDHT(1),CD(1990)),         PRTA0265
     6(ULTPV(1),TSEC(12)),(ULTPM(1),TSEC(1)),(ULTPT(1),TSEC(144)),      PRTA0266
     7(ULTNV(1),TSEC(111)),(ULTNM(1),TSEC(122)),(ULTNT(1),TSEC(155)),   PRTA0267
     8(YBUI(1),TSEC(133)),(YBLI(1),TSEC(188)),(TBMP1(1),T(745)),        PRTA0268
     9(YBUD(1),T(679)),(YBLD(1),T(690)),(GJROD(1),T(668))               PRTA0269
     A,(HHVID,T(57))                                                    ACPA0270
C                                                                       PRTA0270
      EQUIVALENCE (NCASE,ND(60)),(NDDM,ND(56)),(IGH,ND(81)),            PRTA0280
     8(ACCVID,D(431)),                                                  ACPA0288
     8(NPAGE,ND(85))                                                    PRTA0289
C                                                                       PRTA0290
      EQUIVALENCE (VFID,D(251)),(DINID,D(271)) (TEIGJ(1),TH(783)),      ACPA0300
     1(DDUC(1),CD(1)),(DDLC(1),CD(221)),(DDIS(1),CD(441)),              ACPA0301
     2(DDFS(1),CD(661)),(DDRS(1),CD(881)),                              ACPA0302
     3(GJSTD(1),CD(1)),(EISTD(1),CD(12)),(GSTD(1),CD(23)),              ACPA0303
     4(ESTD(1),CD(34)),(GJCD(1),CD(45)),(EICD(1),CD(56)),               ACPA0304
     5(GCMD(1),CD(67)),(ECMD(1),CD(78)),                                ACPA0305
     6(GJVFS(1),CD(353)),(EIVFS(1),CD(364)) (GVFS(1),CD(375)),          ACPA0306
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CARD NO **** CONTENTS ****

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     7(EVFSF(I),CD(196)),(GNFD(I),CD(16)),(ETVFD(I),CD(10)),           ACPA0307
     8(GVFD(I),CD(11)),(EVFD(I),CD(122)),                              ACPA0308
     9(GJFO(I),CD(133)),(EIFO(I),CD(144)),(GVFO(I),CD(155))            ACPA0309
     A,(ESFO(I),CD(165)),(GJCFO(I),CD(177)),(EICFO(I),CD(183))         ACPA0310
     B,(GCFO(I),CD(193)),(ECFO(I),CD(210))                             ACPA0311
     C,(GJSFL(I),CD(221)),(EISFL(I),CD(232)),(GSFL(I),CD(243))         ACPA0312
     D,(ESFL(I),CD(254)),(GJCFL(I),CD(265)),(EICFL(I),CD(276))         ACPA0313
     E,(GCFL(I),CD(287)),(ECFL(I),CD(293))                             ACPA0314
     F,(DGSTR(I),CT(132)),(ACID,D(430))                                ACPA0315
     G,(ENI(I),D(1164))                                                ACPA0316
C                                                                      ACPA0320
C                                                                      ACPA0400
C            ***DESIGN SUMMARY PRINT--TYPE A***                        ACPA0410
C             *PAGE 1   BLOCK 1=NX, THICKNESSES,                       ACPA0420
C             *      BLOCK 2=LAMINATES,  BLOCK 3=STRESSES*             ACPA0430
C                                                                      ACPA0440
C             **PRINT TITLE AND CASE HEADINGS***                       ACPA0450
  300 NPAGE = IPAGE + NO(1)                                            ACPA0460
      WRITE (6,310)NCASE,(R(I),I=1,8),NPAGE,(R(I+8),I=1,8),NOCH,IGH,DGH(ACPA0470
     1IGH),DPNZ,DNNZ                                                   ACPA0480
C                                                                      ACPA0490
C                                                                      ACPA0500
  310 FORMAT (6H1 CASE,I4,1X,8A10,14H *ACPRTA* PAGE,I4,/15X,8A10,/24X,6HACPA0510
     1 NOCH=,I1,6H  IGH=I1,6H  DGH=F9.1,6H  NZ=+F6.3,2H/-F5.3,/70H     ACPA0520
     2             -**-DESIGN SUMMARY DATA--NX=KIPS/IN, STRESS=KSI-**- /6ACPA0530
     3NH          **SECTION LOAD AND THICKNESS DATA--STRENGTH DESIGN**ACPA0540
     4)                                                                ACPA0541
C                                                                      ACPA0550
  311  FORMAT (34H          **LAMINATE PLY DATA** )                    ACPA0560
  3111 FORMAT (42H          **LAMINATE PLY AND CORE DATA**)            ACPA0565
  312  FORMAT (65H          **APPLIED STRESS LEVELS AND CRITICAL LOAD CACPA0570
     1ONDITION ID**)                                                   ACPA0580
C                                                                      ACPA0590
  313  FORMAT (108H SECT  NX/UC  NX/LC NXY/UL NXC/S Q/IS  Q/FS  Q/RS TSK/ACPA0600
     1U TSK/L   T-U   T-L  TC/U TH/IS  B/SP N/SP TH/FS TH/RS)          ACPA0601
  3130 FORMAT (108H SECT  NX/UC  NX/LC NXY/UL NXC/S Q/IS  Q/FS  Q/RS TSK/ACPA0610
     1U TSK/L   T-U   T-L T/RIB L/RIB B/STR  NOS TH/FS TH/RS)          ACPA0611
  3131 FORMAT (102H SECT  NX/UC  NX/LC NXY/UL NXC/S Q/IS  Q/FS  Q/RS TSK/ACPA0615
     1U TSK/L   T-U   T-L  TCORE RHO/C TH/FS TH/RS  )                  ACPA0616
C                                                                      ACPA0619
  314  FORMAT (3X,I2,3F7.2,F6.2,F5.2,2F6.2,6F6.3,F6.2,F5.1,2F6.3)      ACPA0620
  3140 FORMAT (3X,I2,3F7.2,F6.2,F5.2,2F6.2,5F6.3,2F6.2,F5.1,2F6.3)     ACPA0621
  3141 FORMAT (3X,I2,3F7.2,F6.2,F5.2,2F6.2,4F6.3,F7.4,F6.2,2F6.3)      ACPA0622
C                                                                      ACPA0629
C                                                                      ACPA0630
  315  FORMAT (100H SECT L/UC M/UC N/UC +M/U L/LC M/LC N/LC +M/L L/IS M/IACPA0640
     1S N/IS L/FS M/FS N/FS +M/F L/RS M/RS N/RS +M/R)                  ACPA0641
  3150 FORMAT (110H SECT L/UC M/UC N/UC L/SU +M/U L/LC M/LC N/LC L/SL +M/ACPA0650
     1L L/IR M/IR N/IR L/FS M/FS N/FS +M/F L/RS M/RS N/RS +M/R)        ACPA0651
  3151 FORMAT (104H SECT L/UC M/UC N/UC +M/U L/LC M/LC N/LC +M/L   S/C  ACPA0655
     1T/F DEN/F L/FS M/FS N/FS +M/F L/RS M/RS N/RS +M/R )              ACPA0656
C                                                                      ACPA0659
  316  FORMAT (3X,I2,19F5.1)                                           ACPA0660
  3160 FORMAT (3X,I2,21F5.1)                                           ACPA0661
  3161 FORMAT (3X,I2,8F5.1,F6.1,F6.1,F6.3,8F5.1)                       ACPA0662
C                                                                      ACPA0670
  317  FORMAT (104H SECT  FC/UC  FS/UC CLCU CLSU     FT/LC  FS/LC CLCL CLACPA0680
