

AD/A-002 853

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME II-
PROGRAM INTEGRATION AND DATA MANAGE-
MENT MODULE. PART 2: DATA MANAGEMENT
MODULE

G. Hayase, et al

Rockwell International Corporation

Prepared for:

Aeronautical Systems Division

June 1974

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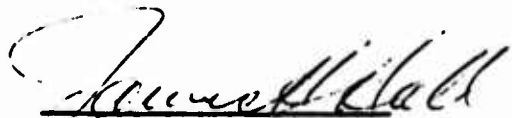
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Deputy for Development Planning

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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 tem- peratures, material properties, flutter stiffness requirements, fatigue life, structural sizing, and for weight estimation of each of the major 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 II) contains the methodology, program description, and user's information for the SWEEP control program, input data processing module, final output module, and the data management module.

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APPENDIX A
DATA MANAGEMENT MODULE FLOW CHARTS
AND FORTRAN LISTS

MODULE FLOW CHARTS AND FORTRAN LISTS

FLOW CHART USAGE

The automatically generated computer program flow charts (AUTOFLOW) presented in this document include a table of contents, flow charts, and FORTRAN lists of all routines in the module. The 80-column card lists are sequenced and grouped by routine.

Because the AUTOFLOW system used is IBM-oriented, the functions of the BUFFERIN and BUFFEROUT statements are not recognized, but these statements appear in proper order in note boxes. Also, the PROGRAM name does not appear on the main program, and library routines READMS and WRITMS are listed as undefined external references.

CROSS-REFERENCE LIST

The AUTOFLOW table of contents which precedes the flow charts and FORTRAN lists serves to cross reference the latter two. This table lists the following from left to right:

- The card identification from columns 73 through 80 of this card, or card sequence number. When sequence number is used in place of card identification, it is enclosed in parentheses.
- The page and box number where this card is displayed in a flow chart.
- The FORTRAN statement number from columns 1 through 5 of this card.
- The card identification(s) or sequence number(s) of the card(s) referring to this card (repeated as required).
- The pages and box numbers where the cards referring to this card are displayed in a flow chart (repeated as required).

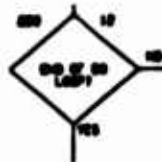
FLOW CHARTS

The flow charts produced by AUTOFLOW use USASI conventional symbols. Since the flow charts are mechanically drawn from the program source deck, there are no omissions or vague generalizations about the processing within the boxes.

Every box on each page is uniquely numbered and may be referred to from elsewhere in the program. The source of a reference to a box will be indicated by showing the page and box number. If the number is followed by an asterisk, there are multiple references to this point, and the others may be found by using the cross-reference list.



The most-often-used symbol is the decision box. Like all boxes, its box number is above and to the right of the box. Its FORTRAN statement number is above and to the left of the box. The decision choices for the paths are printed.



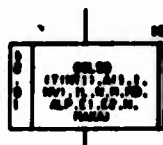
The unconditional transfer connector has its page number destination printed above or to the left of the box number destination within the connector. If there is a FORTRAN statement number at the destination, it is printed below the connector.



The exit box example shows a connector from page 9, box 15.



The subroutine call box includes the calling sequence. The page and box numbers of the flow chart of the called subroutine are shown on the left-hand side of the box. The page number is above the box number.



The note box encloses comments of a functional nature,



as differentiated from the 21 column comments, which are left justified without a box, that show the comment cards included in the FORTRAN deck.

```

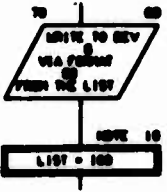
C----- (07)
CALL JLN P00000
DATA 01 0400,01
C----- (07)
CALL JLN P00000
DATA 01 0400,01
C----- (07)
CALL JLN P00000
DATA 01 0400,01
C----- (07)
CALL JLN P00000
DATA 01 0400,01

```

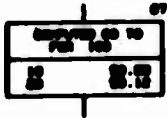
The process box is used to enclose FORTRAN arithmetic statements.



Input and output are shown as communicating with a device. The list used follows, if appropriate:



The computed $G \cap T \emptyset$ becomes a branch table showing the page and box number of each of the ordered branches.



The column connectors and initial connectors are the only boxes without external box numbers. The function of the initial connector is always clear,

but the label given is the symbol in the next FORTRAN card, which is often blank.



The column connector identifies the page and box number to which it connects.



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FOR

AUTOFLOW CHART SET

FORTRAN MODULE DATA MANAGEMENT MODULE

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - PROCEDURES

(000030)	2.02	700		
(000035)	2.02		(000035)	2.03
(000036)	2.14	30	(000036)	2.13
(000037)	2.16	30	(000037)	2.13
(000075)	2.21	0000		
(000076)	2.23	0000	(000076)	2.20
(000130)	3.04	0001		
(000147)	3.05		(000151)	3.12
(000151)	3.12	04	(000147)	3.00
(000153)	3.14		(000157)	3.10
(000157)	3.19	05	(000154)	3.16
(000158)	3.20	0002	(000130)	3.03
(000160)	3.24	0003		
(000173)	3.26	0004	(000160)	3.23
(000191)	3.29	70	(000160)	3.20
(000193)	3.30	00	(000160)	3.20

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE ANDATA

(000204)	5.01	ANDATA	(000200)	2.20-2
(000245)	5.02		(000245)	5.03
(000246)	5.03	101		
(000250)	5.07		(000253)	5.12
(000253)	5.12	150		
(000257)	5.22	200	(000255)	5.21
(000260)	5.23		(000250)	5.24
(000262)	5.24	210		
(000267)	5.25		(000260)	5.20
(000268)	5.26	220		
(000280)	5.31		(000303)	7.01
(000303)	7.01	270		
(000305)	7.02	270		
(000306)	7.04		(000300)	7.05
(000308)	7.05	270		
(000312)	7.09		(000315)	7.10
(000315)	7.10	280		
(000317)	7.12	280	(000305)	5.21
(000347)	7.23		(000300)	5.01
(000350)	8.01	310		
(000352)	8.13	0001		
(000403)	8.16	0002	(000300)	5.12

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE ANDATA

(000414)	11.01	ANDATA	(000402)	8.02-2
(000403)	11.05	10	(000475)	11.12
(000405)	11.10	20	(000400)	11.00
(000475)	11.13	30	(000400)	11.00
(000408)	11.16	40	(000400)	11.00
(000409)	11.19	50	(000400)	11.00
(000410)	11.21	60		

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE AND/OR

100010)	14.01	AND/OR	100020)	0.02-K
100020)	14.10	30		
100030)	14.10		100030)	14.01
100030)	14.01	40		
100030)	14.03	00		
100030)	14.04		100041)	14.05
100041)	14.05	00		
100040)	14.07	00	100033)	14.02
100040)	14.08		100007)	14.33
100007)	14.33	00		
100002)	14.34	100	100042)	14.05
100004)	15.01	102	100002)	14.34
100005)	15.02	104		
100005)	15.03		100070)	15.05
100070)	15.05	110		
100070)	15.05	120	100060)	15.01
100070)	15.07	122	100070)	15.05
100005)	15.09	124	100070)	15.05
100000)	15.14	130	100004)	15.00
100000)	15.15		1000714)	15.04
1000714)	15.04	140		
1000710)	15.05	150	100002)	14.34
1000710)	15.07	160	100073)	15.00
1000710)	15.07			
1000700)	15.10		1000707)	15.13
1000707)	15.12	170		
1000720)	15.15		1000720)	15.10
1000720)	15.17	180		
1000720)	15.20		100073)	15.23
100073)	15.22	190		
1000740)	15.25		1000740)	15.27
1000740)	15.25	200		
1000705)	15.29	0001		
1000700)	15.22	0002	1000702)	15.20

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE AND/OR

100070)	15.01	AND/OR	100040)	0.04-K
100000)	15.02		100002)	15.00
100002)	15.00	100		
100007)	15.15		100040)	15.10
100040)	15.10	110		

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE AND/OR

100000)	22.01	00007	100070)	2.07-K
100070)	22.02	101		
100000)	22.03		100001)	22.05
100001)	22.03	103		
100000)	22.07	110	100070)	22.01
100007)	22.10		100000)	22.11
100000)	22.11	115		
100001)	22.13	117		
100000)	22.16		100000)	22.17
100000)	22.17	100		
100004)	22.21	121		
100000)	22.22	122		
100007)	22.01	125	100000)	22.20
100011)	22.00	120	100000)	22.25
100010)	22.00		100010)	22.07

01/20/74 TABLE OF CONTENTS AND REFERENCES

ATMOSPHERIC DUST SET - BEEP
REFERENCES (SOURCE SERIAL NO. AND PAGE/CH)

CARD NO	PAGE/CH	NOV	REFERENCES	SOURCE SERIAL NO. AND PAGE/CH
100013)	23.07	120		
100015)	23.08	127	100000)	23.12
100016)	23.08	128		
100020)	23.12		100021)	23.13
100021)	23.13	120		
100022)	23.14	130	100015)	23.08
100026)	23.15	131	100023)	23.14
100030)	23.16		100032)	23.21
100032)	23.21	122	100030)	23.16
100032)	23.21		100031)	23.16
100035)	23.24	123		
100038)	23.25	124		
100039)	24.01	125	100034)	23.23
100042)	24.02	137	100037)	23.26
100043)	24.02		100044)	24.07
100044)	24.07	138		
100046)	24.08	139	100022)	23.14
100047)	24.08	140		
100052)	24.11	142		
100053)	24.12	144		
100054)	24.13	145	100051)	24.10
100055)	24.13	146	100052)	24.11
100057)	24.16	148		
100058)	24.16	148	100055)	24.14
100059)	24.16	148	100058)	24.15
100061)	24.22	149	100060)	24.17
100064)	24.23		100063)	24.24
100065)	24.24	149		
100067)	24.25	149	100046)	24.08
100068)	24.26	150		
100072)	24.28		100073)	25.01
100073)	25.01	152		
100075)	25.02	153	100037)	24.26
100076)	25.03	151		
100080)	25.05		100081)	25.07
100081)	25.07	152		
100082)	25.11	152		
100083)	25.12	152		
100083)	25.14	152	100080)	25.10
100087)	25.16	153	100082)	25.13
100088)	25.16		100083)	25.20
100089)	25.20	154		
100101)	25.21	155	100075)	25.02
100102)	25.22	157		
100103)	25.25	158		
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100107)	25.02	173		
100111)	25.24	163	100107)	25.24
100113)	25.26	163	100110)	25.27
100116)	25.28		100117)	25.18
100117)	25.18	170		
100118)	25.11	171	100101)	25.21
100120)	25.12	172		
100120)	25.15	173	100125)	25.01
100123)	25.16	173	100126)	25.03
100124)	25.20		100128)	25.21
100125)	25.21	174		
100127)	25.22	175	100116)	25.11
100128)	25.23	175		
100129)	25.24	180	100123)	25.23
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100134)	27.01	182	100134)	27.24
100134)	27.04		100134)	27.25
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100135)	27.07	185	100133)	25.25
100136)	27.08		100135)	27.10
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(001078)	20.17	200	(001037) 20.20 (001055) 27.10
(001080)	20.18	202	
(001083)	20.20	204	
(001084)	20.21	205	
(001085)	20.22	206	(001083) 20.20
(001087)	20.23	207	(001085) 20.21
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(001102)	20.34	2013	(001098) 20.30 (001099) 20.31
(001103)	20.35	2015	(001101) 20.33
(001107)	20.39		(001108) 20.40
(001109)	20.40	202	
(001110)	20.41	203	(001078) 20.17
(001111)	20.42	204	
(001117)	20.51	202	(001115) 20.43
(001118)	20.52	203	(001115) 20.43
(001120)	20.54	204	
(001121)	20.55	205	
(001123)	20.57	205	(001119) 20.53 (001120) 20.54
(001127)	20.11	209	(001122) 20.08
(001128)	20.12		(001129) 20.13
(001129)	20.13	210	
(001131)	20.14	211	(001110) 20.41
(001132)	20.15	212	
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(001133)	20.16	2122	
(001141)	20.01	2123	(001137) 20.17 (001138) 20.18
(001145)	20.05	213	(001140) 20.20
(001146)	20.06		(001147) 20.07
(001147)	20.07	214	
(001148)	20.08	215	(001131) 20.14
(001150)	20.10		(001154) 20.23
(001161)	20.11	402	
(001166)	20.15	404	(001163) 20.12
(001169)	20.17		(001171) 20.20
(001171)	20.20	405	(001168) 20.17
(001171)	20.20		(001170) 20.18
(001174)	20.23	406	
(001175)	20.24	407	
(001177)	20.25	408	(001173) 20.22 (001174) 20.23
(001181)	20.30	417	(001185) 20.14 (001178) 20.25
(001182)	20.31		(001183) 20.22
(001183)	20.32	418	
(001184)	20.33	419	(001180) 20.10
(001188)	21.01	420	(001186) 20.24
(001189)	21.04		(001193) 21.05
(001193)	21.08	422	
(001199)	21.09		(001200) 21.10
(001200)	21.10	424	
(001203)	21.12	425	(001201) 21.11
(001207)	21.15		(001208) 21.16
(001208)	21.16	426	
(001210)	21.17	427	(001201) 21.11
(001210)	21.20	4281	
(001217)	21.21	4282	
(001219)	22.01	4283	(001215) 21.18 (001216) 21.20
(001223)	22.05	429	(001218) 21.22
(001224)	22.06		(001225) 22.07
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(001228)	22.09	431	
(001232)	22.12		(001233) 22.13
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001311	26.12	416	
001312	26.13	418	(001310) 26.11
001322	26.17		(001323) 26.18
001323	26.18	420	
001324	26.23		(001330) 26.24
001335	26.24	430	
001330	26.26		(001340) 26.27
001340	26.27	440	
001340	26.30		(001340) 26.31
001340	26.31	450	
001353	26.33		(001354) 26.34
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001440	26.14	1402	(001437) 26.13
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001452	26.20	1010	(001450) 26.18
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001467	26.34	1023	
001468	26.01	1024	(001465) 26.33
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001503	26.06	1035	
001511	26.12	1040	(001482) 26.02 (001483) 26.03 (001502) 26.07
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001517	26.14	1050	(001511) 26.12
001518	26.15	1052	
001520	26.16	1054	(001510) 26.15
001524	26.18	1060	
001526	26.19	1060	(001510) 26.15
001537	26.23	1062	
001540	26.26	1070	(001517) 26.14 (001523) 26.17 (001527) 26.18 (001528) 26.22
001557	40.02		(001558) 40.03
001558	40.03	1075	
001563	40.10		(001564) 40.11
001564	40.11	1080	
001562	40.14	1070	
001564	40.16	1077	(001561) 40.13
001565	40.17	1070	
001567	40.18	1070	(001565) 40.16
001568	40.20	0001	
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001653	43.03				
001670	43.07				
001675	43.08	001684	43.06		
001683	43.10	001685	43.08		
001685	43.12				
001686	43.13	001686	43.11		
001688	43.15				
001689	43.16	001687	43.14		
001691	43.18				
001692	43.19	001690	43.17		
001694	43.21				
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001730	44.03	001727	44.01		
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001741	44.11	001730	44.09		
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001744	44.14	001742	44.12		
001750	44.15	001735	44.07		
001752	44.15	001750	44.15		
001753	44.17	001755	44.20		
001755	44.19				
001755	44.20	001754	44.18		
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001760	44.23	001757	44.21		
001761	44.25				
001762	44.25	001758	44.24		
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001765	44.29	001753	44.27		
001770	44.32	001757	44.26		
001781	44.34	001757	45.18		
001783	44.35				
001785	45.01	001782	44.33		
001787	45.03				
001789	45.04	001785	45.02		
001791	45.05				
001793	45.07	001788	45.05		
001795	45.09				
001797	45.10	001794	45.09		
001803	45.04				
001804	45.05	001802	45.03		
001805	45.07				
001807	45.08	001805	45.06		
001815	45.09	001789	44.15	001788	45.01
001816	45.10	001817	45.11		
001817	45.11				
001818	45.13	001820	45.14		
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(001034)	46.01		(001035) 46.02
(001035)	46.02	343	
(001036)	46.25	344	(001037) 46.10
(001046)	46.27	352	
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(002011)	53.03		(002016) 53.05
(002018)	53.06	400	
(002033)	53.13		(002041) 53.10
(002035)	53.15	412	
(002037)	53.16	414	(002034) 53.14
(002038)	53.17	416	(002036) 53.15
(002041)	53.18	420	
(002046)	53.21		(002047) 53.22
(002047)	53.22	430	
(002050)	53.25		(002051) 54.03
(002061)	54.03	450	
(002070)	54.09	452	
(002078)	54.10	454	(002075) 54.08
(002084)	54.12		(002082) 54.17
(002088)	54.14	462	
(002089)	54.15	464	(002085) 54.13
(002090)	54.16	466	(002087) 54.14
(002092)	54.17	470	
(002097)	54.20		(002098) 54.21
(002098)	54.21	480	
(002103)	54.23		(002104) 54.24
(002104)	54.24	500	
(002113)	55.03		(002122) 55.08
(002115)	55.05		(002121) 55.07
(002121)	55.07	510	
(002122)	55.08	520	
(002131)	55.11		(002130) 55.16
(002133)	55.13		(002132) 55.15
(002138)	55.15	550	
(002139)	55.16	570	
(002151)	55.20	590	
(002155)	55.21	610	(002156) 55.19
(002162)	55.22	620	(002158) 55.20
(002163)	55.23		(002162) 55.13
(002167)	55.25	625	(002165) 55.24
(002170)	55.01	630	(002168) 55.24
(002172)	55.02	632	(002169) 55.25
(002173)	55.03	634	(002175) 55.05
(002174)	55.04	636	
(002177)	55.05	640	(002173) 55.03
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(000003)	00.18	710	(000100) 00.10
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(000006)	00.20	714	(000000) 00.20
(000007)	00.21	716	
(000010)	07.01	710	(000000) 00.20
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(000020)	07.11	700	
(000020)	07.12	700	(000000) 00.20
(000040)	07.10	702	
(000070)	07.10	000	(000020) 07.12 (032021) 00 05 (000000) 00 07
(000000)	07.01		(000003) 07.02
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(000000)	00.12	000	(000000) 07.23
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(000002)	00.15	012	
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(000005)	00.07	030	
(000007)	00.00	000	(000005) 07.23 (000000) 00 03
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(000312)	00.13	010	
(000314)	00.14	011	
(000314)	00.14		(000314) 00.15
(000310)	00.16	015	(000312) 00.12
(000317)	00.17	016	
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(000370)	00.25	0002	(000300) 00.00

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(000440)	05.05	04	
(000400)	05.07	00	(000427) 04.00 (000441) 00 04 (000440) 00 05 (000400) 05.05
(000400)	05.01	00	(000420) 05.01
(000402)	05.02	00	(000400) 00.01
(000400)	05.05	04	
(000400)	05.07	00	(000400) 00.01
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(000400)	05.12	00	(000400) 00.07
(000400)	05.13	00	
(000470)	05.16	00	(000400) 00.07 (000400) 00 02
(000402)	05.17	000	(000402) 00.00 (000400) 00 11
(000400)	05.19		(000401) 07.01
(000401)	07.01	010	
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(000000)	07.12	004	(000007) 07.10
(000012)	07.15		(000014) 07.17
(000013)	07.16	000	
(000014)	07.17	000	(000012) 07.15
(000010)	07.20		(000000) 07.23
(000011)	07.22	000	

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(002530)	07.20	312	(002528)	07.27
(002535)	07.32		(002538)	08.02
(002537)	08.01	315		
(002538)	08.02	318	(002536)	07.33
(002541)	08.04	5011		
(002545)	08.17	5012	(002548)	08.03
(002568)	08.18	999		

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CHART TITLE - INTRODUCTORY COMMENTS

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(002574)	71.01	DSTNDR	(000878)	22.03-X	(000885)	22.06-X	(000893)	22.14-X	(000907)	23.01-X	(000918)	23.10-X
			(000938)	24.01-X	(000959)	24.10-X	(000970)	24.27-X	(000978)	25.04-X	(000993)	25.14-X
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(002595)	71.06	20	(002588)	71.02								
(002597)	71.07	25										
(002604)	71.10	50	(002586)	71.06								
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(002608)	71.13	60	(002605)	71.11								
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(002615)	72.01	65	(002610)	71.14								
(002616)	72.02	67										
(002617)	72.03	68										
(002619)	72.04	70	(002614)	71.16								
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(002625)	72.07	999										

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(002659)	75.06		(002662)	75.07								
(002662)	75.07	20										
(002668)	75.13		(002672)	75.14								
(002672)	75.14	30										
(002675)	75.17	40										
(002676)	75.18		(002678)	75.19								
(002679)	75.18	41										
(002681)	75.20	50	(002674)	75.18								
(002682)	75.21		(002685)	75.22								
(002685)	75.22	51										
(002687)	75.23	70	(002674)	75.18								
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(002690)	75.28		(002687)	75.20								
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(002700)	70.04 15	(002700)	70.00
(002701)	70.00 20	(002700)	70.00
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(002700)	70.13 20	(002702)	70.00
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(002700)	70.02 00	(002700)	70.01
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(002702)	70.04 70	(002700)	70.00
(002703)	70.05 70	(002700)	70.00
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(002700)	70.07 00	(002702)	70.04
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(002700)	70.13 100	(002700)	70.12
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(002700)	00.03	(002700)	00.00
(002700)	00.00 110	(002700)	00.12
(002700)	00.11	(002700)	00.12
(002700)	00.12 140	(002707)	70.14
(002707)	00.13 000	(002707)	70.14