     1SL      FS/IS CLSIS      FS/FS CLSFS      FS/RS CLSRS)           ACPA0681
  3170 FORMAT (110H SECT  FCSKU  FSSKU  FCSTU CLCU CLSU   FTSKL  FSSKL  FACPA0690
     1TSKL CLCL CLSL   FS/IS CLSIS   FS/FS CLSFS   FS/RS CLSRS)        ACPA0691
C                                                                      ACPA0699
  318  FORMAT (3X,I2,2F7.2,2F5.1,3X,2F7.2,2F5.1,3X,F7.2,F6.1,3X,F7.2,F6.1ACPA0700
     1,3X,F7.2,F6.1)                                                   ACPA0701
  3180 FORMAT (3X,I2,3F7.2,2F5.1,1X,3F7.2,2F5.1,1X,F7.2,F6.1,1X,F7.2,F6.1ACPA0710
     1,1X,F7.2,F6.1)                                                   ACPA0711
C                                                                      ACPA0719
  319  FORMAT (12X,46H*--        -**-UPPER COVER DATA-**-        --*,2X,4ACPA0720
     16H*--        -**-LOWER COVER DATA-**-        --*)                ACPA0721
  3190 FORMAT (108H SECT   LRIS   ASTR  BSTR   TSTR HSTR   F    YBAR  I(O)ACPA0722
     1 LU/L    ASTR  BSTR  TSTR HSTR   F    YBAR  I(O) LL/L )          ACPA0723
  3191 FORMAT (3X,I2,1X,F6.1,1X,F6.3,F6.2,F6.3,F5.2,3F6.3,F5.2,2X,F6.3,F6ACPA0724
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CARD NO  ****                          CONTENTS                          ****
 6390          1 2 F6 3,F5 2 3F6 3,F5 2)                                 ACPA0725
 6391     C                                                              ACPA0729
 6392     C              **BLOCK 1 DATA--LOADS*KIPS/INCH**               ACPA0739
 6393      320  DO 321 I=1,11                                           ACPA0740
 6394           TSS(I) = DDUC(I*22)/1000.0                              ACPA0750
 6395           TSS(I*11) = DDLC(I*22)/1000.0                           ACPA0760
 6396           TSS(I*22) = DDUC(I*33)/1000.0                           ACPA0770
 6397           TSS(I*33) = DDIS(I*22)/1000.0                           ACPA0780
 6398           TSS(I*44) = DDIS(I*33)/1000.0                           ACPA0785
 6399           TSS(I*55) = DDFS(I*33)/1000.0                           ACPA0790
 6400           TSS(I*66) = DDRS(I*33)/1000.0                           ACPA0800
 6401      321  CONTINUE                                                ACPA0810
 6402     C                                                              ACPA0818
 6403     C              ***TEST CONST--M/RIB, M/SPAR& FDM***            ACPA0819
 6404           IF (2.0 - ACID) 3210,3210,340                           ACPA0820
 6405      3210 IF (ACCVID - 2.0) 3211,3211,330                         ACPA0825
 6406     C                                                              ACPA0828
 6407     C              ***M/SPAR PLATES AND HC/PNL***                  ACPA0829
 6408      3211 WRITE (6,313)                                           ACPA0830
 6409           DO 322 I=1,11                                           ACPA0840
 6410           WRITE (6,314)I,TSS(I),TSS(I*11),TSS(I*22),TSS(I*33),TSS(I*44),TSS(ACPA0850
 6411          1*55),TSS(I*66),DDUC(I*121),DDLC(I*121),DDUC(I*132),DDLC(I*132),DDACPA0860
 6412          2UC(I*110),DDIS(I*121),DDIS(I*154),DDIS(I*165),DDFS(I*121),DDRS(I*1ACPA0870
 6413          321)                                                    ACPA0871
 6414      322  CONTINUE                                                ACPA0880
 6415     C                                                              ACPA0890
 6416     C              **BLOCK 2--LAMINATES**                          ACPA0900
 6417           WRITE (6,311)                                           ACPA0910
 6418           WRITE (6,315)                                           ACPA0920
 6419           DO 323 I=1,11                                           ACPA0930
 6420           WRITE (6,316)I,DDUC(I*66),DDUC(I*77),DDUC(I*88),DDUC(I*99),DDLC(I*ACPA0940
 6421          166),DDLC(I*77),DDLC(I*88),DDLC(I*99),DDIS(I*66),DDIS(I*77),DDIS(I*ACPA0950
 6422          288),DDFS(I*66),DDFS(I*77),DDFS(I*88),DDFS(I*99),DDRS(I*66),DDRS(I*ACPA0960
 6423          377),DDRS(I*88),DDRS(I*99)                              ACPA0981
 6424      323  CONTINUE                                                ACPA0970
 6425     C                                                              ACPA0980
 6426     C              **BLOCK 3--STRESSES AND LOAD CONDITION ID**     ACPA0990
 6427      3239 WRITE (6,312)                                           ACPA1000
 6428           DO 324 I=1,11                                           ACPA1010
 6429           TSS(I) = DDUC(I*44)/1000.0                              ACPA1020
 6430           TSS(I*11) = DDUC(I*55)/1000.0                           ACPA1030
 6431           TSS(I*22) = DDLC(I*44)/1000.0                           ACPA1040
 6432           TSS(I*33) = DDLC(I*55)/1000.0                           ACPA1050
 6433           TSS(I*44) = DDIS(I*55)/1000.0                           ACPA1060
 6434           TSS(I*55) = DDFS(I*55)/1000.0                           ACPA1070
 6435           TSS(I*66) = DDRS(I*55)/1000.0                           ACPA1080
 6436      324  CONTINUE                                                ACPA1090
 6437     C                                                              ACPA1100
 6438     C                                                              ACPA1110
 6439           WRITE (6,317)                                           ACPA1120
 6440           DO 325 I=1,11                                           ACPA1130
 6441           WRITE (6,318)I,TSS(I),TSS(I*11),DDUC(I),DDUC(I*11),TSS(I*22),TSS(ACPA1140
 6442          1*33),DDLC(I),DDLC(I*11),TSS(I*44),DDIS(I*11),TSS(I*55),DDFS(I*11),ACPA1150
 6443          2TSS(I*66),DDRS(I*11)                                   ACPA1160
 6444      325  CONTINUE                                                ACPA1170
 6445           GO TO 600                                               ACPA1180
 6446     C                                                              ACPA1190
 6447     C              ***FDM***                                       ACPA1200
 6448      330  WRITE (6,3131)                                          ACPA1210
 6449           DO 331 I=1,11                                           ACPA1220
 6450           WRITE (6,314)I,TSS(I),TSS(I*11),TSS(I*22),TSS(I*33),TSS(I*44),TSSACPA1230
 6451          1(I*55),TSS(I*66),DDUC(I*121),DDLC(I*121),DDUC(I*132),DDLC(I*132),DACPA1240
 6452          2DIS(I*154),DDIS(I*165),DDFS(I*121),DDRS(I*121)          ACPA1250
 6453      331  CONTINUE                                                ACPA1260
 6454     C                                                              ACPA1270
 6455     C              ***LAMINATE/CORE DATA***                        ACPA1280
 6456           WRITE (6,3151)                                          ACPA1290
 6457           TSS(99) = ENMIS/18.0                                    ACPA1300
 6458           DO 332 I=1,11                                           ACPA1310
 6459           TSS(100) = DDIS(I*154)/1000.0                           ACPA1320
 6460           WRITE (6,316)I,DDUC(I*66),DDUC(I*77),DDUC(I*88),DDUC(I*99),DDLC(IACPA1330
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CARD NO **** CONTENTS ****

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     1+66),DOLC(I+77),DOLC(I+88),DOLC(I+99),TSS(93),TSS(I+C0),DOIS(I+165)ACPA1340
     2,DOFS(I+66),DOFS(I+77),DOFS(I+88),DOFS(I+99),DORS(I+66),DORS(I+77 ACPA1350
     3,DORS(I+88),DORS(I+99)                                            ACPA1360
 332 CONTINUE                                                           ACPA1370
     GO TO 3239                                                         ACPA1380
C                                                                       ACPA1390
C             ***H/RID CONST***                                         ACPA1400
 340 WRITE (6,3130)                                                     ACPA1410
     DO 341 I=1,11                                                      ACPA1420
     WRITE (6,3140)I,TSS(I),TSS(I+11),TSS(I+22),TSS(I+33),TSS(I+44),TSSACPA1430
    1(I+55),TSS(I+66),DOUC(I+121),DOLC(I+121),DOUC(I+132),DOLC(I+132),DACPA1440
    2OIS(I+121),DOIS(I+154),DOSTR(I),DOIS(I+165),DOFS(I+121),DORS(I+121ACPA1450
    3)                                                                  ACPA1455
 341 CONTINUE                                                           ACPA1460
C                                                                       ACPA1470
C              **BLOCK 2   LAMINATE DATA**                              ACPA1480
     WRITE (5,311)                                                      ACPA1490
     WRITE (6,3150)                                                     ACPA1500
     DO 342 I=1,11                                                      ACPA1510
     WRITE (6,3160)I,DOUC(I+65),DOUC(I+77),DOUC(I+88),DOSTR(I+55),DOUC(ACPA1520
    1I+99),DOLC(I+65),DOLC(I+77),DOLC(I+88),DOSTR(I+165),DOLC(I+99),DOIACPA1530
    2S(I+66),DOIS(I+77),DOIS(I+89),DOFS(I+65),DOFS(I+77),DOFS(I+88),DOFACPA1540
    3S(I+99),DORS(I+66),DORS(I+77),DORS(I+88),DORS(I+99)               ACPA1550
 342 CONTINUE                                                           ACPA1560
C                                                                       ACPA1570
C             ***STRINGER DATA***                                       ACPA1580
     WRITE (6,319)                                                      ACPA1590
     WRITE (6,3190)                                                     ACPA1600
     DO 343 I=1,11                                                      ACPA1610
     WRITE (6,3191)I,DOIS(I+154),DOSTR(I+11),DOSTR(I),DOSTR(I+22),DOSTRACPA1620
    1(I+33),DOSTR(I+44),DOSTR(I+66),DOSTR(I+77),DOSTR(I+264),DOSTR(I+12ACPA1630
    21),DOSTR(I    ),DOSTR(I+132),DOSTR(I+143),DOSTR(I+154),DOSTR(I+176)ACPA1640
    3,DOSTR(I+187),DOSTR(I+319)                                         ACPA1650
 343 CONTINUE                                                           ACPA1660
C                                                                       ACPA1670
C             **TITLE FOR PAGE 2.  BLOCK 1, STRESSES AND LOAD CONDITIONACPA1680
     NPAGE = NPAGE + NO(1)                                              ACP 1690
     WRITE (6,310)NCASE,(R(I),I=1,8),NPAGE,(R(I+8),I=1,8),NOOH,IGH,DGH(ACPA1700
    1IGH),DPNZ,DWNZ                                                     ACPA1710
C                                                                       ACPA1720
     WRITE (6,312)                                                      ACPA1730
     WRITE (6,3170)                                                     ACPA1740
     DO 344 I=1,11                                                      ACPA1750
     TSS(1) = DOUC(I+44)/1000.0                                         ACPA1760
     TSS(2) = DOUC(I+55)/1000.0                                         ACPA1770
     TSS(3) = DOUC(I+165)/1000.0                                        ACPA1780
     TSS(4) = DOUC(I)                                                   ACPA1790
     TSS(5) = DOUC(I+11)                                                ACPA1800
     TSS(6) = DOLC(I+44)/1000.0                                         ACPA1810
     TSS(7) = DOLC(I+55)/1000.0                                         ACPA1820
     TSS(8) = DOLC(I+165)/1000.0                                        ACPA1830
     TSS(9) = DOLC(I)                                                   ACPA1840
     TSS(10) = DOLC(I+11)                                               ACPA1850
     TSS(11) = DOIS(I+55)/1000.0                                        ACPA1860
     TSS(12) = DOIS(I+11)                                               ACPA1870
     TSS(13) = DOFS(I+55)/1000.0                                        ACPA1880
     TSS(14) = DOFS(I+11)                                               ACPA1890
     TSS(15) = DORS(I+55)/1000.0                                        ACPA1900
     TSS(16) = DORS(I+11)                                               ACPA1910
     WRITE (6,3180)I,(TSS(K),K=1,16)                                    ACPA1920
 344 CONTINUE                                                           ACPA1930
     GO TO 600                                                          ACPA1940