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE SUCCESS

(002700)	03.01 SUCCESS	(000001)	2.11-X
(000001)	03.02 10	(000010)	03.01
(000002)	03.03	(000004)	03.00
(000003)	03.04 12	(000007)	03.03
(000004)	03.05 15	(000010)	03.01
(000005)	03.06 20	(000077)	04.23
(000007)	03.07	(000027)	03.07
(000009)	03.08 20	(000029)	03.00
(000003)	03.09 24	(000030)	03.00
(000030)	03.10 20	(000030)	03.00
(000030)	03.11 20	(000030)	03.00
(000031)	04.01 20	(000037)	03.07
(000040)	04.04 101	(000040)	04.00
(000000)	04.00 102	(000040)	04.00
(000000)	04.11 100	(000040)	04.00
(000000)	04.10 110	(000040)	04.00
(000000)	04.10 111	(000040)	04.00
(000000)	04.10 112	(000040)	04.00
(000070)	04.20 114	(000040)	04.00
(000071)	04.21 110	(000040)	04.00
(000077)	04.23 200	(000040)	04.00
(000001)	05.01 200	(000040)	04.00
(000000)	05.03 200	(000040)	04.00
(000000)	05.04 200	(000040)	04.00
(000000)	05.05 210	(000040)	04.00
(000000)	05.06 204	(000040)	04.00
(000000)	05.07 200	(000040)	04.00
(000000)	05.08	(000040)	04.00
(000010)	05.10 200	(000040)	04.00
(000011)	05.11 200	(000040)	04.00
(000012)	05.12 270	(000040)	04.00
(000017)	05.13 200	(000040)	04.00
(000010)	05.14 200	(000040)	04.00
(000007)	05.01 200	(000040)	04.00
(000000)	05.02 207	(000040)	04.00
(000000)	05.03 200	(000040)	04.00
(000000)	05.04 200	(000040)	04.00

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1002920	08 08	300	(002913) 05 12 (002916) 05 14

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE DM400

(002931)	09 01	DM400	(00107) 2 31-X
(002970)	09 08		(002970) 09 07
(002970)	09 07	501	
(002970)	09 09	505	(002970) 09 08
(002970)	09 10		(002980) 09 11
(002980)	09 11	507	
(002985)	09 12	520	(002970) 09 08

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE FTOTAL

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(003014)	02 02	100	(003070) 03 14 (003001) 03 10
(003015)	02 03		(003017) 02 04
(003017)	02 04	101	
(003022)	02 07	103	
(003027)	02 08	104	
(003028)	02 10	105	
(003030)	02 12	110	(003026) 02 08 (003027) 02 09
(003037)	02 16	120	(003029) 02 11
(003038)	02 17		(003039) 02 18
(003039)	02 18	125	
(003041)	02 19	150	(003021) 02 06
(003043)	02 21	152	
(003046)	02 24		(003047) 02 25
(003047)	02 25	155	
(003048)	02 26	200	(003042) 02 20
(003050)	02 27		(003080) 03 08
(003053)	02 29	202	
(003058)	02 32	204	
(003060)	02 33	205	
(003062)	03 01	210	(003050) 02 31 (003059) 02 32
(003065)	01 05	270	(003051) 02 14
(003067)	03 06		(003068) 03 07
(003069)	03 07	275	
(003080)	03 08	300	(003052) 02 28
(003070)	03 11	310	(003071) 03 10
(003074)	03 13		(003075) 03 14
(003075)	03 14	312	
(003077)	03 15	320	(003071) 03 10
(003078)	03 17		(003080) 03 18
(003080)	03 18	322	
(003082)	03 18	330	(003071) 03 10
(003083)	03 20		(003084) 03 21
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CHART TITLE - INTRODUCTORY COMMENTS

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(003093)	08 01	FURDST	(000077) 2 20-X
(003114)	08 03		(003117) 08 04
(003117)	08 04	100	
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(000107)	00.14	100	(000130)	00.10	(000133)	00.13
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CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE PAGES

(000101)	00.01	PURCSO	(000102)	2.00-2			
(000100)	00.02	10	(000105)	00.01			
(000101)	00.03		(000111)	00.04			
(000111)	00.04	12					
(000112)	00.05	15	(000106)	00.01			
(000100)	00.07	20	(000124)	00.11	(000120)	00.10	
(000101)	00.08	21					
(000103)	00.11	22	(000104)	00.07			
(000107)	00.13	31					
(000100)	00.14	32	(000108)	00.12			
(000100)	00.15	33					
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(000107)	00.19	100	(000122)	00.10			
(000120)	00.20		(000126)	100.21			
(000111)	00.22	101					
(000101)	100.01	102	(000140)	00.21			
(000104)	100.03	100					
(000102)	100.05	110	(000143)	00.24	(000100)	00.27	(000102)
(000100)	100.11	111			(000104)	100.02	(000104)
(000100)	100.12	112	(000104)	100.10			
(000107)	100.13	114					
(000100)	100.14	115	(000100)	100.12			
(000177)	100.16	116					
(000104)	100.21	200	(000170)	100.17			
(000104)	100.25		(000100)	101.04			
(000100)	100.28	201	(000100)	100.27			
(000104)	101.01	202	(000100)	100.27			
(000100)	101.04	200	(000101)	100.28			
(000102)	101.11		(000124)	101.12			
(000104)	101.12	400					
(000100)	101.17		(000103)	100.01			
(000111)	101.18	001	(000100)	101.17			
(000107)	101.21	003	(000100)	101.25			
(000104)	101.23	002	(000100)	101.17			
(000103)	102.01	000	(000100)	101.22			

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE PAGES

(000107)	100.01	NACRCSO	(000100)	2.15-2			
(000112)	100.02	10	(000110)	100.01			
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(000114)	100.04	12					
(000115)	100.05	15	(000113)	100.03			
(000117)	100.06	20	(000110)	100.01			
(000110)	100.07		(000110)	100.25			
(000100)	100.08	20	(000110)	100.27			
(000105)	100.09	34	(000100)	100.28			
(000100)	100.10	20					
(000120)	100.11	20	(000105)	100.20			
(000102)	100.01	20	(000100)	100.28			
(000104)	100.02	100	(000110)	100.27			
(000120)	100.04	101					
(000144)	100.05	102	(000107)	100.03			
(000107)	100.10	104					
(000100)	100.12	100	(000103)	100.27			
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(000100)	100.17	111					

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(003404)	107 01	205	(003470)	106 27	
(003405)	107 03	210			
(003406)	107 04	220	(003403)	107 02	
(003408)	107 05	270	(003478)	106 27	(003405) 107 03
(003409)	107 06		(003402)	107 00	
(003402)	107 00	300			
(003400)	107 11	702			
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(003523)	130 00		(003534)	108 12	
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CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE MUSKAO

(003444)	111 01	NOXAO	(000004)	2 17 R	
(003468)	111 02	70	(003570)	111 04	
(003469)	111 03	75			
(003571)	111 05	80	(003468)	111 02	
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(003577)	111 08	90	(003573)	111 07	(003574) 111 13
(003570)	111 09	95	(003576)	111 14	
(003402)	111 10	100	(003405)	111 12	
(003574)	111 12	105			
(003574)	111 13	05			
(003575)	111 14	05			
(003579)	111 15	115	(003403)	111 11	
(003411)	111 17	120	(003400)	111 10	
(003406)	111 19	110	(003403)	111 11	

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE PRIOAE

(003601)	114 01	PRIOAE	(000074)	2 22 R	
(003622)	114 02		(003625)	114 03	
(003623)	114 03	10			

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE QUIKIE

(003743)	117 01	QUIKIE	(000060)	2 18 R	
(003770)	117 02		(003700)	117 03	
(003700)	117 03	10			
(003704)	117 05		(003705)	117 05	
(003705)	117 06	20			
(003700)	117 08		(003705)	117 10	
(003703)	117 10	30			
(003700)	117 12	50	(003705)	117 11	
(003000)	117 13	60	(003700)	117 12	(003700) 117 12
(003011)	118 01	70	(003700)	117 12	(003700) 117 12 (003700) 117 12
(003012)	118 02	70			
(003014)	118 03	74	(003011)	118 01	
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003006	110.15	02	
003008	110.10		003005: 110.10
003009	110.10	04	
003013	110.21	00	003705: 117.11
003014	110.22	100	
003016	110.23	102	
003017	110.01	104	
003018	110.02	110	003016: 110.04
003019	110.03		003005: 110.04
003020	110.04	114	
003022	110.05		003004: 110.07
003024	110.07	116	
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003026	110.12	122	003002: 110.11
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003071	110.14	126	003013: 110.21
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003082	120.01	136	003072: 110.15
003083	120.04	138	003070: 110.10
003084	120.05	138	003001: 110.10
003091	120.06	139	
003092	120.07	138	
003095	120.08	200	003001: 120.05
003097	120.09	201	
003098	120.13	202	003004: 120.12
003099	120.14	204	003004: 120.12
003100	120.15	206	003007: 120.13
003013	120.17	204	003011: 120.10
003014	120.18	205	003011: 120.10
003017	121.01	208	003015: 120.10
003018	121.02	210	003015: 120.10
003023	121.03	208	003005: 120.08
003024	121.04	202	
003033	121.05	204	003031: 121.07
003035	121.06	205	003031: 121.07
003036	121.10	208	003024: 121.08
003011	121.12	400	003023: 121.03
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003031	121.17	404	003015: 121.10
003033	122.01	405	003016: 121.10
003034	122.02	405	003032: 121.17
003035	122.04	405	003011: 121.12
003036	122.05	412	
003031	122.06	400	003005: 120.04
003037	122.08	402	003005: 120.07
003070	122.09	470	003005: 120.07
003072	122.10	400	003005: 120.08
003074	122.12	402	
003077	122.13	400	003073: 122.11
003078	122.14	402	
003083	122.15	500	003000: 122.05
003084	122.16	502	003077: 122.13
003082	122.21	510	
003084	123.01	520	003001: 122.20
003087	123.02	500	003003: 122.15
003088	123.03		004000: 123.04
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 100410) 104.20 000 100410) 104.20
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 100417) 104.40 000 100417) 104.20

CHART TITLE - NON-FEDERAL STATEMENTS

CHART TITLE - INDUSTRIAL COMMENTS

CHART TITLE - CURRENT AND SPALT

100410) 127.01 SPALT 100417) 2.07-1
 100410) 127.02 2 100417) 127.00
 100410) 127.02 100410) 120.02
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 100410) 127.04 0 100410) 127.02
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 100410) 120.01 00 100410) 127.07
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 100400) 120.11 000
 100400) 120.13 100400) 120.14
 100400) 120.14 100
 100410) 120.16 100400) 120.00
 100410) 120.18 100
 100410) 120.18 100 100411) 120.17
 100417) 120.20 104 100414) 120.10
 100410) 120.21 100
 100401) 120.22 100 100417) 120.00
 100400) 120.23 40 100400) 120.21
 100407) 120.25 100400) 131.01
 100400) 120.27 100
 100400) 120.28 104
 100400) 120.28 000
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 100400) 120.02 170 100400) 120.00
 100400) 120.03 170
 100400) 120.04 174 100400) 120.00
 100400) 120.05 170 100400) 120.00
 100400) 120.05 170

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1004204	120.11	312										
1004205	120.12	300	1004201	120.10								
1004206	120.13	300										
1004207	120.14	320	1004203	120.12	1004271	120.10						
1004208	120.15	330										
1004209	120.16	300	1004200	120.00								
1004210	120.01	100	1004230	120.05								
1004211	120.02	100	1004241	120.07								
1004212	120.03	100										
1004213	120.04	100	1004243	120.02								
1004214	120.05	100	1004200	120.00								
1004215	120.06	101	1004250	120.00								
1004216	120.07	100										
1004218	120.08	200	1004220	120.27								
1004270	121.01	400	1004201	120.14	1004200	120.10						
1004277	121.04		1004203	121.07								
1004283	121.07	500										
1004288	121.13	503										
1004291	121.14	500	1004200	121.12								
1004292	121.15	507										
1004293	121.16	500	1004201	121.14								
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CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

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1004344	124.04	10								
1004347	124.05	20	1004343	124.03						
1004351	126.01	40	1004347	124.05						
1004353	126.02	50	1004351	126.01						
1004371	126.01	100	1004300	126.00	1004300	127.01				
1004377	126.02	00	1004301	126.01						
1004380	126.04	57								
1004382	126.05	100	1004300	124.01	1004345	124.04	1004300	126.02	1004300	126.03
1004377	126.07	110	1004305	126.00						
1004380	127.01	120	1004305	126.00						
1004373	127.02	140	1004300	127.01						
1004375	127.03	145	1004373	127.02						
1004370	127.04	160	1004373	127.02						
1004380	127.05	010								
1004383	127.07	030	1004370	126.01	1004300	126.07	1004370	127.03	1004370	127.05

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CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE ME10ST

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1004414	140.04	700		
1004417	140.05	705	1004413	140.03
1004418	140.05	720	1004418	140.04
1004424	140.08	721		
1004425	140.11	722		
1004431	140.12	724	1004420	140.10
1004432	140.13	725		
1004433	140.14	726	1004431	140.12
1004424	141.01	740		
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1004658	141.14	720	1004658	141.12
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1004659	141.16	720		
1004657	141.16	720		
1004670	141.20	724	1004658	141.10
1004670	141.21	820	1004658	141.10
1004677	141.24		1004670	141.25
1004670	141.25	820		
1004658	141.26	810		
1004658	141.24	810	1004658	141.23
1004658	141.23	814		
1004661	142.01	810	1004658	141.21
1004658	142.02	820	1004657	141.20
1004658	142.03	822		
1004658	142.04	824	1004658	142.02
1004657	142.05	825		
1004658	142.06	828	1004658	142.04
1004658	142.07	828	1004658	142.05
1004658	142.10	822	1004658	142.05
1004657	142.11	828	1004658	142.05
1004611	142.14	821		
1004614	142.16	822	1004610	142.13
1004610	142.17	823		
1004621	142.18	824	1004614	142.16
1004620	142.20	825		
1004620	142.22	825	1004621	142.19
1004620	142.22	827		
1004642	142.24	828	1004620	142.01
1004670	142.12	870		
1004670	142.13		1004670	142.14
1004670	142.14	870		
1004670	142.15	880	1004671	142.11

COURT TITLE - NON-FEDERAL STATEMENTS

COURT TITLE - INTRODUCTORY COMMENTS

COURT TITLE - SIGNATURE WORKS

1004658	142.01	846E9	1004650	2.10-4
1004658	142.07	10	1004651	142.05
1004654	142.08	12		
1004650	142.08	14	1004658	142.07
1004650	142.10	20	1004651	142.05
1004651	142.12	22		
1004650	142.12	24	1004658	142.11
1004650	142.14	28	1004658	142.12
1004642	147.01	35	1004644	142.17
1004650	147.02		1004651	147.04
1004651	147.04	38		
1004650	147.05	40	1004644	142.17
1004651	147.05		1004650	147.11
1004650	147.06	42		
1004650	147.10	44		
1004650	147.11	46	1004650	147.07
1004650	147.12	50	1004651	147.08
1004651	147.14		1004650	147.12
1004650	147.15	52		
1004650	147.16		1004650	147.10
1004671	147.16	100	1004650	147.17
1004651	147.22		1004650	147.22
1004650	147.22	110		
1004651	148.01	200	1004650	147.17
1004670	148.02	202	1004650	148.22
1004700	148.10		1004700	148.12
1004700	148.11	2000		
1004700	148.15		1004700	148.17
1004700	148.15	2010		
1004700	148.27		1004707	148.22

01/08/78 TABLE OF CONTENTS AND REFERENCES

AUTOFLEX COURT SET - DEEP REFERENCES (SOURCE EVIDENCE NO. AND PAGE/FORM)

CARD NO	PAGE/FORM	NAME	REFERENCES	(SOURCE EVIDENCE NO. AND PAGE/FORM)
100-757	140.00	200		
100-758	140.01	200	100-753	140.02
100-759	140.01	300	100-000	147.05
100-760	140.12	400	100-753	140.02
100-761	140.13	404		
100-762	140.14	405	100-760	140.12
100-763	140.15	410	100-760	140.11
100-764	140.17	362	100-767	140.13
100-765	140.18	353		
100-001	140.18	304	100-760	140.17
100-002	140.00	375	100-767	140.10
100-003	140.02	305	100-000	140.10
100-004	150.01	307	100-005	140.21
100-010	150.02	300	100-007	140.02
100-015	150.05	300		
100-016	150.05	310	100-014	150.04
100-018	150.07	370	100-016	150.05
100-022	150.09	382	100-020	150.05
100-023	150.10	374	100-025	150.11
100-024	150.11	380		
100-025	150.12	330	100-023	150.10
100-010	151.01	312	100-016	150.05
100-020	151.05	313	100-020	151.04
100-027	151.06	714	100-070	152.00
100-024	151.08		100-025	151.09
100-026	151.09	315		
100-027	151.10	316	100-020	151.04
100-028	151.11		100-025	151.10
100-029	151.12	318		
100-030	151.13	318.3		
100-034	151.14	317	100-028	151.11
100-035	151.15	318	100-031	151.13
100-037	151.16	318.5	100-029	151.12
100-051	152.01	323	100-029	150.13
100-052	152.02	324		
100-053	152.03	325		
100-054	152.04	330	100-050	150.13
100-070	152.05	332	100-051	152.01
100-071	152.10	340	100-075	152.08
100-080	152.11		100-087	152.15
100-081	152.12	341		
100-082	152.13	342		
100-083	152.14	347	100-080	152.11
100-087	152.15	349	100-083	152.13
100-089	152.16	350	100-038	151.09
100-090	152.18		100-089	152.18
100-091	152.20	344	100-081	152.12
100-091	152.21	414	100-082	152.18
100-092	152.22	416		
100-093	152.23	420	100-087	152.19
100-094	153.01	421	100-082	152.25
100-012	153.04	422	100-010	153.03
100-013	153.05	423	100-030	154.05
100-019	153.07		100-018	153.08
100-016	153.08	424		
100-018	153.08	430	100-010	153.03
100-020	153.10		100-027	153.14
100-021	153.11	431		
100-022	153.12	433		
100-023	153.13	437	100-020	153.10
100-027	153.14	439	100-023	153.12
100-024	153.15	435	100-021	153.11
100-026	154.01	440	100-022	152.25
100-028	154.05	442	100-020	154.04
100-031	155.01	450	100-026	154.04
100-032	155.02		100-040	155.05
100-033	155.03	451		
100-034	155.04	453		
100-036	155.05	457	100-032	155.02
100-038	155.05	458	100-034	155.04
100-051	155.07	500	100-017	153.08
100-052	155.09		100-020	153.14
100-051	155.07		100-051	155.07

01/05/76 TABLE OF CONTENTS AND REFERENCES

AT/FLN QUOT SET - DEEP
REFERENCES (SOURCE SYMBOLS NO. AND PAGE/SET)

QUOT NO	PAGE/SET	NO	QUOT NO	PAGE/SET
100400	100.11	000		
100401	100.12	100	100400	100.00
100402	100.13	000	100400	100.10
100403	100.14	000	100407	100.11
100404	100.15	010		
100405	100.16	000	100400	100.14
100407	100.17	000		
100408	100.01	000	100400	100.10
100409	100.02	000	100400	100.10
100410	100.03	000	100407	100.00
100411	100.04	000	100407	100.00

100400 100.17

QUOT TITLE - NON-FEDERAL STATEMENTS

QUOT TITLE - INTRODUCTORY COMMENTS

QUOT TITLE - SUBROUTINE MESSAGES

QUOT NO	PAGE/SET	NO	QUOT NO	PAGE/SET	QUOT NO	PAGE/SET
100010	100.01	100007	100070	2.04-5		
100070	100.00		100070	100.04		
100070	100.04	100				
100070	100.00		100000	100.10		
100000	100.10	100				
100101	100.14		100100	100.10		
100100	100.10	100				
100100	100.10		100110	100.00		
100110	100.00	100				
100121	100.21		100120	100.24		
100120	100.24	100				
100131	100.30		100130	100.30		
100130	100.30	100				
100140	100.30		100140	100.34		
100140	100.34	100				
100147	100.01	170	100140	100.30		
100140	100.00	170	100100	100.04		
100140	100.00	170				
100154	100.00	170				
100150	100.00	170	100140	100.00		
100100	100.00	100				
100107	100.00	100	100100	100.07		
100100	100.10	100	100100	100.00		
100100	100.10		100100	100.13		
100100	100.10	100				
100170	100.10		100170	100.10		
100170	100.10	100				
100170	100.10	100	100171	100.17		
100177	101.01	100	100140	100.30		
100100	101.00	100	100300	100.30	100330	100.00
100100	101.07	100				
100100	101.00	000	100100	101.00		
100000	101.00		100000	101.10		
100000	101.10	000				
100001	101.10	000	100004	101.11	100040	100.04
100000	101.10	000	100000	100.00	100047	100.00
100000	101.10	000				
100000	101.17	010				
100004	101.10	010	100000	101.10		
100000	101.00	000	100007	101.01		
100000	101.01	000				
100000	102.01	000	100004	101.11	100040	100.00
100010	100.00	000				
100014	100.04	001	100000	100.00		
100010	100.00	000	100017	100.07		
100010	100.00	000				
100010	100.00	000				
100010	100.00	000	100010	100.00		
100001	100.11	000				
100004	100.10	000	100000	100.10		
100000	100.10	070	100000	100.11		
100000	100.10		100000	100.10		
100000	100.10	070				