C                                                                       ACPA1950
C                                                                       ACPA6020
C             **PROCESS TVF/TST DATA BEFORE MOVE**                      ACPA6030
 600 DO 6000 I=1,11                                                     ACPA6040
     TSS(I) = (DOUC(I+121) + DOUC(I+143))/DOUC(I+121)                   ACPA6050
     TSS(I+11) = (DOLC(I+121) + DOLC(I+143))/DOLC(I+121)                ACPA6060
     TSS(I+22) = (DOFS(I+121) + DOFS(I+143))/DOFS(I+121)                ACPA6070
     TSS(I+33) = (DORS(I+121) + DORS(I+143))/DORS(I+121)                ACPA6080
6000 CONTINUE                                                           ACPA6090
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CARD NO  ****                          CONTENTS                          ****
 6532    C                                                                ACPA6090
 6533    C            ***TEST FOR NEW PAGE (IN SPAR AND FEHI)***          ACPA6094
 6534          IF (D(I) - AC1D) 601,6010,6010                             ACPA6100
 6535    C                                                                ACPA6105
 6536    C            ***PAGE 2 HEADINGS***                               ACPA6109
 6537     601  NPAGE = NPAGE + ND(I)                                      ACPA6110
 6538          WRITE (6,612)NCASE,(R(I),I=1,8),NPAGE,(R(I+8),I=1,8),NODM,IGM,DGMACPA6120
 6539         1IGM1,EMM2,DCL2                                             ACPA6130
 6540    C                                                                ACPA6139
 6541    C            **SETUP CD(I-400) FROM RCD 40**                     ACPA6140
 6542     6010 CALL READMS (1,CD(I),400,40)                               ACPA6150
 6543    C                                                                ACPA6160
 6544    C                                                                ACPA6170
 6545          WRITE (6,602)TEIGJ(I)                                      ACPA6180
 6546     602  FORMAT (40H0          -***-BASIC STIFFNESS SUMMARY AT,F7.1,12H DEGREACPA6190
 6547         IES-***-)                                                   ACPA6200
 6548     603  FORMAT (51H0          -***-FLUTTER ANALYSIS STIFFNESS SUMMARY AT,F7.ACPA6210
 6549         1,12H DEGREES-***-)                                         ACPA6220
 6550     604  FORMAT (68H0          -***-STIFFNESS SUMMARY FOR FLUTTER OPTIMIZATIOACPA6230
 6551         1N ANALYSIS AT,F7.1,12H DEGREES-***-)                       ACPA6240
 6552     605  FORMAT (62H0          -***-STIFFNESS SUMMARY FOR FLEXIBLE LOADS ANALACPA6250
 6553         1YSIS AT,F7.1,12H DEGREES-***-)                             ACPA6260
 6554    C                                                                ACPA6270
 6555     606  FORMAT (108H  SECT   GJ-ST   EI-ST   G-ST    E-ST GJ/EI    GJ-CMP ACPA6280
 6556         1 EI-CMP  G-CMP   E-CMP GJ/EI   RTSKU RTSKL RTWFS RTWFS)    ACPA6290
 6557     607  FORMAT (4X,I2,2F8.3,F7.3,F8.3,F6.3,2X,2F8.3,F7.3,F8.3,F6.3,2X,4F6 ACPA6300
 6558         13)                                                         ACPA6310
 6559    C                                                                ACPA6320
 6560     608  FORMAT (104H  SECT   GJ-WF    GJ-ST   EI-ST   G-ST    E-ST GJ/EI ACPA6330
 6561         1 RGJS    GJ-CMP  EI-CMP  G-CMP   E-CMP GJ/EI RGJC )       ACPA6340
 6562     609  FORMAT (4X,I2,F8.3,2X,2F8.3,F7.3,F8.3,2F6.3,2X,2F8.3,F7.3,F8.3,2F6ACPA6350
 6563         1.3)                                                        ACPA6360
 6564    C                                                                ACPA6370
 6565     610  FORMAT (82H  SECT   GJ-ST   EI-ST   G-ST    E-ST GJ/EI    GJ-CMP  ACPA6380
 6566         1EI-CMP  G-CMP   E-CMP GJ/EI)                               ACPA6390
 6567     611  FORMAT (4X,I2,2F8.3,F7.3,F8.3,F6.3,2X,2F8.3,F7.3,F8.3,F6.3)  ACPA6400
 6568    C                                                                ACPA6409
 6569     612  FORMAT (6H1 CASE,I4,1X,8A10,14H *ACPRTA* PAGE,I4,/14X,8A10,/24X,6HACPA6410
 6570         1 NODM=,I1,6H  IGM=I1,6H  DGM=F9.1,6H  NZ=*F6.3,2H/-F5.3,//86H    ACPA6411
 6571         2             -***-TORQUE BOX STIFFNESS SUMMARIES--(GJ,EI*(10)-9),(GACPA6412
 6572         3,E*(10)-6)-***- )                                          ACPA6413
 6573    C                                                                ACPA6419
 6574    C             *GJ,EIX10-9,(G,E)X10-6**                           ACPA6420
 6575     620  DO 621 I=1,11                                             ACPA6430
 6576          GJSTD(I) = GJSTD(I)/1000000000.0                           ACPA6440
 6577          EISTD(I) = EISTD(I)/1000000000.0                           ACPA6450
 6578          GSTD(I) = GSTD(I)/1000000.0                                ACPA6460
 6579          ESTD(I) = ESTD(I)/1000000.0                                ACPA6470
 6580          TSS(I+44) = GJCD(I)/1000000000.0                           ACPA6480
 6581          TSS(I+55) = EICD(I)/1000000000.0                           ACPA6490
 6582          TSS(I+66) = GCMD(I)/1000000.0                              ACPA6500
 6583          TSS(I+77) = ECMD(I)/1000000.0                              ACPA6510
 6584          TR(I) = GJSTD(I)/EISTD(I)                                  ACPA6520
 6585          TR(I+11) = TSS(I+44)/TSS(I+55)                             ACPA6530
 6586     621  CONTINUE                                                   ACPA6540
 6587    C                                                                ACPA6550
 6588    C            **PRINT BLOCK 1**                                   ACPA6560
 6589          WRITE (6,606)                                              ACPA6570
 6590          DO 622 I=1,11                                              ACPA6580
 6591          WRITE (6,607)I,GJSTD(I),EISTD(I),GSTD(I),ESTD(I),TR(I),TSS(I+44),TACPA6590
 6592         1SS(I+55),TSS(I+66),TSS(I+77),TR(I+11),TSS(I),TSS(I+11),TSS(I+22),TACPA6700
 6593         2SS(I+33)                                                   ACPA6710