CARD NO	PAGE/BOX	NAME	REFERENCES (SOURCE REGISTRY NO. AND PAGE/BOX)
(000227)	102.10		(000242) 102.03
(000230)	102.21 27*		
(000242)	102.03 27*		(000230) 102.70
(000247)	102.26 30*		
(000248)	102.26 30*		
(000260)	103.01 30*		(000260) 101.20
(000260)	103.03 33*		(000260) 101.20
(000260)	103.03		(000260) 103.01
(000270)	103.04 33*		(000270) 103.00
(000271)	103.05 33*		
(000275)	103.07 33*		(000270) 103.04
(000274)	103.08 33*		(000270) 103.00
(000275)	103.08 34*		(000263) 101.10 (000270) 103.04 (000273) 103.07
(000270)	103.11		(000262) 103.12
(000281)	103.12 34*		
(000280)	103.14		(000280) 103.10
(000280)	103.15 34*		
(000282)	103.18		(000274) 103.10
(000284)	103.19 30*		
(000280)	103.22		(000303) 103.20
(000300)	103.04 35*		
(000303)	103.25 30*		(000290) 103.23
(000304)	103.27 40*		(000293) 101.14
(000305)	103.28 40*		
(000310)	103.29 40*		(000304) 103.27
(000313)	103.30 40*		(000310) 103.29
(000316)	103.32		(000320) 103.35
(000318)	103.34 40*		
(000320)	103.35 40*		(000317) 103.33
(000325)	104.01 47*		(000310) 103.29
(000328)	104.03		(000332) 104.00
(000330)	104.05 47*		
(000332)	104.05 47*		(000320) 104.04
(000330)	104.07 40*		(000310) 103.29
(000330)	104.08		(000343) 104.11
(000341)	104.10 40*		
(000343)	104.11 40*		(000340) 104.00
(000340)	104.13		(000351) 104.10
(000350)	104.15 40*		
(000351)	104.16 40*		(000349) 104.14
(000350)	104.18		(000417) 100.00
(000350)	104.19 00*		(000350) 104.10 (000361) 105.01
(000361)	100.01 01*		(000350) 104.10
(000362)	100.02 01*		(000361) 105.01
(000417)	100.00 05*		(000370) 104.23
(000422)	100.11		(000440) 100.10
(000425)	100.12 71*		(000422) 100.11 (000430) 100.13
(000430)	100.13 70*		(000422) 100.11
(000432)	100.14 70*		(000430) 100.13
(000440)	100.16 70*		(000427) 100.12

CHART TITLE - NON-PROCEDURAL STATEMENTS

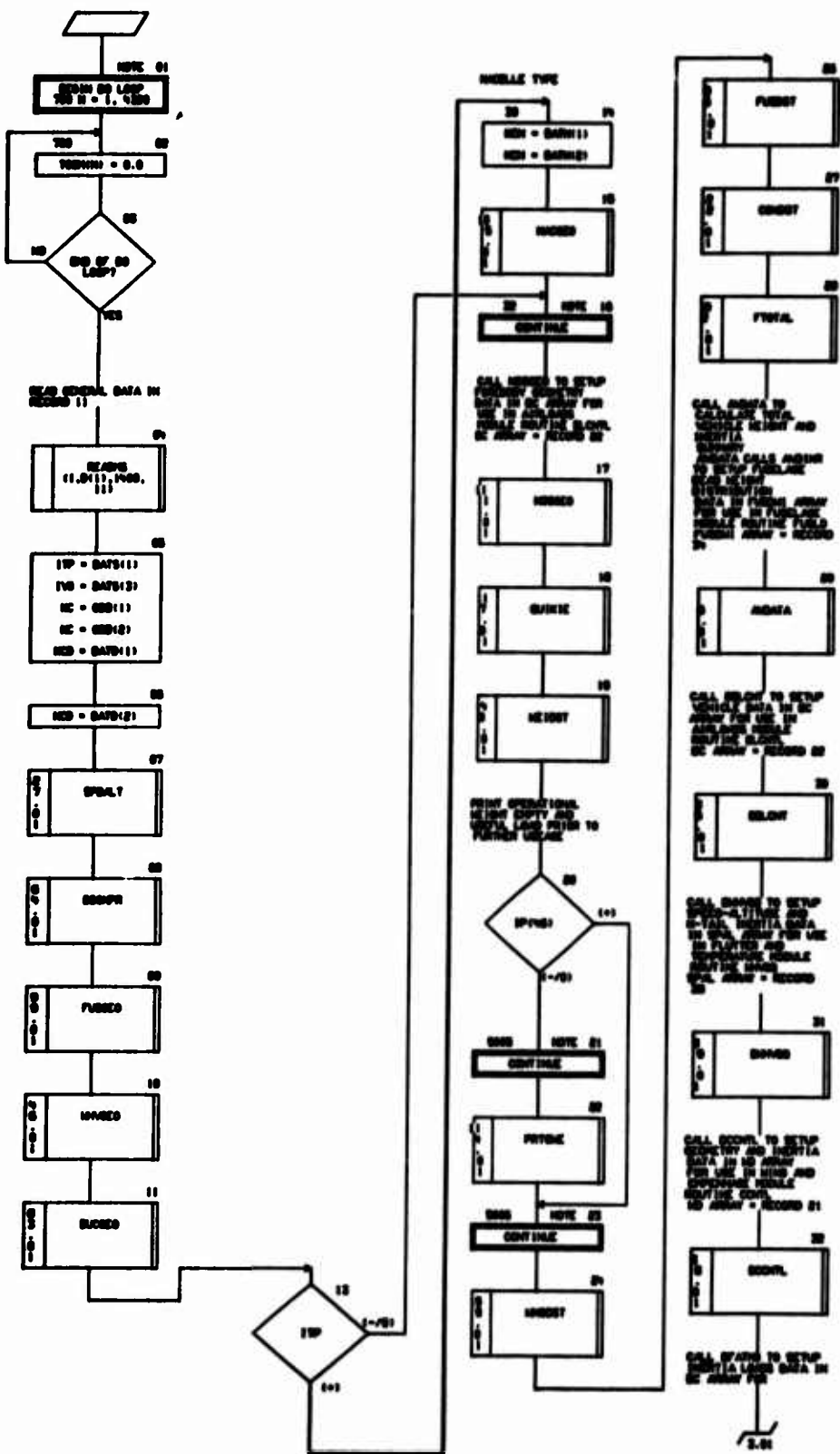
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0000001	01.02	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.07	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.03	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.04	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.01	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.07	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.03	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.01	UNDEFINED - 'LEADS' EXTERNAL REFERENCE
0000001	01.12	UNDEFINED - 'LEADS' EXTERNAL REFERENCE

CART TITLE - INVENTORY REPORTS

PROGRAM DATA

RAM CONTROL DATA MANAGEMENT, READ HT DIST. AND INERTIA
WRITTEN 25 MAY 1978

CHART TITLE - PROCEDURES



QURT TITLE - INSTRUCTION COMMENTS

.....
SERIALS DATA
.....



DATA TITLE - DERIVATIVE ADATA

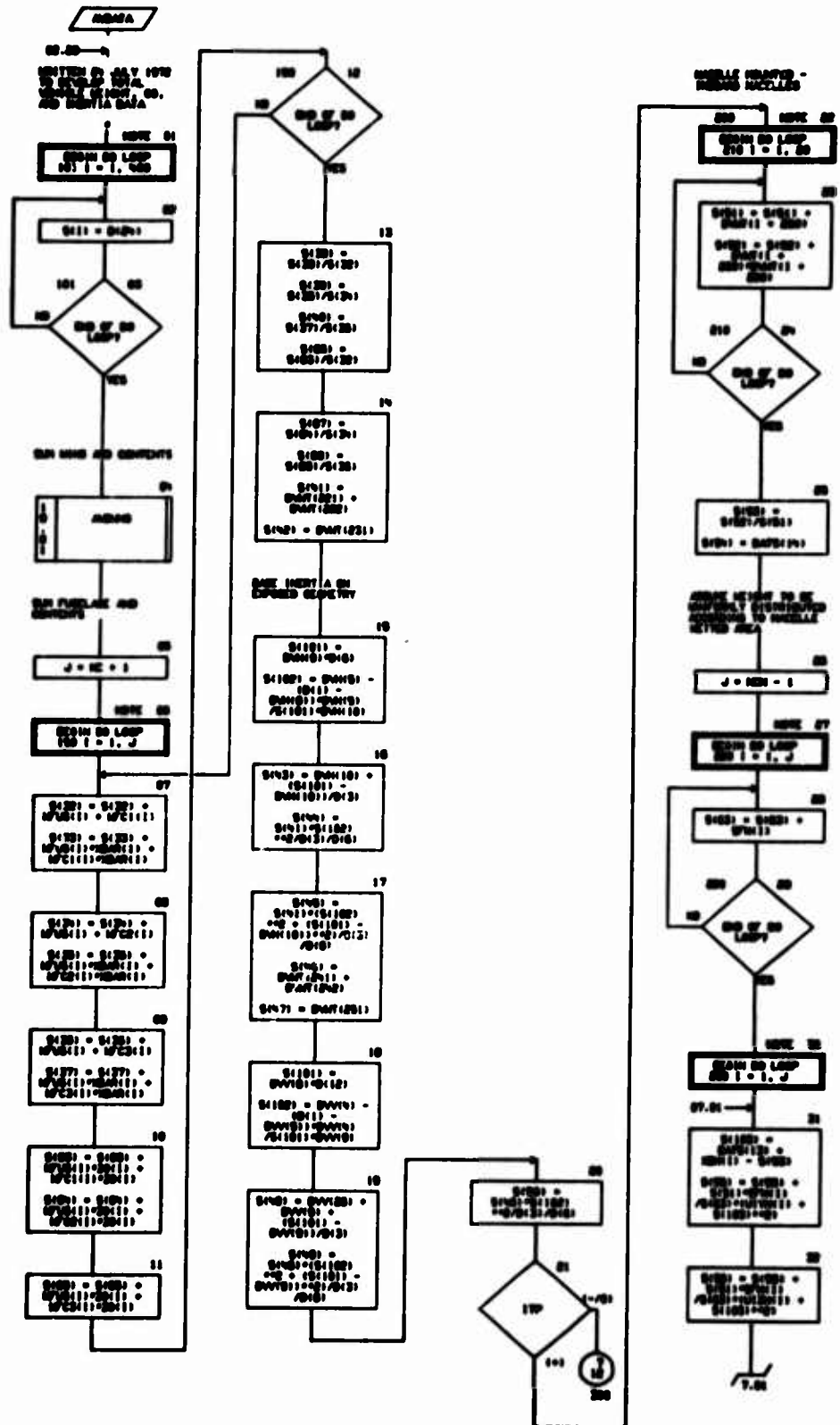
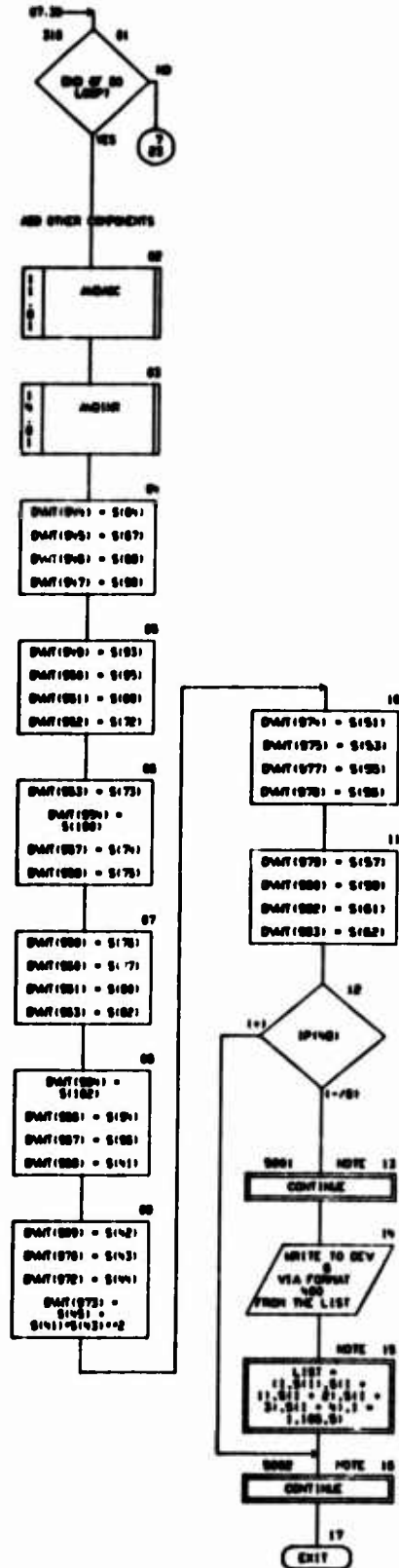


CHART TITLE - SUBROUTINE A8AFA



COURT TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCOM(4320)
COMMON /SPRINT/ IP(60)
DIMENSION B(700),GD(700),DV(2320),S(400),ND(200)
DIMENSION GD(150),GD(140),GD(140)
DIMENSION DATS(40)
DIMENSION DWH(30),DWH(30),DWH(440),DWH(150),DWT(1000)
DIMENSION ZD(20),NBAR(20),UI(120),UI(220)
DIMENSION SFN(10),UI(110),UI(210),NEN(10)
DIMENSION MFS(20)
DIMENSION MFC(120),MFC(20),MFC(20)
EQUIVALENCE (B(1),TCOM(1)),(B(1),TCOM(70)),(B(1),TCOM(140)),
  (S(1),TCOM(370)),(ND(1),TCOM(42))
EQUIVALENCE (GD(1),GD(25)),(GD(1),GD(30)),(GD(1),GD(34))
EQUIVALENCE (DATS(1),GD(40))
EQUIVALENCE (DWH(1),DWH(37)),(DWH(1),DWH(40)),(DWH(1),DWH(31)),
  (DWH(1),DWH(37)),(DWT(1),DWT(12))
EQUIVALENCE (ZD(1),DWB(1)),(NBAR(1),DWB(14)),
  (UI(1),DWB(40)),(UI(2),DWB(2))
EQUIVALENCE (SFN(1),DWH(7)),(UI(1),DWH(13)),
  (UI(2),DWH(14)),(NEN(1),DWH(11))
EQUIVALENCE (MFS(1),DWT(3))
EQUIVALENCE (MFC(1),DWT(7)),(MFC(1),DWT(8)),
  (MFC(1),DWT(6))
EQUIVALENCE (ITP,ND(1)),(NE,ND(15)),(NEN,ND(11))
FORMAT(10H 5) FROM ANDATA,7IX,2IH** ANDATA - (P(40) **
  (10, 370 4))

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUPERVISE A/DAC
.....

CHART TITLE - DERIVATIVE ANBAC

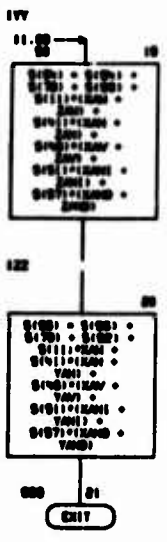
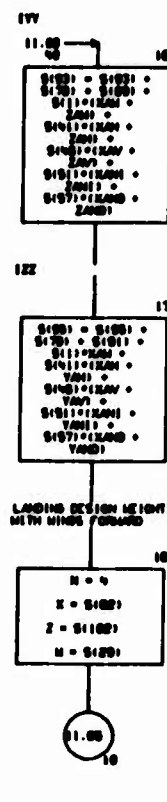
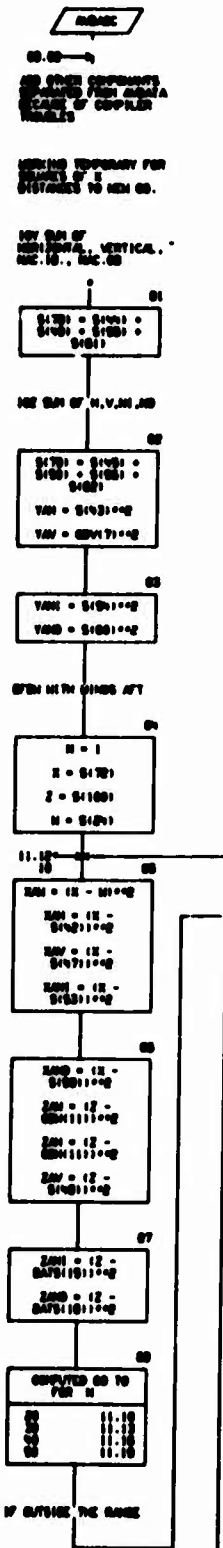


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

OPEN TCM4200
DIMENSION B(700),GD(700),DV(220),S(400),ND(200)
DIMENSION GDH(0),GDH(40),GDV(40)
DIMENSION S(40)
DO/WILDCARD (0(1),TCM(1)),(0(1),TCM(70)),(0V(1),TCM(40)),
  (0(1),TCM(20)),(ND(1),TCM(12))
DO/WILDCARD (GDH(1),GD(25)),(GDH(1),GD(30)),(GDV(1),GD(30))
DO/WILDCARD (S(1),S(40))
DO/WILDCARD (XAV,S(110)),(ZAV,S(111)),(XAV,S(112)),
  (XAV,S(113)),(XAV,S(114))
DO/WILDCARD (YAV,S(115)),(YAV,S(116)),
  (YAV,S(117)),(YAV,S(118))
DO/WILDCARD (ZAV,S(119)),(ZAV,S(120)),(ZAV,S(121)),
  (ZAV,S(122)),(ZAV,S(123))
DO/WILDCARD (U,S(124)),(Z,S(125)),(U,S(126))

```

CHART TITLE - INTRODUCTION CONTENTS

.....
SUBROUTINE A001R
.....



CHART TITLE - SUBROUTINE A01NR

00.00 →

THIS ROUTINE SETS UP FUELAGE WEIGHT DISTRIBUTION AND SPEED-ALTITUDE PROFILE DATA FOR USE IN FUELAGE MODULE ROUTINE FUEL0

WORKING STORAGE FOR COMBINING CALCS. MT, XCO, YCO, ZCO

SET UP INERTIA AND HEIGHT DISTRIBUTION DATA RECORDS STARTING FROM OWN THRU ST02 ----- 6 6-7 BLOCKS IN S(101) THRU S(1400) LIKE INBOARD MACELLE DATA

01

RT(1) = S(100)
RT(2) = S(100)
RT(3) = S(104)
RT(4) = S(104)

02

RT(4) = S(100)
RT(6) = S(170)
RT(7) = S(173)
RT(8) = S(100)

03

RT(10) = S(100)
RT(9) = S(100)

TOTAL WGT ZERO YCO(1) THRU (9), AND T10X(2) THRU (6)

04

RT(16) = S(100)
RT(17) = S(100)
RT(18) = S(100)
RT(20) = S(100)

05

RT(10) = S(100)
RT(120) = S(174)
RT(27) = S(176)
RT(28) = S(103)

06

RT(20) = S(103)
RT(26) = S(104)
RT(31) = S(170)
RT(32) = S(177)

07

RT(33) = S(100)
RT(35) = S(100)
RT(36) = S(100)

BASIC MING STORED IN S(170), COMPONENTS ADDED IF NECESSARY

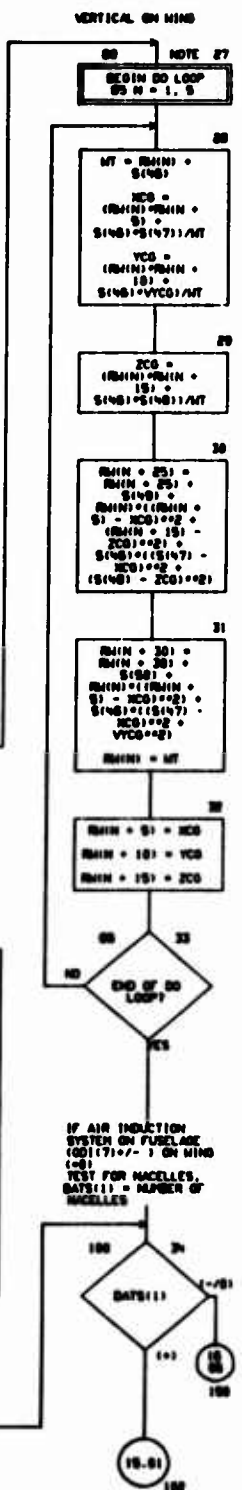
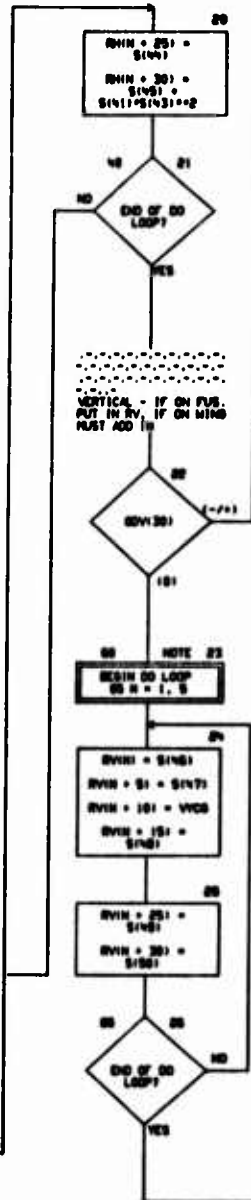
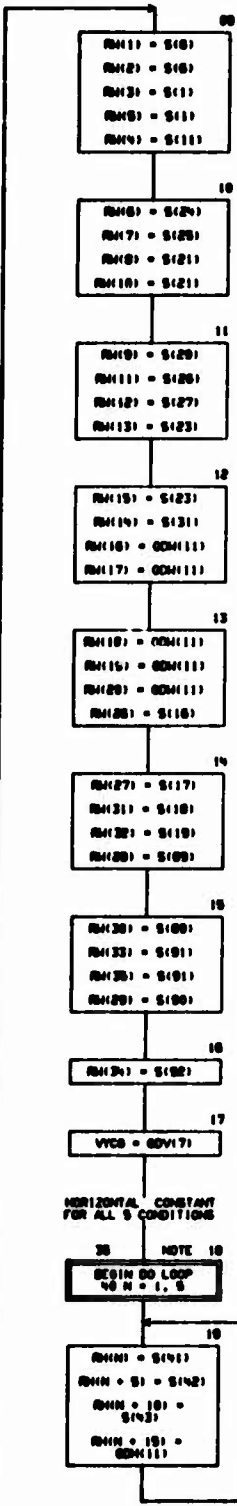


CHART TITLE - SUBROUTINE A010A

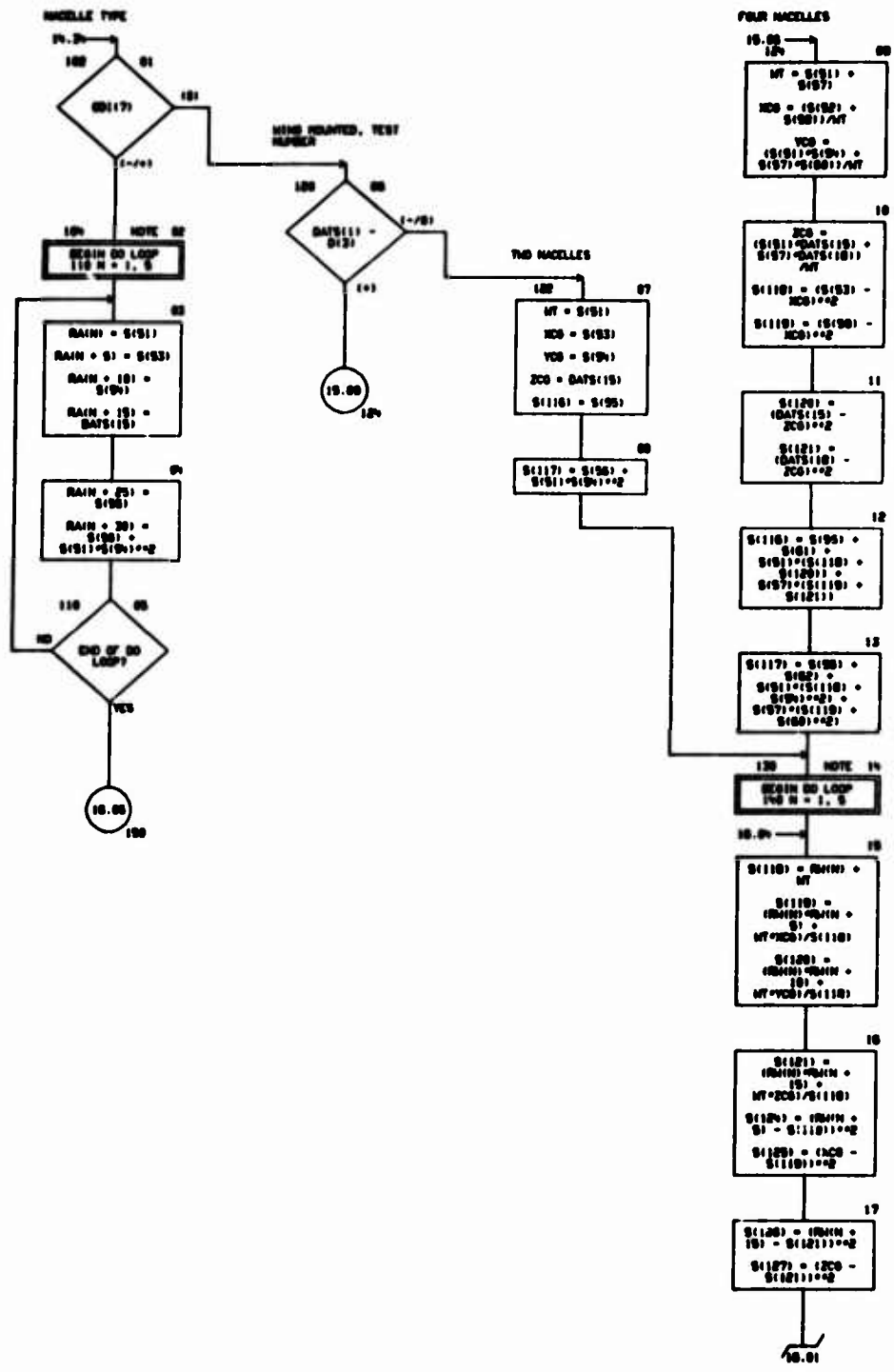
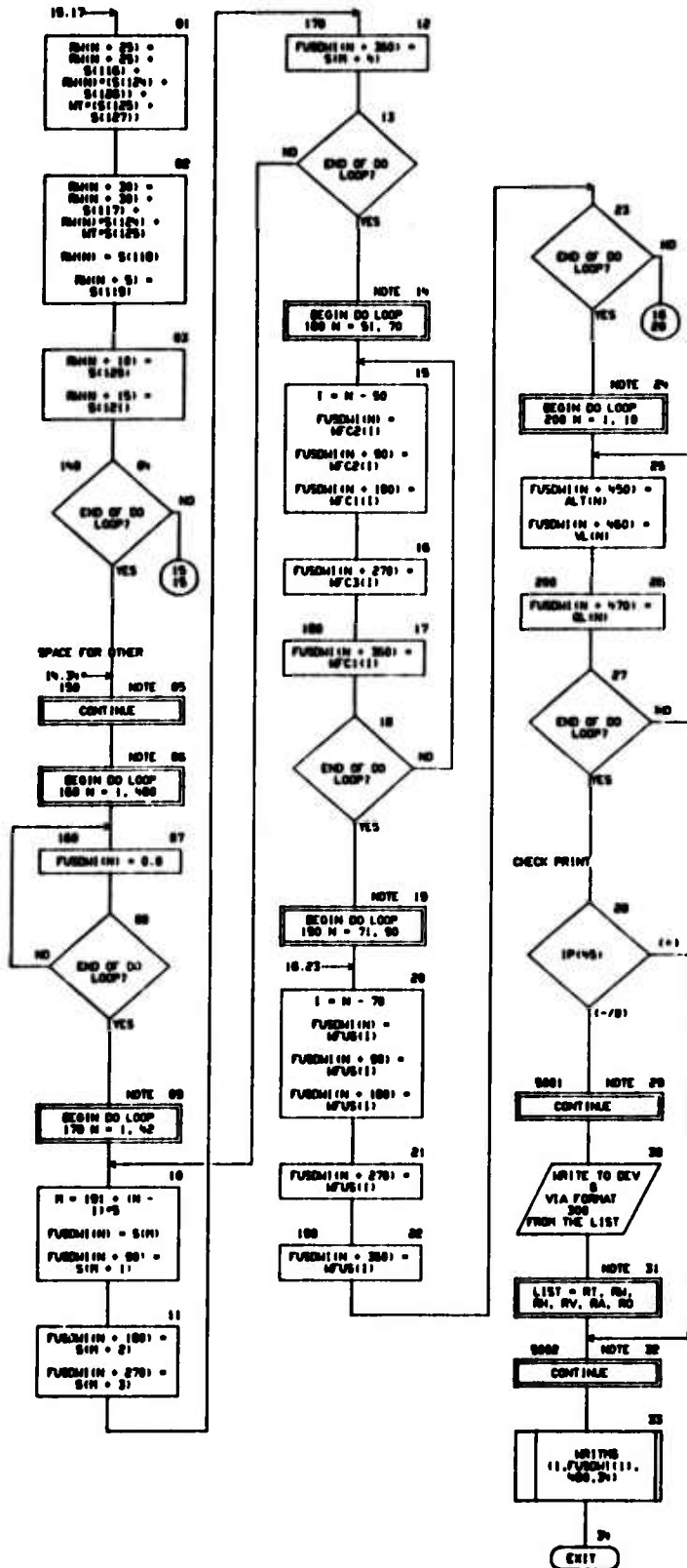


CHART TITLE - SUBROUTINE ANDINR



COURT TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCDM(4200)
COMMON /PRINT/ IP(60)
DIMENSION S(120),SD(700),SM(200),S(400),ND(200)
DIMENSION FUBM(400)
DIMENSION OD(20)
DIMENSION ODM(50),ODM(40),ODV(40)
DIMENSION DATS(40)
DIMENSION DMT(1000)
DIMENSION AL(10),VL(10),EL(10)
DIMENSION MFUS(20),MFC(20),MFC2(20),MFC3(20)
DIMENSION RT(20),RM(20),RM2(20),RV(20),RA(20),RD(20)
EQUIVALENCE (S(1),TCDM(1)),(OD(1),TCDM70(1)),(DM(1),TCDM(40(1))),
              (S(1),TCDM(370(1))), (ND(1),TCDM(412(1)))
EQUIVALENCE (OD(1),OD(1))
EQUIVALENCE (ODM(1),OD(20(1))), (ODM(1),OD(30(1))), (ODV(1),OD(3(1)))
EQUIVALENCE (DATS(1),OD(40(1)))
EQUIVALENCE (DMT(1),DM(112(1)))
EQUIVALENCE (AL(1),DV(1)), (VL(1),DV(7(1))), (EL(1),DV(0(1)))