 6594     622  CONTINUE                                                   ACPA6720
 6595    C                                                                ACPA6730
 6596    C            ***BLOCK 2--FLUTTER STIFFNESS.  CHECK FOR PRINT***  ACPA6740
 6597          IF (WFID) 624,623,624                                      ACPA6750
 6598     623  WRITE (6,6230)                                             ACPA6760
 6599     6230 FORMAT (52H0          -***-NO FLUTTER STIFFNESS PENALTIES-***- )  ACPA6765
 6600          GO TO 630                                                  ACPA6770
 6601    C                                                                ACPA6780
 6602    C            ***PROCESS FLUTTER ANALYSIS DATA FOR PRINT***       ACPA6790
```

```
CARD NO  ****                          CONTENTS                          ****
 6603      624  DO 625 I=1,11                                              ACPA6800
 6604           GJWFS(I) = GJWFS(I)/1000000000.0                          ACPA6810
 6605           EIWFS(I) = EIWFS(I)/1000000000.0                          ACPA6820
 6606           GWFS(I) = GWFS(I)/1000000.0                               ACPA6830
 6607           EWFS(I) = EWFS(I)/1000000.0                               ACPA6840
 6608           TSS(I+44) = GJWFD(I)/1000000000.0                         ACPA6850
 6609           TSS(I+55) = EIWFD(I)/1000000000.0                         ACPA6860
 6610           TSS(I+66) = GWFD(I)/1000000.0                             ACPA6870
 6611           TSS(I+77) = EWFD(I)/1000000.0                             ACPA6880
 6612           TSS(I+88) = GJRQD(I)/1000000000.0                         ACPA6890
 6613           TR(I) = GJWFS(I)/EIWFS(I)                                 ACPA6900
 6614           TR(I+11) = TSS(I+44)/TSS(I+55)                            ACPA6910
 6615           TSS(I) = TSS(I+88)/GJWFS(I)                               ACPA6920
 6616           TSS(I+11) = TSS(I+88)/TSS(I+44)                           ACPA6930
 6617      625  CONTINUE                                                  ACPA6940
 6618        C                                                            ACPA6950
 6619        C                                                            ACPA6960
 6620           WRITE (6,603)TEIGJ(2)                                     ACPA6970
 6621           WRITE (6,608)                                             ACPA6980
 6622           DO 626 I=1,11                                             ACPA6990
 6623           WRITE (6,609)I,TSS(I+88),GJWFS(I),EIWFS(I),GWFS(I),GWFS(I),TR(I),TACPA7000
 6624          1SS(I),TSS(I+44),TSS(I+55),TSS(I+66),TSS(I+77),TR(I+11),TSS(I+11)  ACPA7010
 6625      626  CONTINUE                                                  ACPA7020
 6626        C                                                            ACPA7030
 6627        C            ***PAGE 3--FLUTTER OPT/FLEX LOADS STIFFNESS SUMMARIES***  ACPA7040
 6628        C            **TEST FOR PRINT**                            ACPA7050
 6629      630  IF (DINID) 240,240,631                                    ACPA7060
 6630      631  NPAGE = NPAGE + ND(1)                                     ACPA7070
 6631           WRITE (6,612)NCASE,(R(I),I=1,8),NPAGE,(R(I+8),I=1,8),NODM,IGM,DCM:ACPA7080
 6632          1IGM),DPNZ,DNNZ                                            ACPA7090
 6633        C                                                            ACPA7100
 6634        C            **TEST FOR FLUTTER OPT OUTPUT--ID=1 OR 3**    ACPA7110
 6635           IF (DINID - D(2)) 632,635,632                             ACPA7120
 6636      632  WRITE (6,604)TEIGJ(3)                                     ACPA7130
 6637        C                                                            ACPA7140
 6638        C            **PROCESS DATA FOR PRINT**                    ACPA7150
 6639           DO 633 I=1,11                                             ACPA7160
 6640           TSS(I) = GJSFO(I)/1000000000.0                            ACPA7170
 6641           TSS(I+11) = EISFO(I)/1000000000.0                         ACPA7180
 6642           TSS(I+22) = GSFO(I)/1000000.0                             ACPA7190
 6643           TSS(I+33) = ESFO(I)/1000000.0                             ACPA7200
 6644           TSS(I+44) = GJCFO(I)/1000000000.0                         ACPA7210
 6645           TSS(I+55) = EICFO(I)/1000000000.0                         ACPA7220
 6646           TSS(I+66) = GCFO(I)/1000000.0                             ACPA7230
 6647           TSS(I+77) = ECFO(I)/1000000.0                             ACPA7240
 6648           TR(I) = TSS(I)/TSS(I+11)                                  ACPA7250
 6649           TR(I+11) = TSS(I+44)/TSS(I+55)                            ACPA7260
 6650      633  CONTINUE                                                  ACPA7270
 6651        C                                                            ACPA7280
 6652           WRITE (6,610)                                             ACPA7290
 6653           DO 634 I=1,11                                             ACPA7300
 6654           WRITE (6,611)I,TSS(I),TSS(I+11),TSS(I 22),TSS(I+33),TR(I),TSS(I+44ACPA7310
 6655          1),TSS(I+55),TSS(I+66),TSS(I+77),TR(I+11)                  ACPA7320
 6656      634  CONTINUE                                                  ACPA7330
 6657        C                                                            ACPA7340
 6658        C            ***TEST FOR FLEX LOADS OUTPUT--ID=1 OR 2***   ACPA7350
 6659      635  IF (DINID - D(2)) 636,636,240                             ACPA7360
 6660      636  WRITE (6,605)TEIGJ(4)                                     ACPA7370
 6661        C                                                            ACPA7380
 6662        C            **PROCESS DATA FOR PRINT**                    ACPA7390
 6663           DO 637 I=1,11                                             ACPA7400
 6664           TSS(I) = GJSFL(I)/1000000000.0                            ACPA7410
 6665           TSS(I+11) = EISFL(I)/1000000000.0                         ACPA7420
 6666           TSS(I+22) = GSFL(I)/1000000.0                             ACPA7430
 6667           TSS(I+33) = ESFL(I)/1000000.0                             ACPA7440
 6668           TSS(I+44) = GJCFL(I)/1000000000.0                         ACPA7450
 6669           TSS(I+55) = EICFL(I)/1000000000.0                         ACPA7460
 6670           TSS(I+66) = GCFL(I)/1000000.0                             ACPA7470
 6671           TSS(I+77) = ECFL(I)/1000000.0                             ACPA7480
 6672           TR(I) = TSS(I)/TSS(I+11)                                  ACPA7490
 6673           TR(I+11) = TSS(I+44)/TSS(I+55)                            ACPA7500
```

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CARD NO  ****                          CONTENTS                          ****
  637  CONTINUE                                                          ACPA7510
C                                                                        ACPA7520
      WRITE (6,610)                                                      ACPA7530
      DO 638 I=1,11                                                      ACPA7540
      WRITE (6,611)I,TSS(I),TSS(I+11),TSS(I+22),TSS(I+33),TR(I),TSS(I+44ACPA7550
     1),TSS(I+55),TSS(I+66),TSS(I+77),TR(I+11)                           ACPA7560
  638 CONTINUE                                                           ACPA7570
C                                                                        ACPA7580
C                                                                        PRTAI470
C                                                                        PRTAI480
C       PRINT PAGE 4/5--WT AND WT/IN SUMMARY.                            PRTAI490
  240 NPAGE = NPAGE + 1D(1)                                              PRTAI500
      WRITE (6,2400)NCASE,(R(I),I=1,8),NPAGE,NODM,IGM,DGM(IGM),DFNZ,DFNZPRTAI505
 2400 FORMAT (6H1 CASE,I4,1X,8A10,1HH *ACFRTA* PAGE,I4,/24X,6H NODM=I1,6PRTAI506
     1H  IGM=I1,6H  DGM=F9.1,6H  NZ=*F6.3,2H/-F5.3)                      PRTAI507
C                                                                        PRTAI509
      WRITE (6,241)                                                      PRTAI510
C                                                                        PRTAI519
  241 FORMAT (52H            ***-PANEL WEIGHT SUMMARY.  LES/SIDE-**-/1DPRTAI520
     1HH  PANEL       SUM       T-BOX      L.E.      T.E.      MISC.  DELPRTAI530
     2TA VF       TIP         RT-RIB    C-SECT)                         PRTAI540
C                                                                        PRTAI549
      IF (NODM - D(1)) 2410,2410,242                                     PRTAI550
 2410 TSS(79) = WMVID/D(2)                                               PRTAI551
      TSS(79) = TWT(50)*TSS(78)                                          PRTAI552
      TSS(80) = TWT(54)*TSS(79)                                          PRTAI553
      DO 2411 I=1,5                                                      PRTAI554
      TSS(I+80) = TWT(I+54)*TSS(78)                                      PRTAI555
 2411 CONTINUE                                                           PRTAI556
C                                                                        PRTAI560
C             **PRINT 10 PNL WTS PLUS INBD AND OBD**                     PRTAI570
C               *WT DATA IN TC(1-340)*                                   PRTAI575
  242 WRITE (6,243)(TC(I+133),I=1,6),TSS(79),TC(140),TC(141),(TSS(I+80),PRTAI580
     1I=1,5),DC(3),TSS(80)                                               PRTAI581
C                                                                        PRTAI599
  243 FORMAT (7H  TOTAL,F12.2,F11.2,2F10.2,F9.2,F10.2,F11.2,4X,2F10.2,/7PRTAI590
     1H   INBD,F12.2,F11.2,2F10.2,F9.2,F10.2,15X,F10.2)                  PRTAI591
  244 FORMAT (4X,12,1X,F12.2,F11.2,2F10.2,F9.2,F10.2)                    PRTAI600
  245 FORMAT (7H    OBD,F12.2,F11.2,2F10.2,F9.2,F10.2,F11.2)             PRTAI610
C                                                                        PRTAI620
C               *PNLS 1-10.  DATA IN TC(142-201) 6/BLOCK, RT-TIP*        PRTAI630
      DO 246 N=1,10                                                      PRTAI640
      L = N*ND(6)                                                        PRTAI650
      K = L - ND(5)                                                      PRTAI660
      WRITE (6,244)N,(TC(I+141),I=K,L,1)                                 PRTAI670
  246 CONTINUE                                                           PRTAI680
C                                                                        PRTAI690
C               *OBD PNL*                                                PRTAI700
      WRITE (6,245)(TWT,I=144),I=1,5),DC(3),TWT(50)                      PRTAI710
C                                                                        PRTAI720
C                                                                        PRTAI730
C               **WT/IN DATA**                                           PRTAI740
  250 WRITE (6,251)                                                      PRTAI750
  251 FORMAT (40H             ***-WEIGHT/INCH SUMMARY-**-/8HH  SECT.     PRTAI760
     1  TOTAL      T-BOX      L.E.      T.E.      MISC.  DELTA VF  COVC. PRTAI770
     2ITEMS  )                                                           PRTAI780
C                                                                        PRTAI790
  252 FORMAT (4X,12,1X,F12.4,F11.4,F10.4,2F9.4,F10.4,F11.4)              PRTAI800
C                                                                        PRTAI810
C             **DATA IN TC(220-340) 11 SETS OF 11 ITEMS, RT-TIP**        PRTAI820
C               *PRINT FIRST 7 ITEMS OF EACH SET*                        PRTAI830
      DO 253 N=1,11                                                      PRTAI840
      K = N*ND(11) - ND(10)                                              PRTAI850
      L = K + ND(6)                                                      PRTAI860
      WRITE (6,252)N,(TC(I+219),I=K,L,1)                                 PRTAI870