EQUIVALENCE (MFUS(1),DMT(2(1))), (MFC(1),DMT(7(1)))
              , (MFC2(1),DMT(0(1))), (MFC3(1),DMT(0(1)))
EQUIVALENCE (RT(1),S(10(1))), (RM(1),S(20(1))), (RM(1),S(20(1))),
              (RV(1),S(20(1))), (RA(1),S(33(1))), (RD(1),S(20(1)))
EQUIVALENCE (MT,S(110(1))), (MCS,S(111(1))), (YCS,S(112(1))), (YCS,S(113(1)))
EQUIVALENCE (VYCS,S(110(1))), (AZCS,S(114(1)))
300 FORMAT(IH),SDCHECK PRINT FOR ANDNR,SM,21H** ANDNR - (PINS) **,
              //DMRT, SE10.6/6(3),SE10.6/
/DMRN, SE10.6 / 6( 3),SE10.6/ / /DMRD, SE10.6 /6(3),SE10.6 / /
/DMRV, SE10.6 / 6( 3),SE10.6/ / /DMRA, SE10.6 /6(3),SE10.6 / /
/DMRD, SE10.6 / 6( 3),SE10.6/ / /

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE AHEAD
.....

CHART TITLE - GENERATE AHEAD

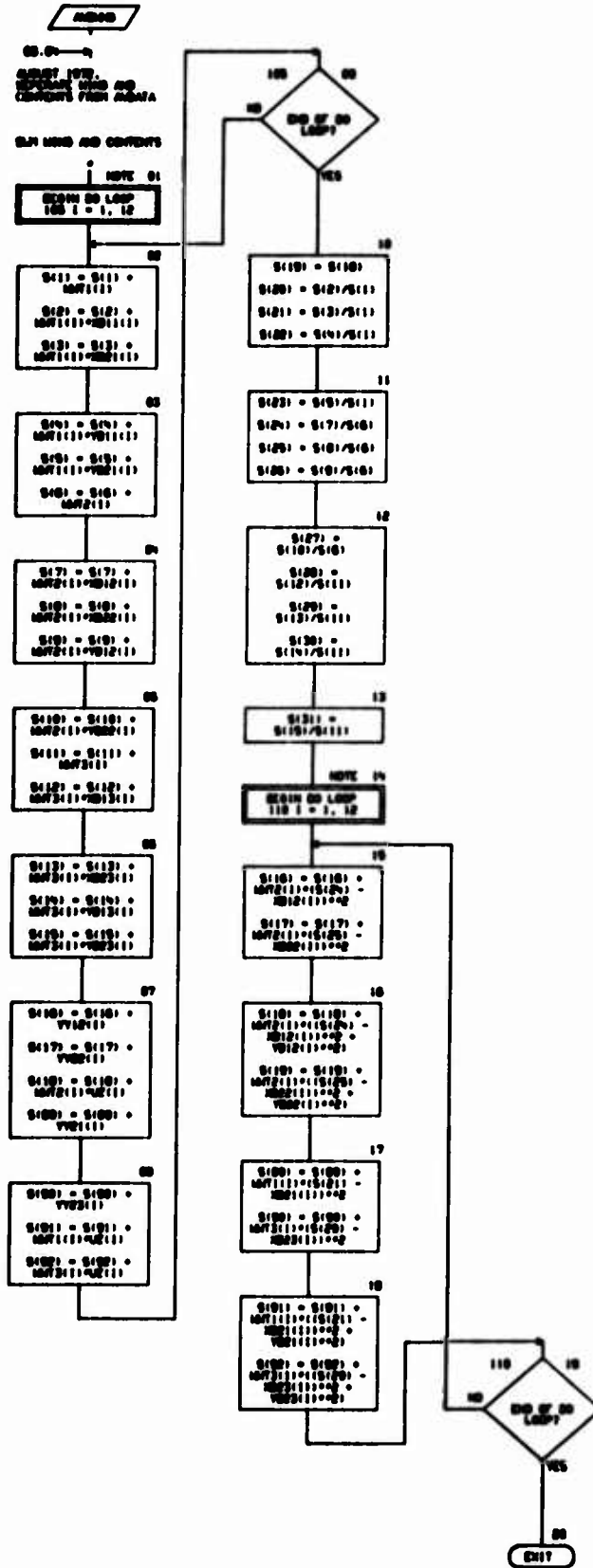


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCOM(4320)
DIMENSION D(700),SD(700),DV(2320),S(400),ND(200)
DIMENSION DWAT(1000)
DIMENSION      UZ(12),MNT(112),MNT2(12),MNT3(12),
      MB1(12),MB2(12),YB1(12),YB2(12),MB12(12),MB22(12),
      YB12(12),YB22(12),MB13(12),MB23(12),YB13(12),YB23(12),
      YV12(12),YV22(12),YV21(12),YV23(12)
EQUIVALENCE (D(1),TCOM(1)),(D(11),TCOM(70)),(DV(1),TCOM(401)),
      (D(11),TCOM(372)),(MB(1),TCOM(412))
EQUIVALENCE (DWAT(1),DV(112))
EQUIVALENCE      UZ(1),DWAT(401),
      MNT(1),DWAT(407),MNT2(1),DWAT(521),MNT3(1),DWAT(545),
      MB1(1),DWAT(560),MB2(1),DWAT(584),YB1(1),DWAT(593),
      YB2(1),DWAT(605),MB12(1),DWAT(617),MB22(1),DWAT(629),
      YB12(1),DWAT(641),YB22(1),DWAT(653),MB13(1),DWAT(665),
      MB23(1),DWAT(677),YB13(1),DWAT(689),YB23(1),DWAT(701),
      YV12(1),DWAT(713),YV22(1),DWAT(725),YV21(1),DWAT(737),
      YV23(1),DWAT(749)

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CHART TITLE - INTRODUCTORY COMMENTS

oo
INTRODUCTORY COMMENTS
oo



CHART TITLE - SUBROUTINE C0007

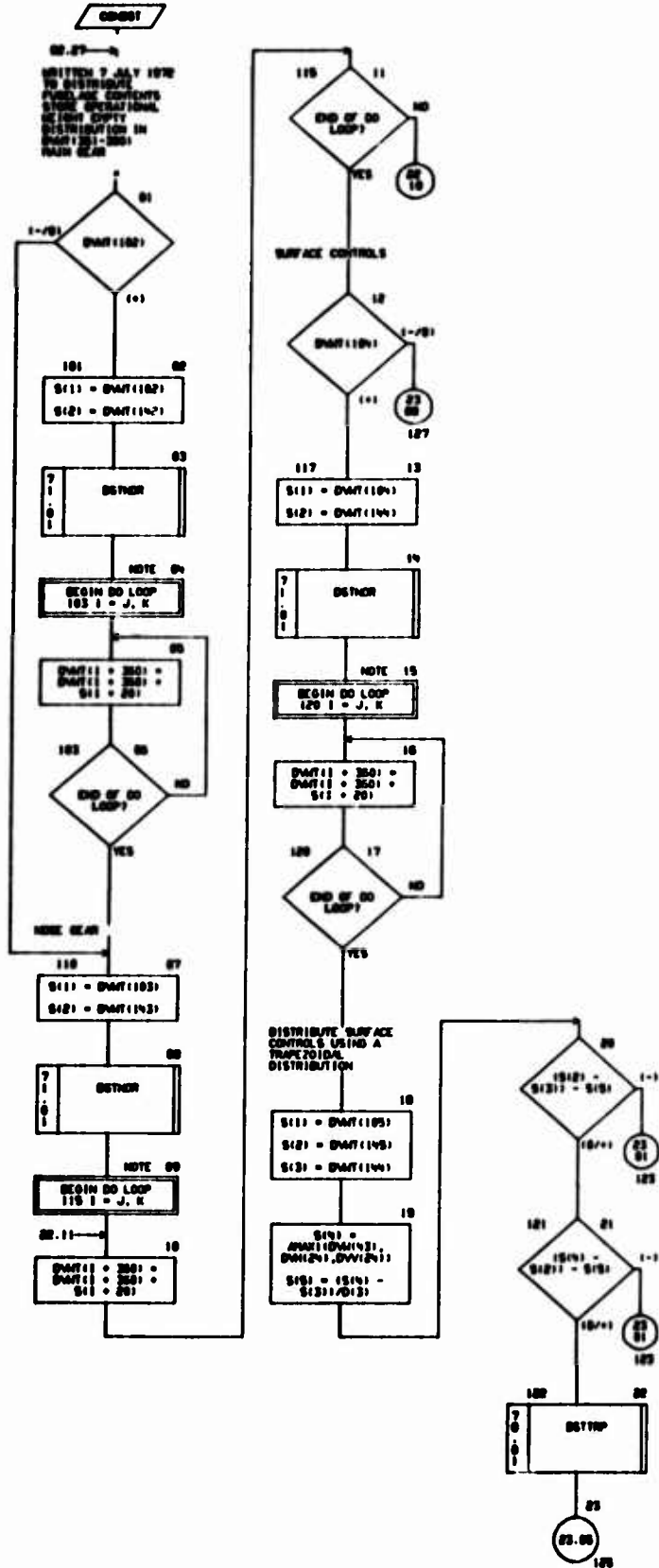
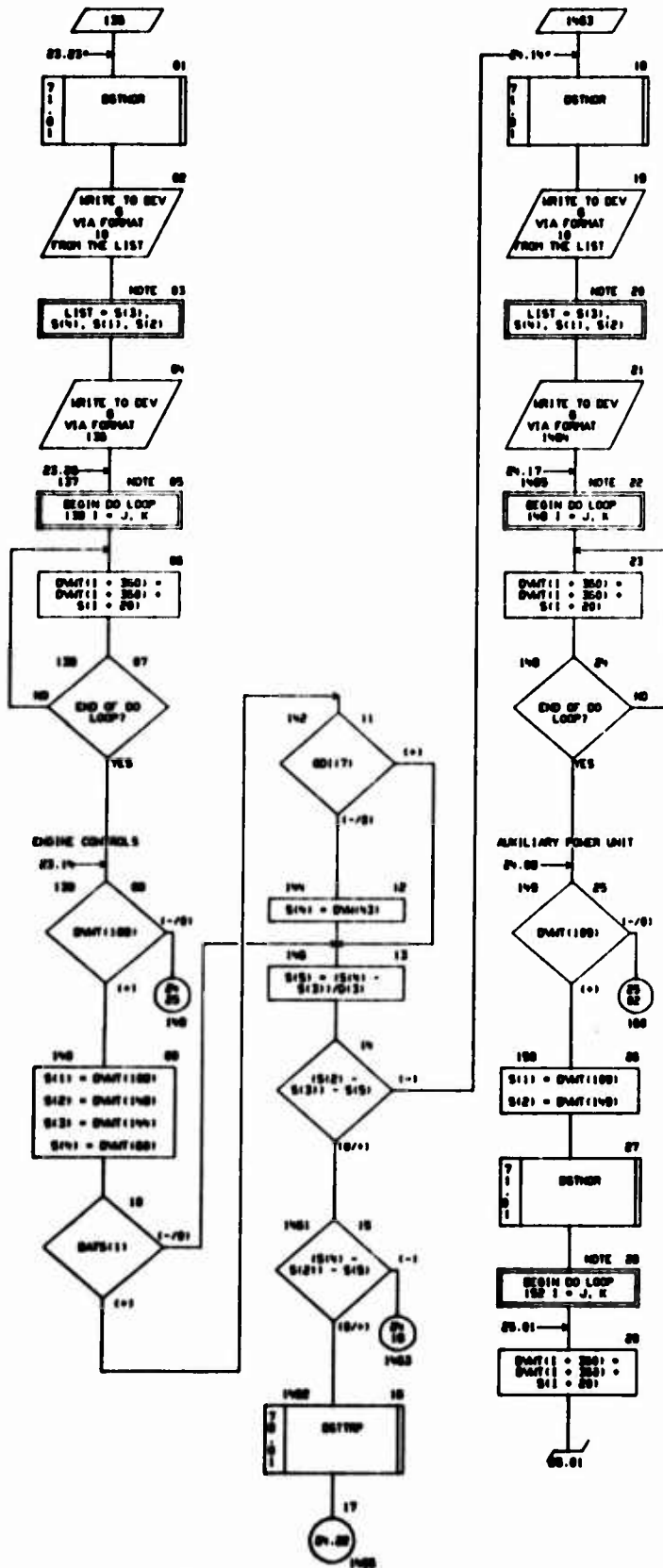


CHART TITLE - SUBROUTINE CONDST



ROUT TITLE - SUBROUTINE 00007

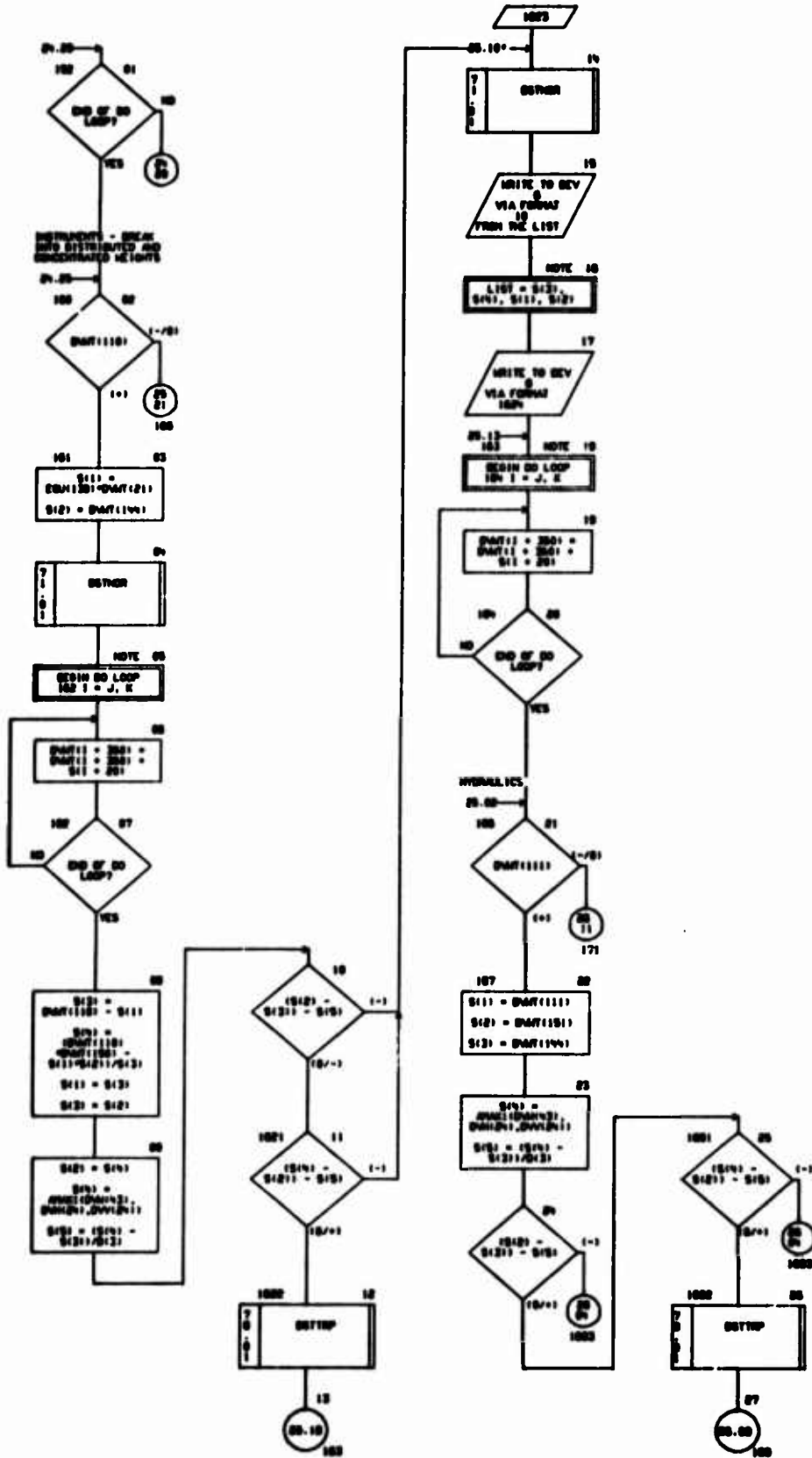


CHART TITLE - SUBROUTINE CONDST

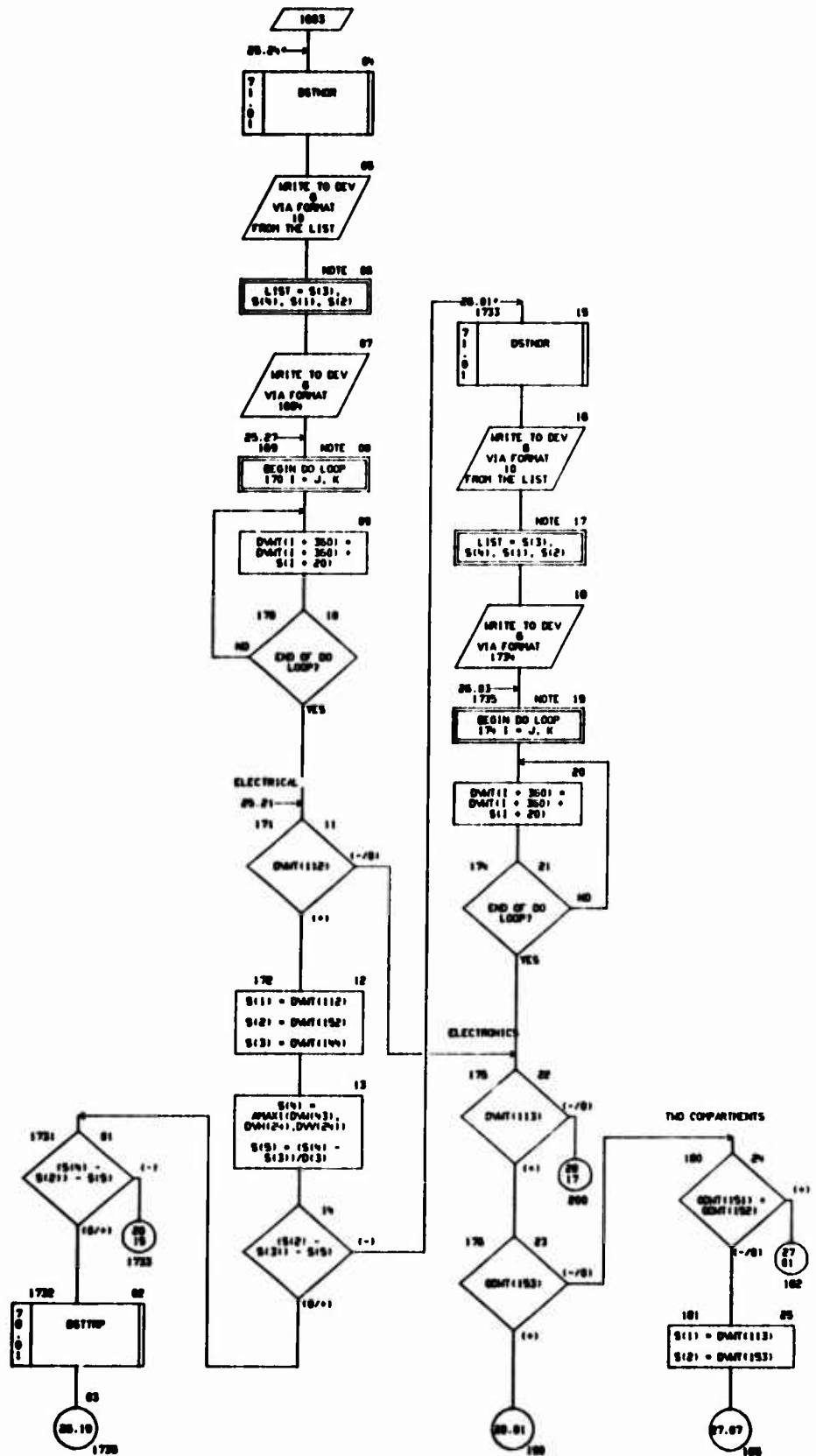


CHART TITLE - SUBROUTINE CONDST

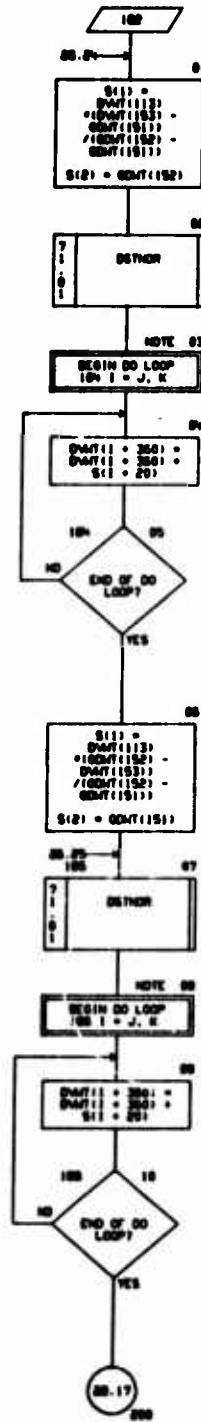


CHART TITLE - SUBROUTINE CONDST

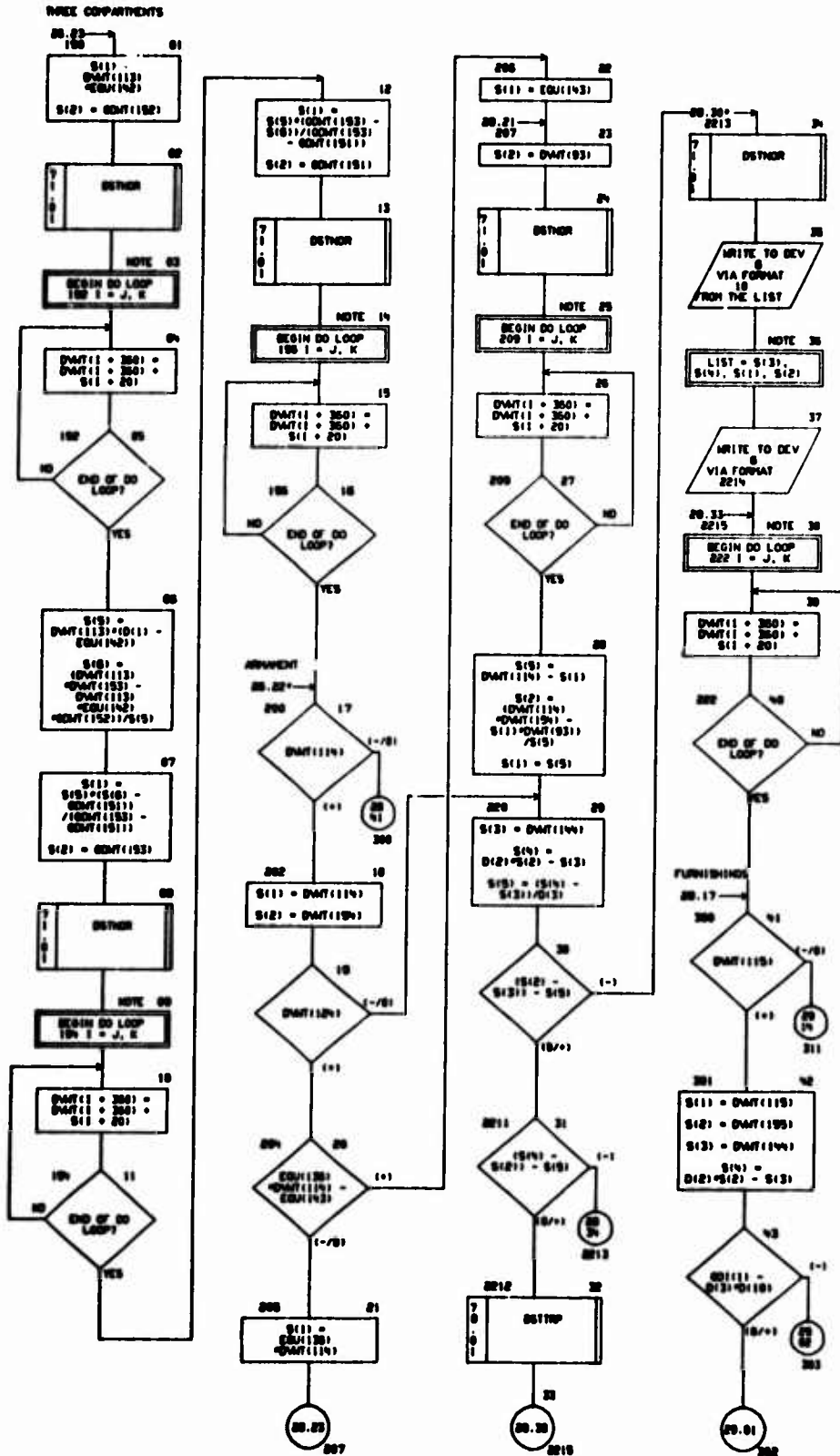


CHART TITLE - SUBROUTINE CONDST

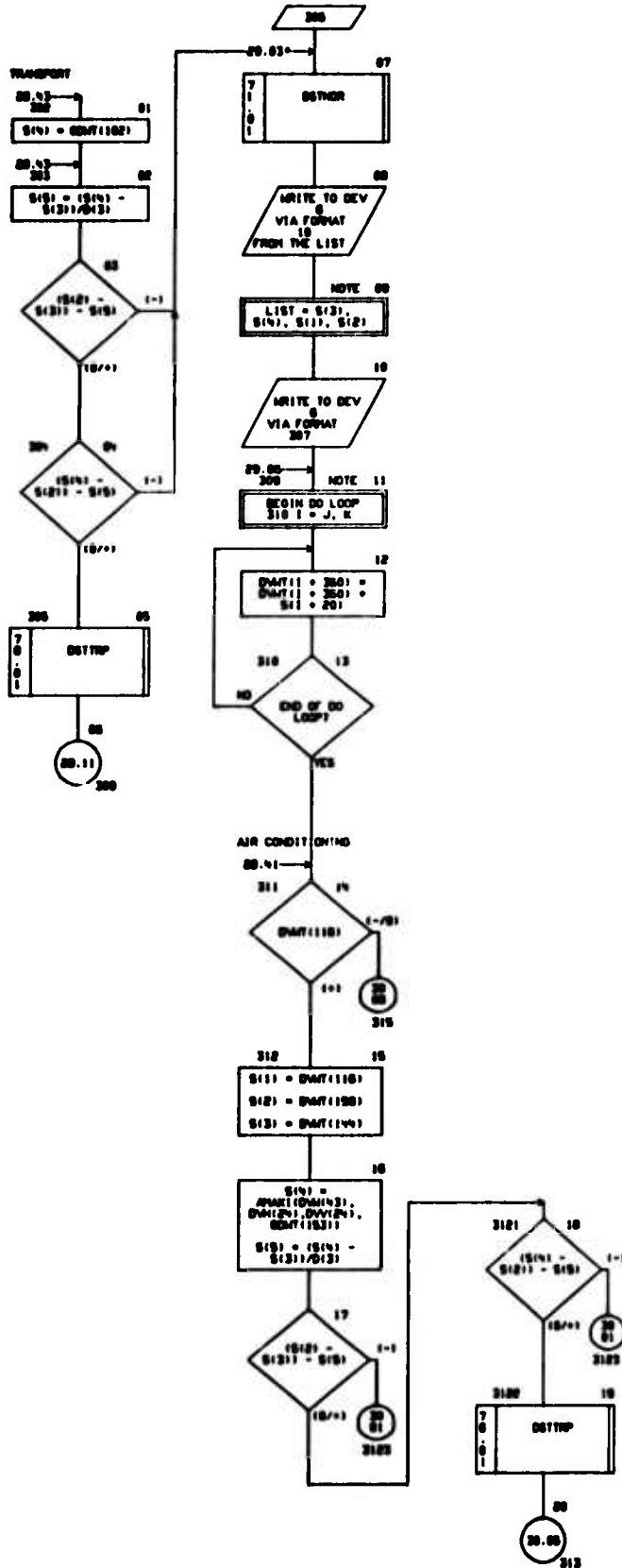
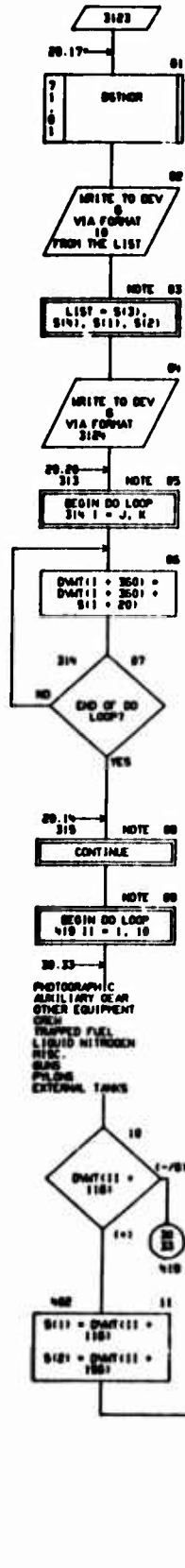


CHART TITLE - SUBROUTINE COND01



615

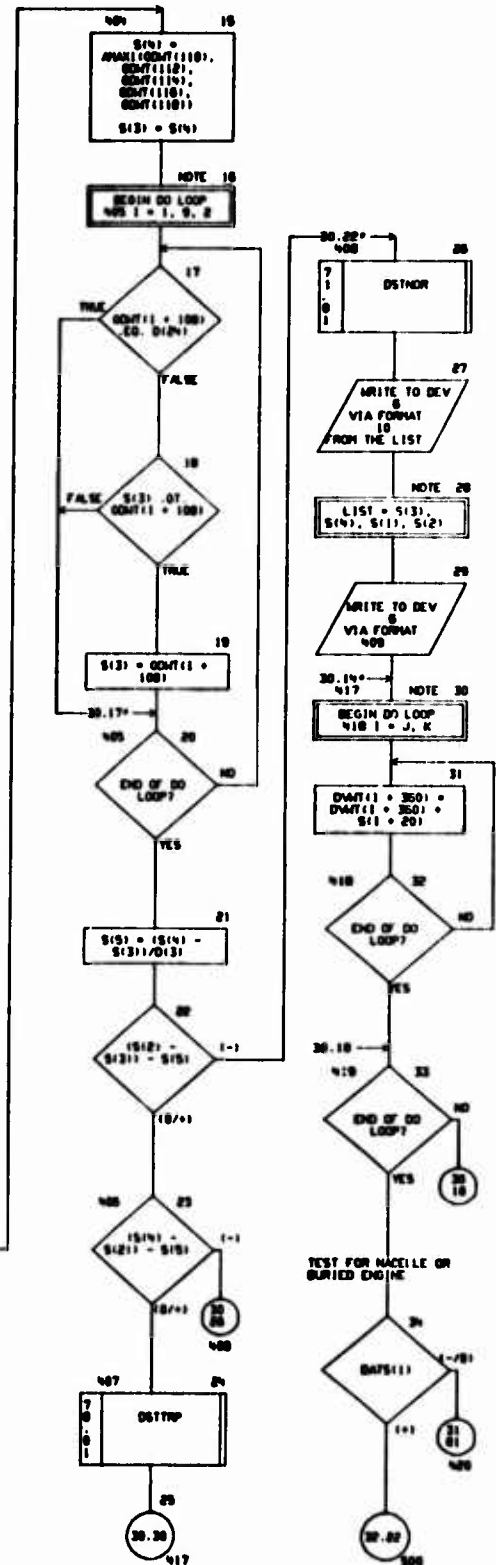


CHART TITLE - SUBROUTINE CODES

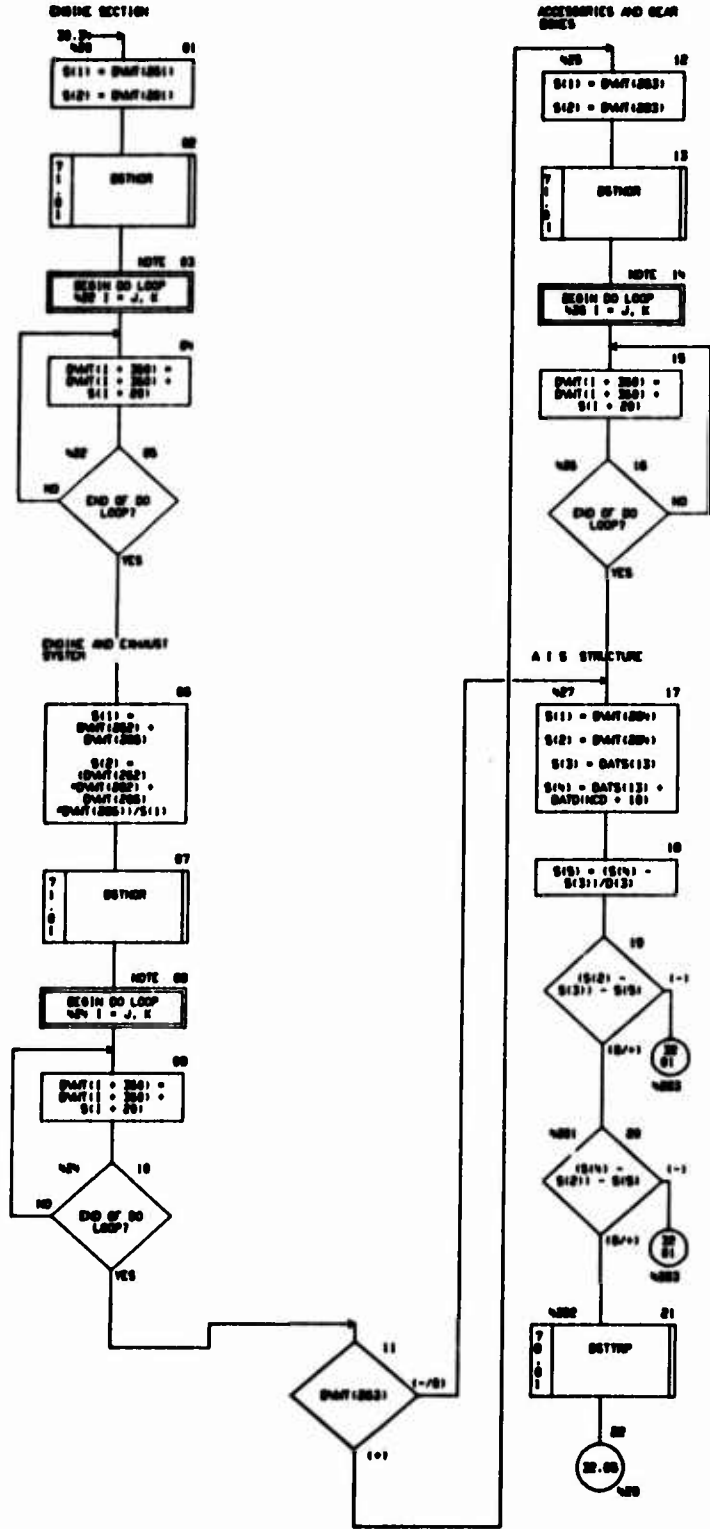
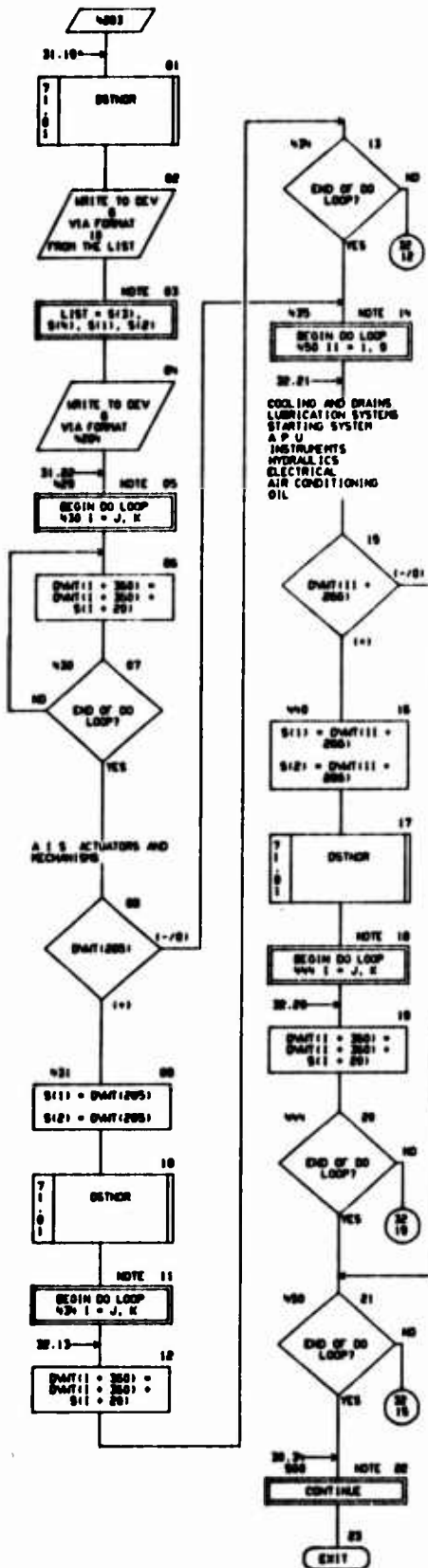


CHART TITLE - SUBROUTINE C0007



SHIRT TITLE - NON-PROCEDURAL STATEMENTS