  253 CONTINUE                                                           PRTAI880
C                                                                        PRTAI890
C                                                                        PRTAI900
C           **DESIGN LOADS SUMMARY***                                    PRTAI910
C             *ULT POSITIVE AND NEGATIVE LOADS AND 1-G TOTAL DW*         PRTAI920
      WRITE (6,261)                                                      PRTAI930
```

CARD NO **** CONTENTS ****

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  261 FORMAT (1H2H          ***DESIGN LOADS SUMMARY*** /1(1H SECT   PRTA1940
     1 +V(ULT)    +M(ULT)    +T(ULT)    -V(ULT)    M(ULT)    -T(ULTPRTA1950
     211  VO(1-G)  MO(1-G)  TO(1-G) )                              PRTA1960
C                                                                  PRTA1970
  262 FORMAT (4X,I2,F11.1,F12.1,F11.1,2F12.1,F10.1,2F11.1)         PRTA1980
C                                                                  PRTA1990
C        *ULT LOADS STORED TIP-ROOT, 1-G DW LOADS STORED RT-TIP*   PRTA2000
      DO 263 N=1,11                                                PRTA2010
      K = ND(12) - N                                               PRTA2020
      WRITE (6,262)N,ULTPV(K),ULTPM(K),ULTPT(K),ULTNV(K),ULTNM(K),ULTNT(PRTA2030
     1K),TDWV(N),TDWM(N),TDWT(N)                                   PRTA2040
  263 CONTINUE                                                     PRTA2050
C                                                                  PRTA2560
C                                                                  PRTA2570
C            ***PAGE 5/6--SECTION DESIGN Y-BAR DATA***             PRTA2580
  292 NPAGE = NPAGE + ND(1)                                        PRTA2590
      WRITE (6,296)NCASE,(R(I),I=1,8),NPAGE,(R(I+8),I=1,8),NODW,IGW,DGWPRTA2600
     1(IGW),DPNZ,DMNZ                                              PRTA2601
C                                                                  PRTA2609
  296 FORMAT (6H1 CASE,I4,1X,8A10,14H *ACPRTA* PAGE,I4,/15X,8A10,//24X,EPRTA2610
     1H NODW=I1,6H IGW=I1,6H DGW=F9.,6H NZ=+F6.3,2H/-F5.3,//44H    PRTA2611
     2    ***SECTION DESIGN Y-BAR DATA*** )                        PRTA2612
C                                                                  PRTA2619
      WRITE (6,2920)                                               PRTA2620
 2920 FORMAT (46H0 STA  YBU(D)  YBU(A)  YBL(D)  YBL(A)  TB-W/IN )  PRTA2621
 2921 FORMAT (1H 3X,I2,4F8.4,F9.4)                                 PRTA2625
C                                                                  PRTA2629
      DO 2922 I=1,11                                               PRTA2630
      K = ND(12) - I                                               PRTA2640
      WRITE (6,2921)I,YBUD(K),YBUI(K),YBLD(K),YBLI(K),TBWPI(I)     PRTA2650
 2922 CONTINUE                                                     PRTA2660
C                                                                  PRTA2670
C                                                                  PRTA2680
C            **TOTAL WT SUMMARY--TWT(1-59),(145-149)*              PRTA2690
      WRITE (6,293)                                                PRTA2700
  293 FORMAT (1H0,/48H          ***ROOT SECTION WEIGHT SUMMARY ***/ PRTA2710
     16H   TWT)                                                    PRTA2720
C                                                                  PRTA2730
  294 FORMAT (3X,I2,9F11.4)                                        PRTA2740
  295 FORMAT (3X,I2,5F11.4)                                        PRTA2750
C                                                                  PRTA2780
C               *ROOT DATA*                                        PRTA2790
      DO 297 N=1,54,9                                              PRTA2800
      K = N + ND(8)                                                PRTA2810
      WRITE (6,294)N,(TWT(I),I=N,K,1)                              PRTA2820
  297 CONTINUE                                                     PRTA2830
      N = 55                                                       PRTA2840
      K = 145                                                      PRTA2850
      WRITE (6,295)N,(TWT(I+54),I=1,5),K,(TWT(I+144),I=1,5)        PRTA2860
C                                                                  PRTA2870
C                                                                  PRTA2130
C          ****TEST FOR GW(2) FOR GEOMETRY PRINT****               PRTA2140
C               **TEST FOR ZERO GW(1) AND GW(2) FOR GEOMETRY PRINT**  PRTA2141
  270 IF (ND(2) - IGW) 2701,271,2702                               PRTA2150
 2701 IF (DGW(1)) 2702,2702,299                                    PRTA2151
 2702 IF (DGW(2)) 271,271,299                                      PRTA2152
C                                                                  PRTA2159
  271 IF (NODW - ND(2)) 2720,299,299                               PRTA2160
C                                                                  PRTA2169
 2720 NPAGE = NPAGE + ND(1)                                        PRTA2170
      WRITE (6,2721)NCASE,(R(I),I=1,8),NPAGE,(R(I+8),I=1,8)        PRTA2171
C                                                                  PRTA2172
 2721 FORMAT (6H1 CASE,I4,1X,8A10,14H *ACPRTA* PAGE,I4,/15X,8A10)  PRTA2173
C                                                                  PRTA2179
C               PRINT GEOMETRY                                     PRTA2180
  272 WRITE         (6,273)TSEC(176),TSEC(55),TSEC(66),TSEC(88),TSEC(PRTA2190
     199),T(100),YBUD(11),YBLD(11)                                 PRTA2200
  273 FORMAT (40H0          ***SECTION GEOMETRY SUMMARY***   /102H PRTA2210
     1 SECT.   YSTRC     WIDTH   DAVE     DFS     DRS    C-AERO    PRTA2220
     2 Y-BU    Y-BL                    /8H   ROOT2F10.3,3F9.3,F10.3,2FPRTA2230
     39.4)                                                         PRTA2240
```

CARD NO	**** CONTENTS ****	
6816	C *FORMAT (5X,I2,1X,2F10.3,3F9.3,F10.3,2F9.4)	PRTA2250
6817	C 2 FORMAT (10H TIP,2F10.3,3F9.3,F10.3,2F9.4,/)	PRTA2260
6818	C	PRTA2270
6819	276 DO 277 N=2,10,1	PRTA2280
6820	K=ND(12)-N	PRTA2290
6821	WRITE (6,274)N,TSEC(K+1E5),TSEC(K+99),TSEC(K+55),TSEC(K+	PRTA2300
6822	1+77),TSEC(K+88),TIN+99),YBUD(K),YBLD(K)	PRTA2310
6823	277 CONTINUE	PRTA2320
6824	C	PRTA2330
6825	C	PRTA2340
6826	278 WRITE (6,275)TSEC(166),TSEC(150),TSEC(156),TSEC(170),TSEC(PRTA2350	
6827	1E2),TC110),YBUD(1),YBLD(1)	PRTA2360
6828	C	PRTA2370
6829	C	PRTA2380
6830	C	PRTA3000
6831	C	PRTA9900
6832	C **EXIT**	PRTA9990
6833	299 RETURN	PRTA9991
6834	END	PRTA9999
6835	C********** **********	
6836	C	
6837	C *****FUNCTION XN*****	
6838	C ***EVALUATION OF NO. OF N-PLIES FOR GIVEN L AND M PLIES***	
6839	C	
6840	C**********	
6841	C	
6842	FUNCTION XN(IL,IM)	FUN0N010
6843	C	
6844	C FUNCTION TO CALCULATE NUMBER OF 90 DEGREE PLIES FOR A LAMINATE	
6845	C NUMBER OF PLIES IS ARBITRATED AT CB PER CENT	
6846	C	
6847	COMMON T(9168)	FUN0N020
6848	C	FUN0N030
6849	DIMENSION EL(15),CNT(38)	FUN0N040
6850	C	FUN0N050
6851	EQUIVALENCE (EL(1),T(1300)),(CNT(1),T(1594)),	FUN0N060
6852	1(C3,CNT(13)),(CB,CNT(23))	FUN0N069
6853	C	FU5X5070
6854	XN = INT((EL(IL) + 2.0*EL(IM))*CB + C3)	FUN0N080
6855	RETURN	FUN0N090
6856	END	FUN0N100
6857	C**********	
6858	C	
6859	C *****SUBROUTINE WTCAL*****	
6860	C ***SECTION/PANEL WEIGHT EVALUATION***	
6861	C	
6862	C**********	
6863	C	
6864	SUBROUTINE WTCAL	
6865	C	
6866	C *****SAME AS SUBROUTINE WTCAL IN OVERLAY (10,0)*****	
6867	C	
6868	C ***SUBROUTINE WTCAL CALLS RTRIB, BHDJT AND WTPIN***	
6869	CALL RTRIB	
6870	CALL BHDJT	
6871	CALL WTPIN	
6872	C	
6873	RETURN	
6874	END	
6875	C**********	
6876	C	
6877	C *****SUBROUTINE BHDJT*****	
6878	C ***BULKHEAD AND JOINT WEIGHT EVALUATION***	
6879	C	
6880	C**********	
6881	C	
6882	SUBROUTINE BHDJT	
6883	C	
6884	C *****SAME AS SUBROUTINE BHDJT IN OVERLAY (10,0)*****	
6885	C	
6886	RETURN	

CARD NO **** CONTENTS ****

```
      END
C**********************************************************************
C
C        *****SUBROUTINE RTRIB*****
C   ***ROOT RIB AND SHEAR TIE WEIGHT EVALUATION***
C
C**********************************************************************
C
      SUBROUTINE RTRIB
C
C              *****SAME AS SUBROUTINE RTRIB IN OVERLAY (10,0)*****
C
      RETURN
      END
C**********************************************************************
C
C        *****SUBROUTINE WTPIN*****
C   ***SECTION WEIGHT PER INCH EVALUATION***
C
C**********************************************************************
C
      SUBROUTINE WTPIN
C
C              *****SAME AS SUBROUTINE WTPIN IN OVERLAY (10,0)*****
C
      RETURN
      END
C        *****SUBROUTINE DWYBA*****
C   ***DEADWEIGHT AND COUPLE ARM ADJUSTMENT FOR PASS (1)***
C
C**********************************************************************
C
      SUBROUTINE DWYBA
C
C              *****SAME AS SUBROUTINE DWYBA IN OVERLAY (9,0)*****
C
C                   ***SUBROUTINE DWYBA CALLS DEADW***
      CALL DEADW
C
      RETURN
      END
C**********************************************************************
C
C        *****SUBROUTINE DEADW*****
C   ***TORQUE-BOX INERTIA LOAD EVALUATION***
C
C**********************************************************************
C
      SUBROUTINE DEADW
C
C              *****SAME AS SUBROUTINE DEADW IN OVERLAY (9,0)*****
C
      RETURN
      END
C**********************************************************************
C
C        *****SUBROUTINE CSECW*****
C   ***CENTER-SECTION WEIGHT EVALUATION***
C
C**********************************************************************
C
      SUBROUTINE CSECW
C
C              *****SAME AS SUBROUTINE CSECW IN OVERLAY (9,0)*****
C
      RETURN
      END
C**********************************************************************
C
C        *****SUBROUTINE PIVOT*****
C   ***PIVOT STRUCTURE SYNTHESIS AND WEIGHT EVALUATION***
```

CARD NO **** CONTENTS ****

```
C
C*****************************************************************
C
      SUBROUTINE PIVOT
C
C           *****SAME AS SUBROUTINE PIVOT IN OVERLAY (9,0)*****
C
C               ***SUBROUTINE PIVOT CALLS TEE AND TEL***
      CALL TEE
      CALL TEL
C
      RETURN
      END
C*****************************************************************
C
C       *****SUBROUTINE TEE*****
C   ***PIVOT DESIGN/SYNTHESIS DATA EVALUATION***
C
C*****************************************************************
C
      SUBROUTINE TEE
C
C           *****SAME AS SUBROUTINE TEE IN OVERLAY (9,0)*****
C
      RETURN
      END
C*****************************************************************
C
C       *****SUBROUTINE TEL*****
C   ***PIVOT DESIGN/SYNTHESIS DATA EVALUATION***
C
C*****************************************************************
C
      SUBROUTINE TEL
C
C           *****SAME AS SUBROUTINE TEL IN OVERLAY (9,0)*****
C
      RETURN
      END
C*****************************************************************
C
C       *****SUBROUTINE OLPVT*****
C   ***EVALUATION OF T-BOX STRUCTURE REPLACED BY PIVOT***
C
C*****************************************************************
C
      SUBROUTINE OLPVT
C
C           *****SAME AS SUBROUTINE OLPVT IN OVERLAY (9,0)*****
C
      RETURN
      END
C*****************************************************************
C
C       *****SUBROUTINE PRTB*****
C   ***DESIGN DATA PRINT - TYPE B SECTION DESIGN DETAIL SUMMARY***
C
C*****************************************************************
C
      SUBROUTINE PRTB
C
C           *****SAME AS SUBROUTINE PRTB IN OVERLAY (10,0)*****
C
      RETURN
      END
C*****************************************************************
C
C       *****SUBROUTINE PRTC*****
C   ***DESIGN DATA PRINT - TYPE C SECTION WEIGHT DETAIL SUMMARY***
C
C*****************************************************************
```

CARD NO	**** CONTENTS ****
7029	C
7030	SUBROUTINE FRTC
7031	C
7032	C *****SAME AS SUBROUTINE FRTC IN OVERLAY (10,0)*****
7033	C
7034	RETURN
7035	END
7036	C**********
7037	C
7038	C *****SUBROUTINE PRTH*****
7039	C ***DESIGN DATA PRINT - TYPE H C-SEC/PIVOT DESIGN SUMMARY***
7040	C
7041	C**********
7042	C
7043	SUBROUTINE PRTH
7044	C
7045	C *****SAME AS SUBROUTINE PRTH IN OVERLAY (9,0)*****
7046	C
7047	RETURN
7048	END