```

        @PUSH TCON(20)
        @MDSIGN @1700,@01700,@V12200,@S1400,@D1200)
        @MDSIGN @S1200)
        @MDSIGN @01120,@007100,@00100,@BATS140,@BATD170)
        @MDSIGN @M150,@M130,@M130,@M150)
        @MVALDICE @011,@TCM111,@0011,@TCM17011,@0V11,@TCM14011,
        @011,@TCM13711,@0011,@TCM11211)
        @MVALDICE @E011,@01011)
        @MVALDICE @0111,@0111,@007111,@010111,@00111,@013011,
        @BATS11,@014011,@BATD11,@015011)
        @MVALDICE @M111,@M13111,@M111,@M137111,@M111,@M140111,
        @M111,@M11211)
        @MVALDICE @J,@D110011,@K,@D110011,@L,@D11011)
        @MVALDICE @M0,@D11171)
10      FORMAT@000*** WARNING FROM CONST *** /
        @M,@PREVIOUS F0RE AND AT1 LIMITS HERE. @F10.2/
        @M,F10.2,17H LBS AT PUS. STA.,F0.2,10H,21H@DISTRIBUTED BY @OTHER)
124     FORMAT@M,@PS,11H@SURFACE CONTROLS)
130     FORMAT@M,@PS,11H@FUEL SYSTEM)
140     FORMAT@M,@PS,11H@ENGINE CONTROLS)
1624    FORMAT@M,@PS,11H@INSTRUMENTS)
1004    FORMAT@M,@PS,10H@HYDRAULICS)
1704    FORMAT@M,@PS,10H@ELECTRICAL)
2014    FORMAT@M,@PS,11H@APPARATUS)
207     FORMAT@M,@PS,11H@FURNISHINGS)
2124    FORMAT@M,@PS,10H@HAIR CONDITIONING)
400     FORMAT@M,@PS,10H@TRAPPED FUEL)
4304    FORMAT@M,@PS,10H@S S STRUCTURE)

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE DELCHT
.....



CHART TITLE - SUBROUTINE BELOW

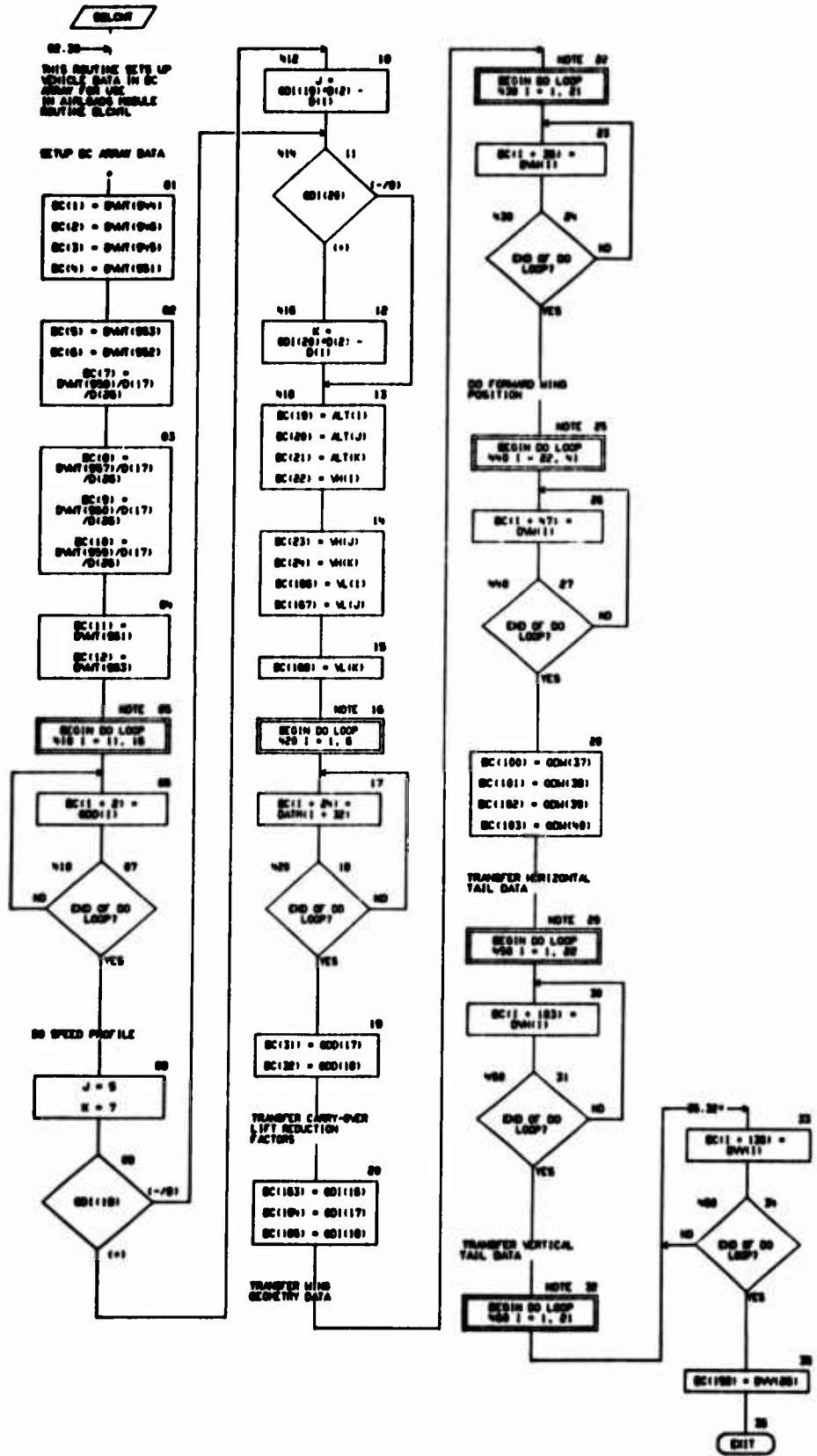


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

CONVIN TCON120)
DIMENSION D1(70),D2(70),D3(250),S(400),ND(200)
DIMENSION BC(200)
DIMENSION DD(20),DD1(20),DATH(40),DDM(50)
DIMENSION DMM(50),DMM1(20),DMM2(20),DMM3(1000),ALT(10),MM(50),
      VL(10)
EQUIVALENCE (D1(1),TCON111), (D2(1),TCON17011), (D3(1),TCON14011)
      , (S(1),TCON137011), (ND(1),TCON141211)
EQUIVALENCE (DD(1),DD1(1),DD2(1),DD3(1),DATH(1),DDM(1)
      , (DDM1),DDM211)
EQUIVALENCE (DMM(1),DMM1211), (DMM1(1),DMM2711), (DMM2(1),DMM3011)
      , (DMM3(1),DMM1211), (ALT(1),DMM1(1),DMM2(1),DMM3(1)
      , (VL(1),DMM711)
EQUIVALENCE (BC(1),DMM21211)

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE DCNTL
.....

CHART TITLE - SUBROUTINE SCOWL

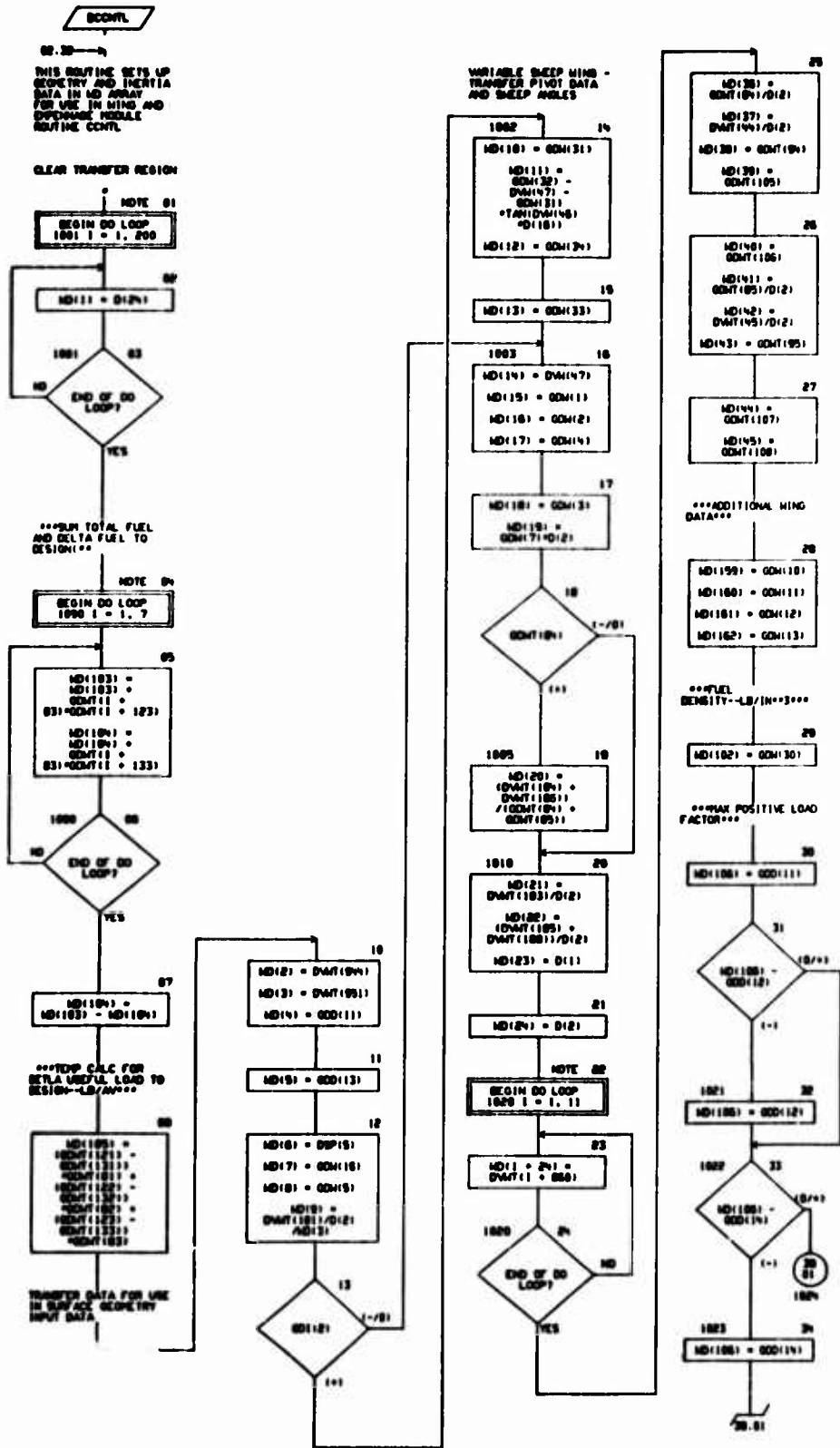


CHART TITLE - SUBROUTINE BDCVFL

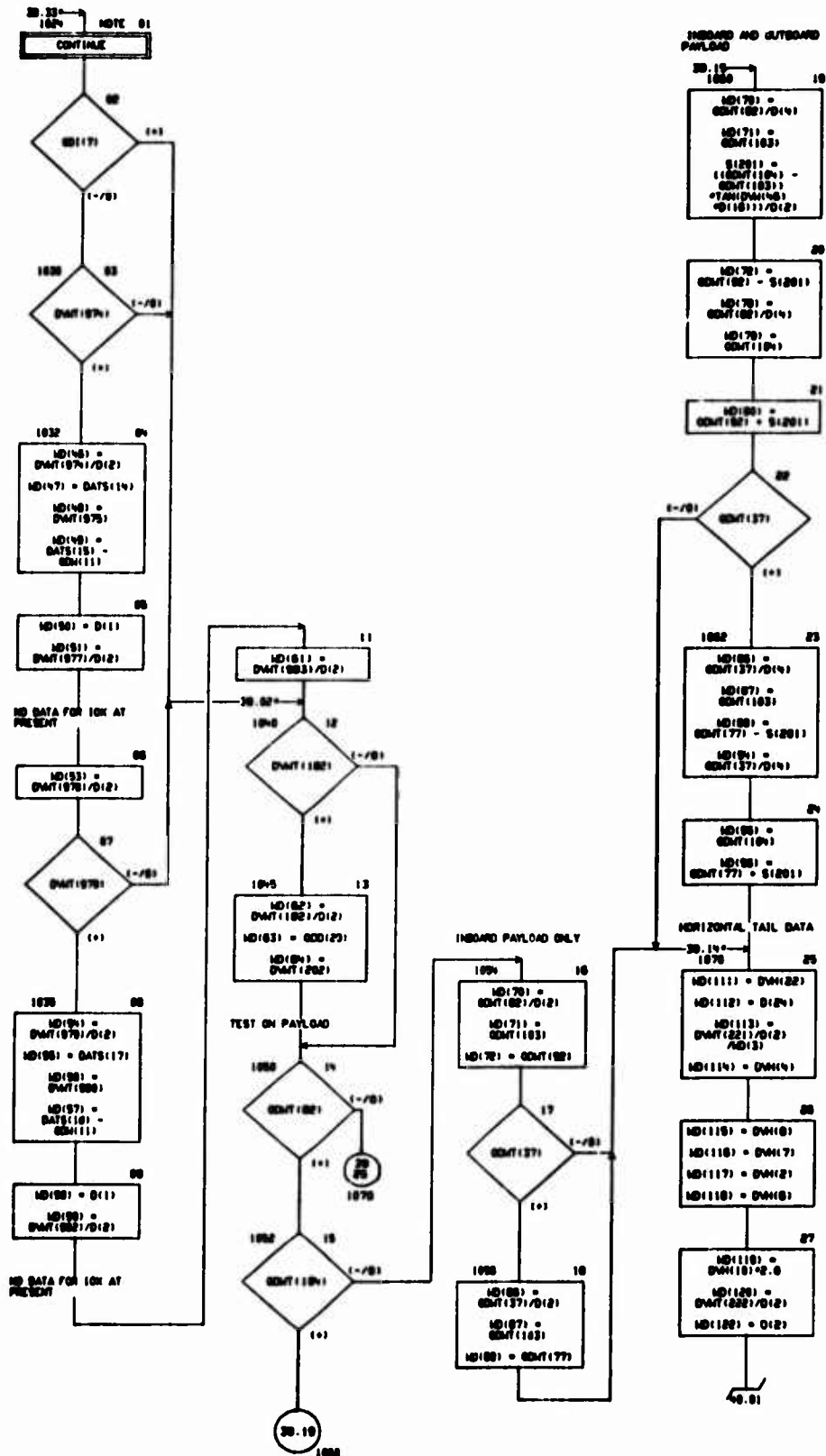


CHART TITLE - SUBROUTINE SCNTL

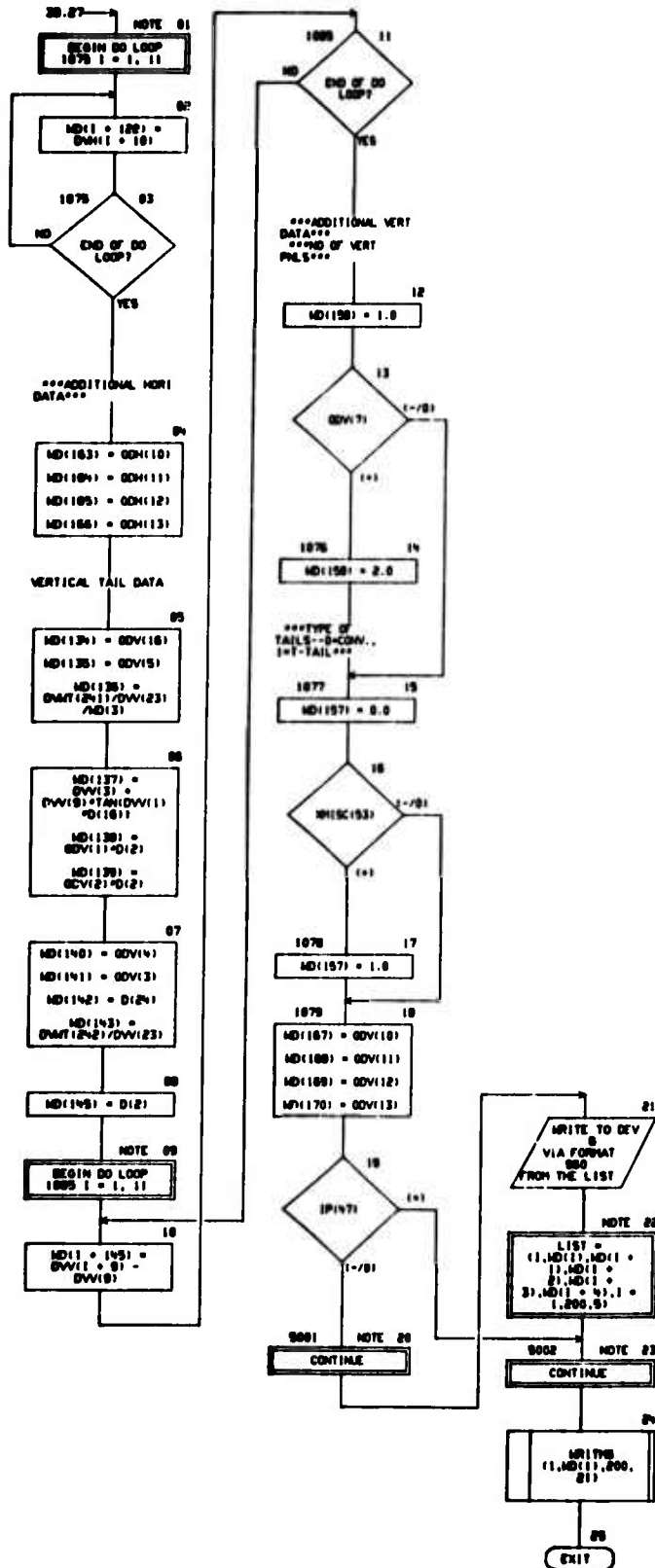


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCOM(420)
COMMON /MISC/ MISC(100)
COMMON /PRINT/ IP(00)
DIMENSION B(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION OD(20)
DIMENSION ODD(30),ODMT(100),ODH(50),ODH(40),ODV(40),DATS(40)
DIMENSION OAH(50),OAH(30),OAV(30),OAWT(1000)
DIMENSION DSP(10)
DIMENSION ND(200)
EQUIVALENCE (O(1),TCOM(1)),(OD(1),TCOM(701)),(DV(1),TCOM(401))
, (S(1),TCOM(271)),(ND(1),TCOM(412))
EQUIVALENCE (OD(1),OD(1))
EQUIVALENCE (ODD(1),OD(2)),(ODMT(1),OD(8)),(ODH(1),OD(25))
, (ODH(1),OD(30)),(ODV(1),OD(34)),(DATS(1),OD(40))
EQUIVALENCE (OAH(1),OAV(32)),(OAH(1),OAV(37)),(OAV(1),OAV(40))
, (OAWT(1),OAV(12))
EQUIVALENCE (DSP(1),DV(31))
EQUIVALENCE (ND(1),S(1))
** FORMAT(15H) ND(1) FROM DECN7L,70X,21H** DECN7L - IP(47) **
(110, 5710.4)

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE DFATNS
.....

CHART TITLE - SUBROUTINE BFATNB

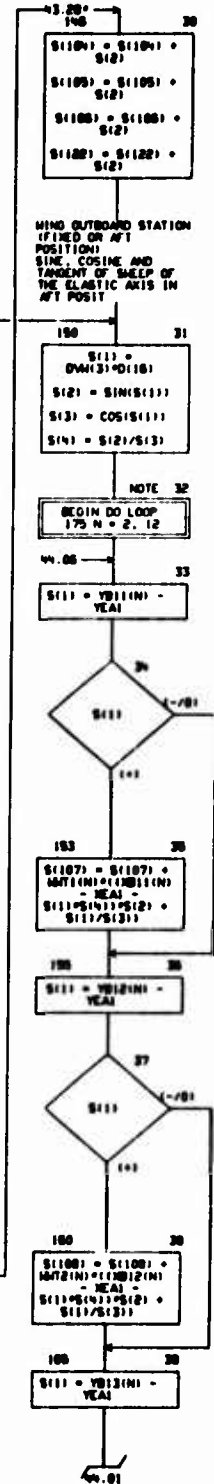
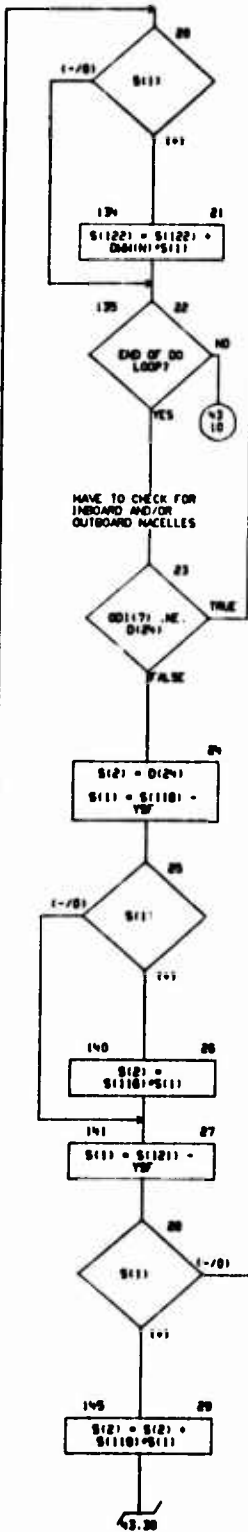
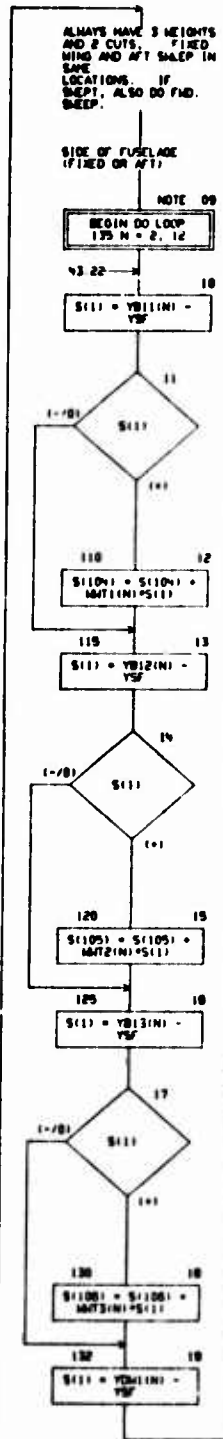
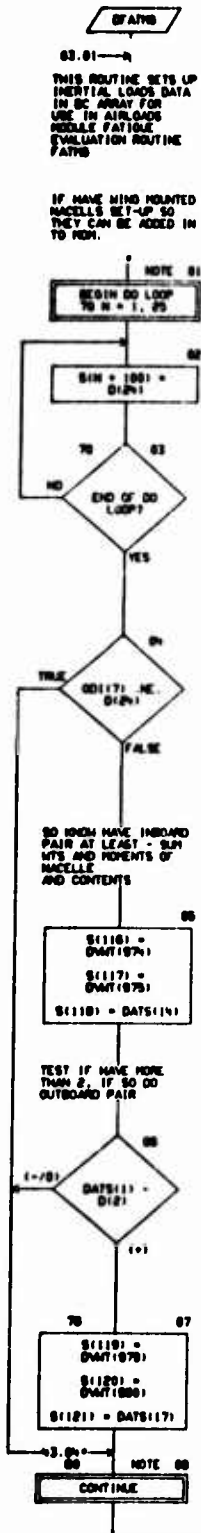


CHART TITLE - SUBROUTINE STAYS

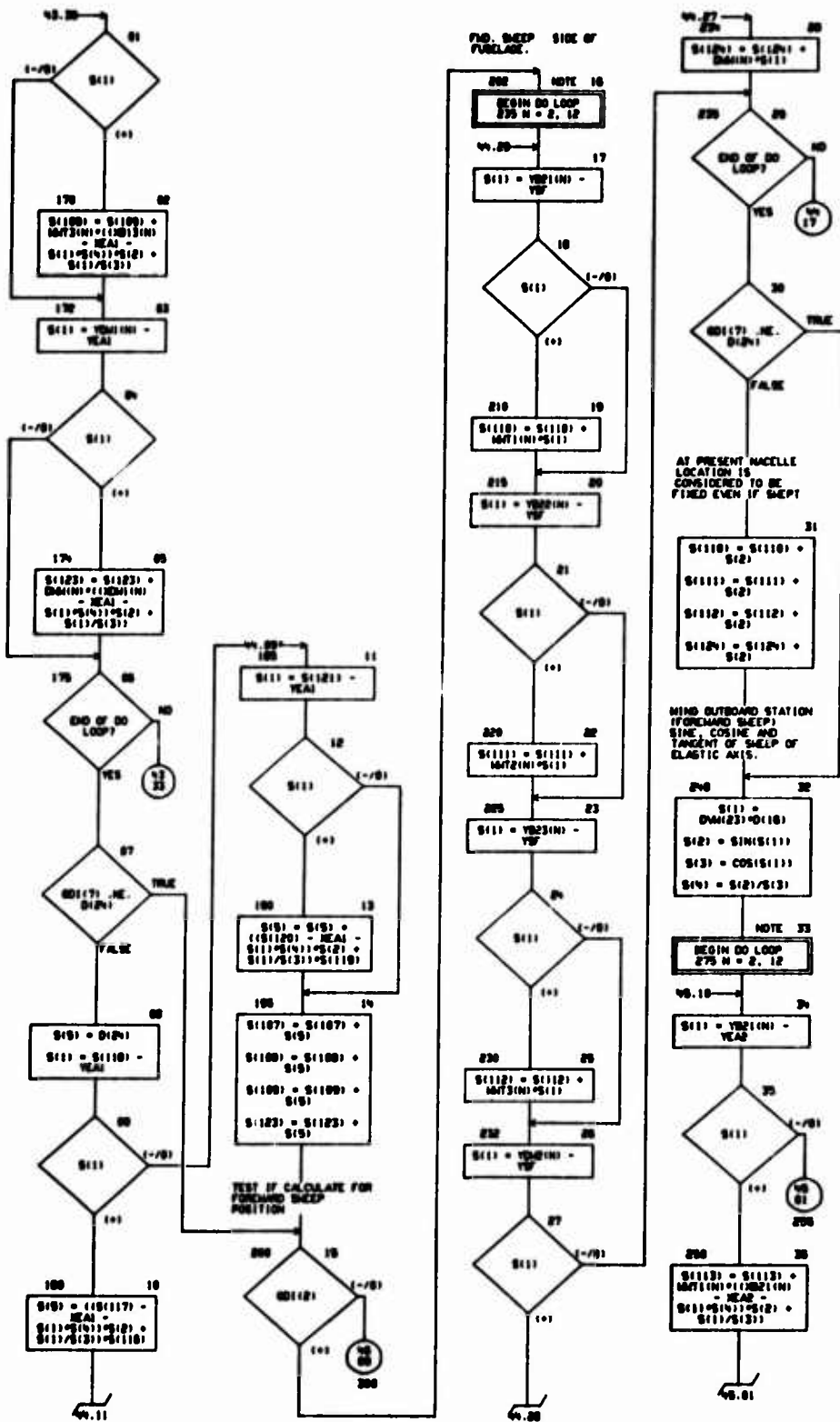


CHART TITLE - SUBROUTINE 87A9B

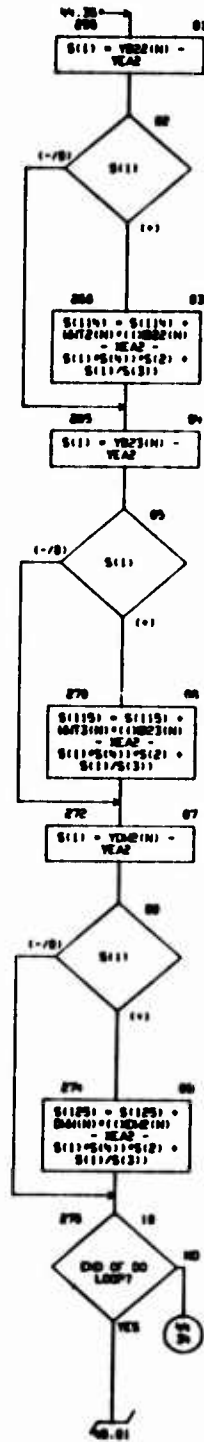


CHART TITLE - SUBROUTINE B7ATS

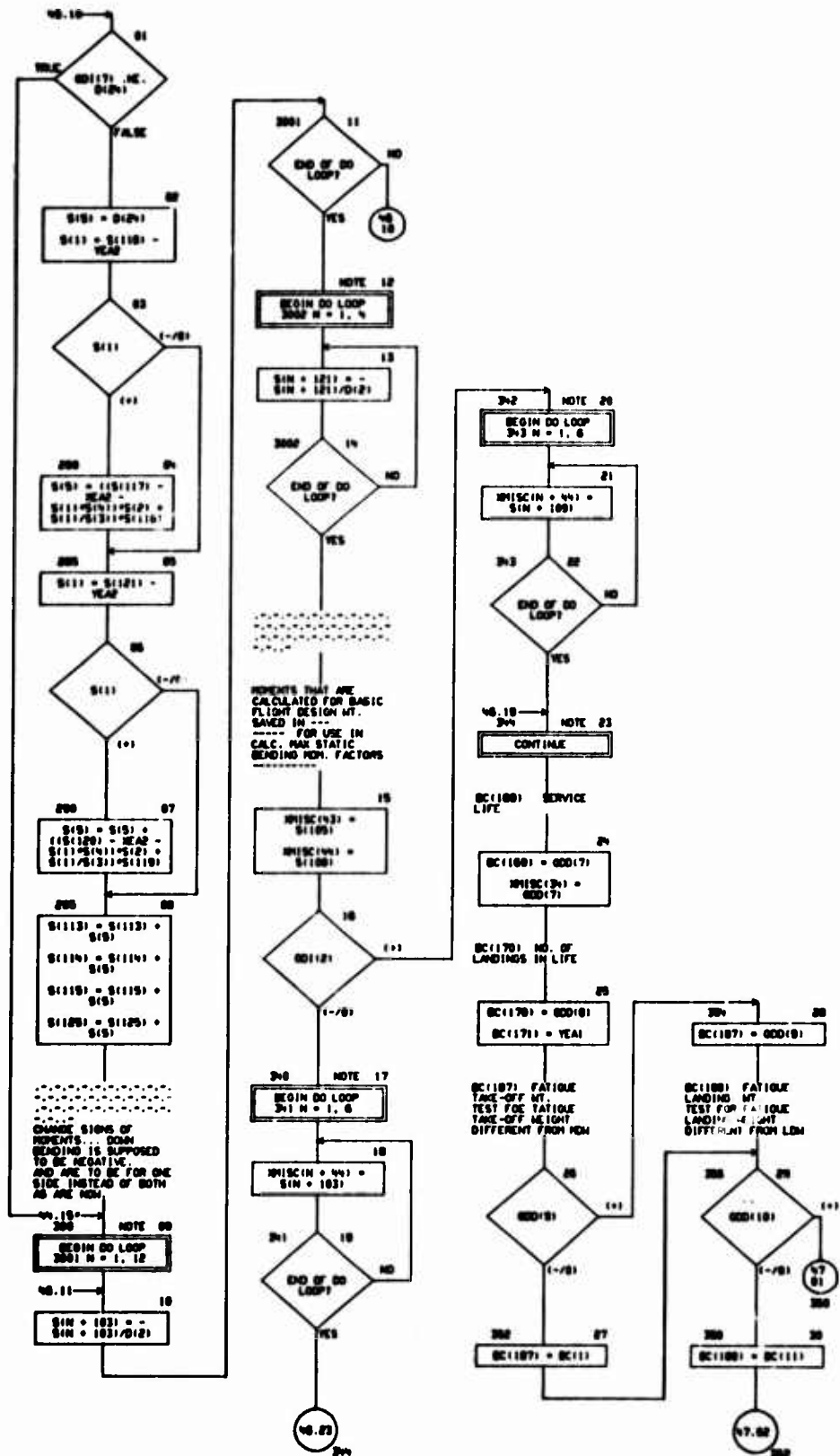


CHART TITLE - SUBROUTINE OFATNS

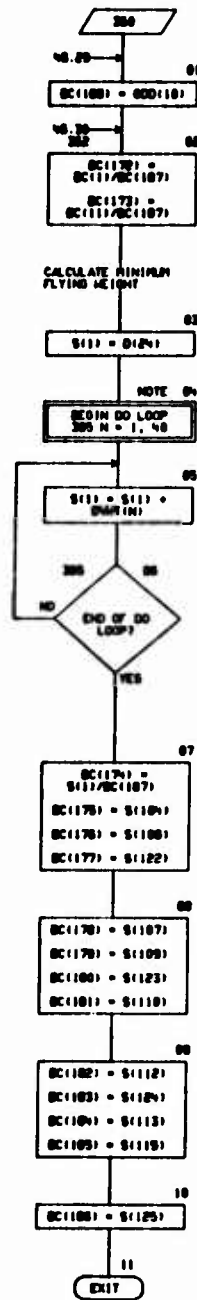


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

OPEN TCON(4320)
OPEN #10C/ 1010C(100)
DIMENSION B(1700),BD(1700),DV(2320),S(400),ND(200)
, DWT(1000)
, BD(100), DATS(40), DWT(50), BC(200), MAT(112), MAT2(12)
, MAT3(12), NB(112), NB2(12), YB(112), YB2(12), NB12(12)
, NB22(12), YB12(12), YB22(12), NB13(12), NB23(12), YB13(12)
, YB23(12), GDD(30)
DIMENSION DB(412),NDM(12),NDM2(12),YDM(12),YDM2(12)
EQUIVALENCE (TCON(1),D(1)), (TCON(70),BD(1)), (TCON(140),DV(1))
, (TCON(210),S(1)), (TCON(412),ND(1))
, (DV(21),DWT(1)), (DV(112),DWT(1)), (DV(212),BC(1))
, (BD(1),GDD(1)), (BD(2),GDD(1)), (BD(46),DATS(1))
, (YEA,DWT(304)), (NEA,DWT(376))
, (YEA,DWT(305)), (NEA,DWT(377))
, (YF ,DWT(1))
EQUIVALENCE (MAT(1),DWT(407)), (MAT2(1),DWT(521))
, (MAT3(1),DWT(645)), (NB(1),DWT(569)), (NB2(1),DWT(581))
, (YB(1),DWT(503)), (YB2(1),DWT(605)), (NB12(1),DWT(617))
, (NB22(1),DWT(629)), (YB12(1),DWT(641)), (YB22(1),DWT(653))
, (NB13(1),DWT(665)), (NB23(1),DWT(677)), (YB13(1),DWT(689))
, (YB23(1),DWT(701))
EQUIVALENCE (DB(1),DWT(672))
, (NDM(1),DWT(896)), (NDM2(1),DWT(908))
, (YDM(1),DWT(820)), (YDM2(1),DWT(932))

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE BLADUR
.....



CHART TITLE - SUBROUTINE BLDDR



03.00 ->

THIS ROUTINE SETS UP
DESIGN DATA FOR USE
IN LANDING GEAR
MODULE ROUTINE
LADDER

TRANSFER DATA TO
LANDING GEAR IF
DISC(24) = 1004 = -
OR 0
NOTE: FIRST 116 CELLS
IN TOON NOW WILL HAVE
LANDING GEAR DATA

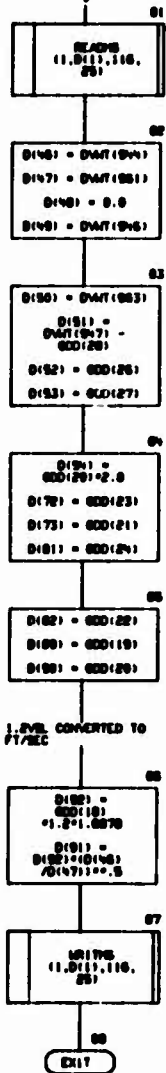


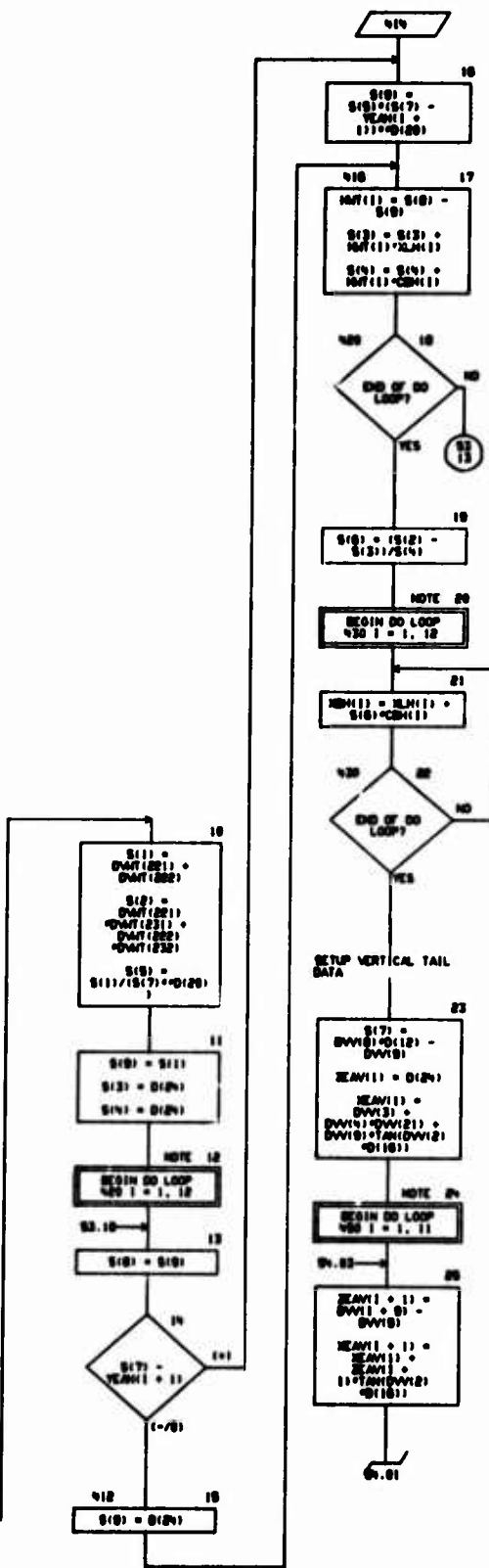
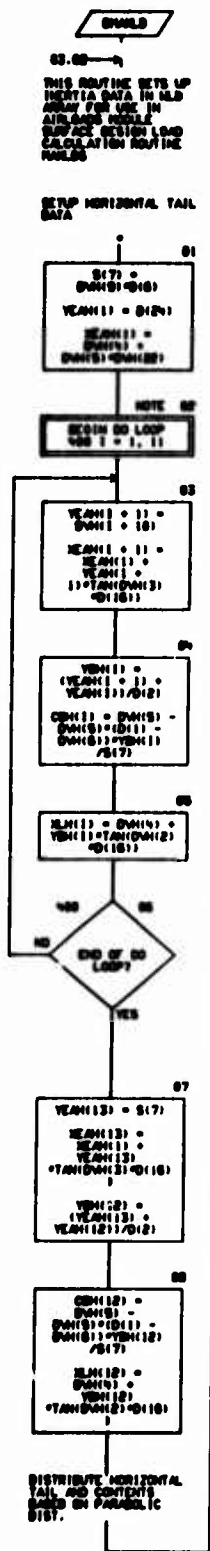
CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCOM(4320)
DIMENSION B(1700),GD(700),DV(2320),S(400),ND(200)
DIMENSION GDD(30),DVAR(1000)
EQUIVALENCE (B(1),TCOM(1)),(GD(1),TCOM(70)),(DV(1),TCOM(140))
, (S(1),TCOM(370)),(ND(1),TCOM(412))
EQUIVALENCE (GDD(1),GD(21)),(DVAR(1),DV(112))
```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE SHARDL
.....

CHART TITLE - SUBROUTINE SWALS



CHRT TITLE - SUBROUTINE SWALD

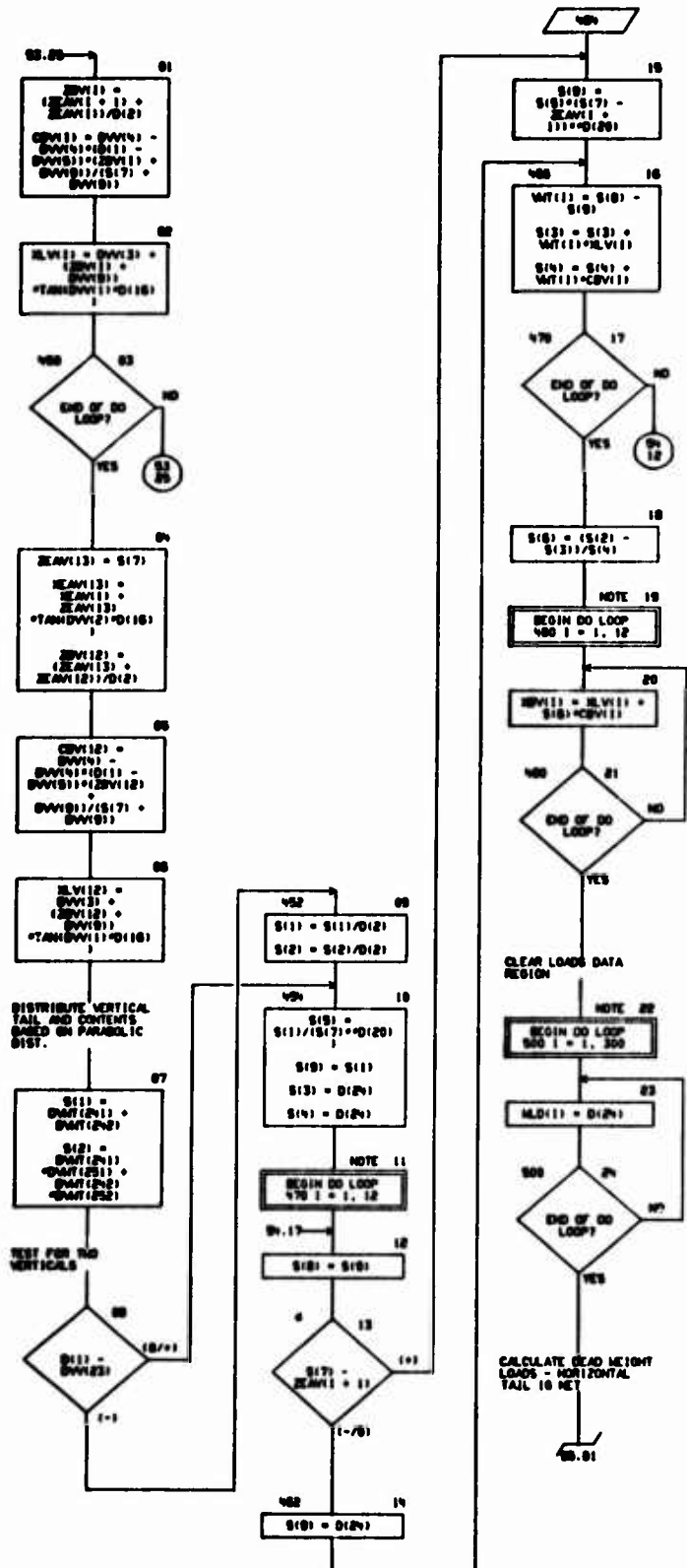


CHART TITLE - SUBROUTINE DWALD

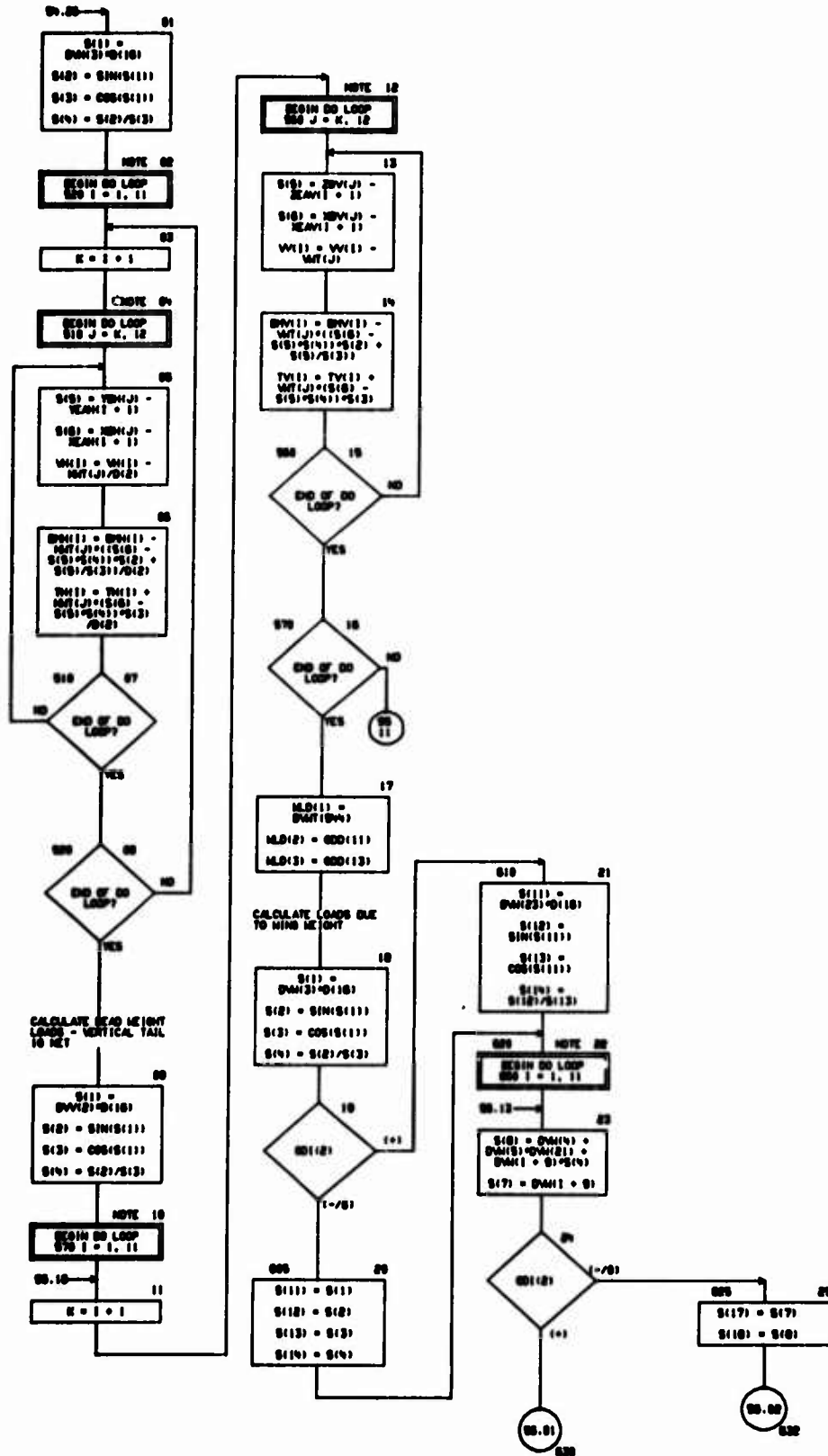


CHART TITLE - SUBROUTINE DMAILB

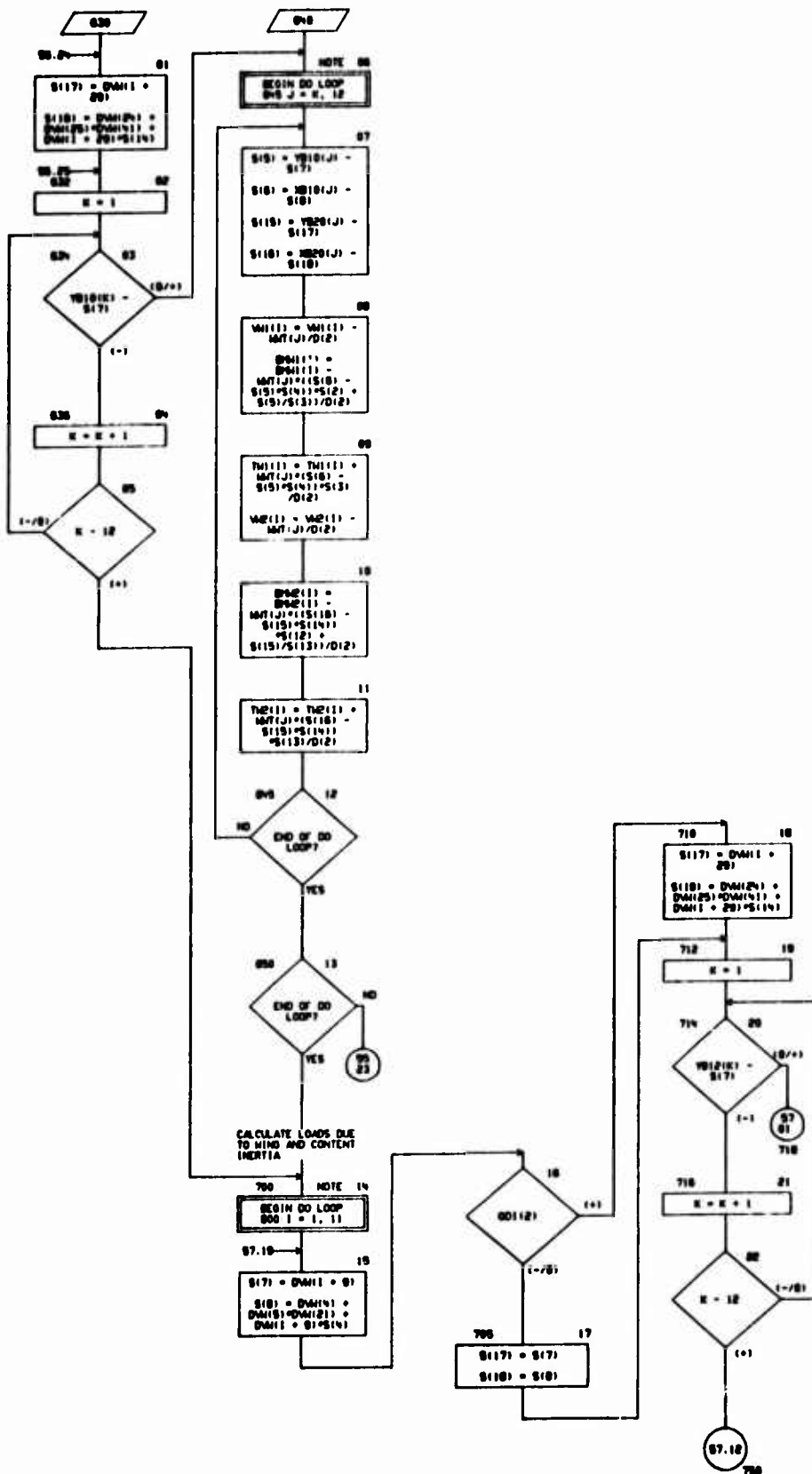


CHART TITLE - SUBROUTINE CHA8L8

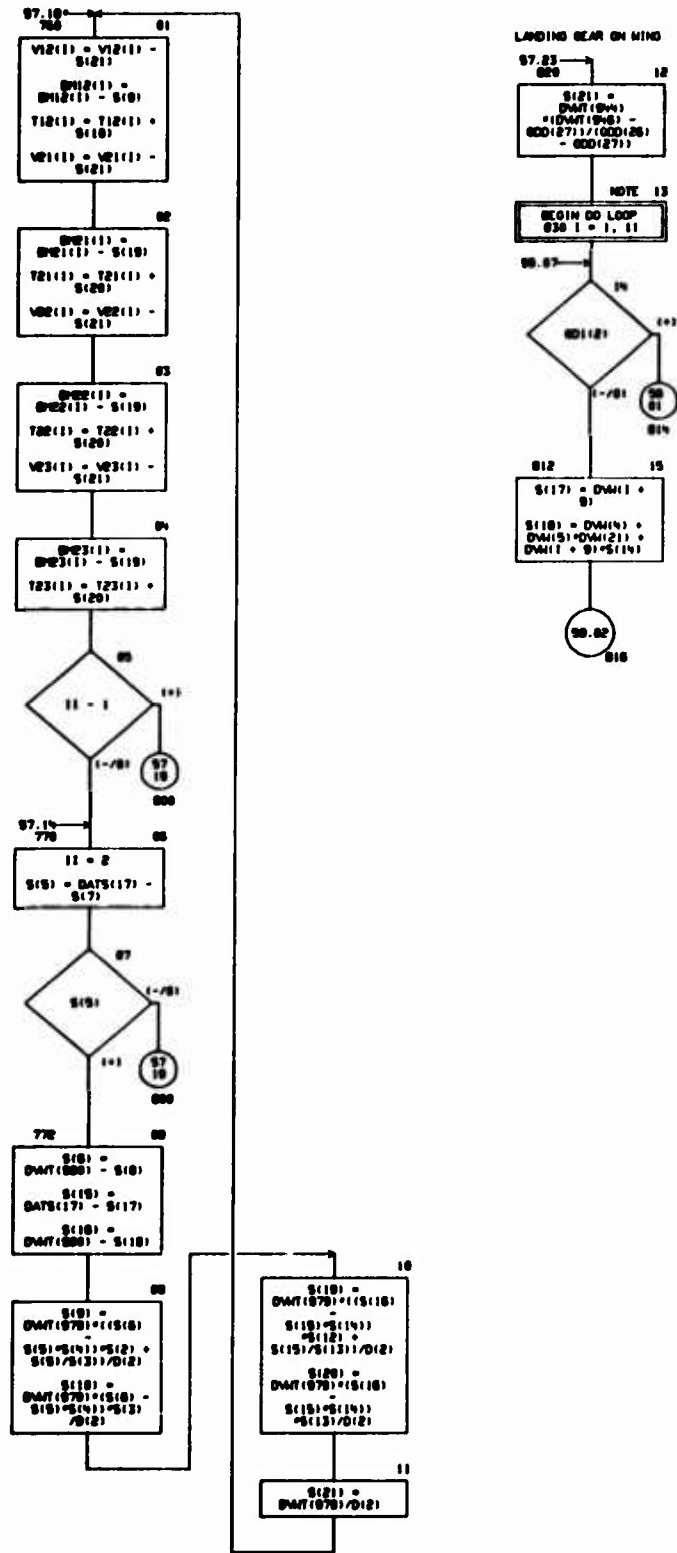


CHART TITLE - SUBROUTINE SHALD

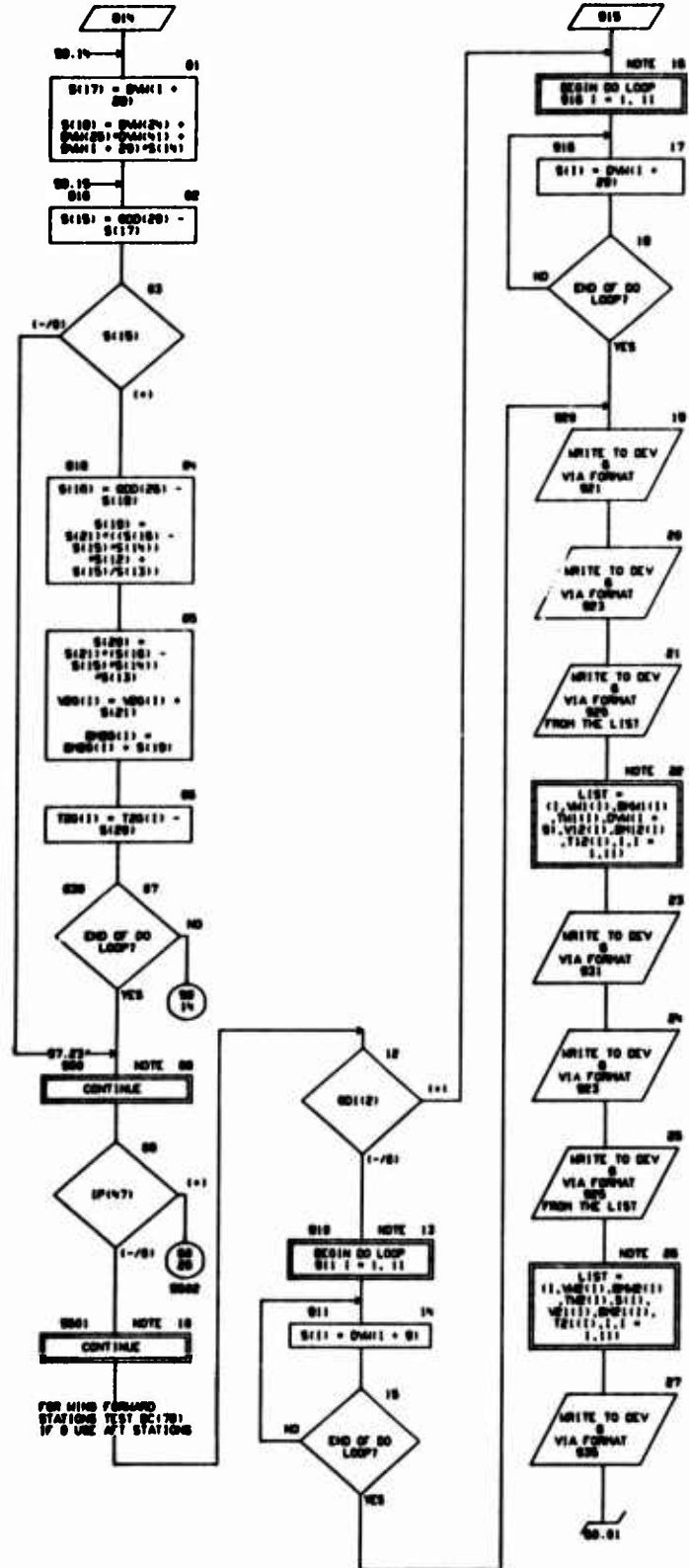
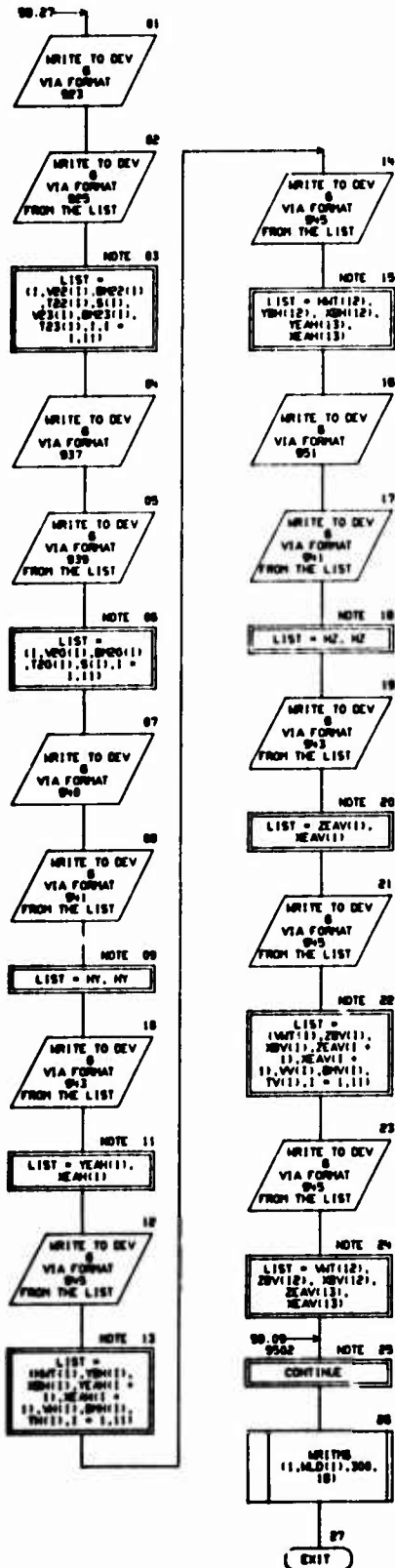


CHART TITLE - SUBROUTINE @P@LD



CART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(420)
COMMON /PRINT/ (P(0))
DIMENSION S(1700),GD(1700),DV(1220),S(1400),ND(1200)
DIMENSION GD(120),GD(130),DATS(140)
DIMENSION DWH(50),DWH(30),DWH(30),DWT(1000)
DIMENSION YB(112),YB(112),YB(112),YB(112),YB(112)
DIMENSION YB(112),YB(112),YB(112),YB(112),YB(112),YB(112)
, YB(112),YB(112),YB(112),YB(112),YB(112),YB(112)
, YB(112),YB(112),YB(112)
DIMENSION YB(112),YB(112),YB(112),YB(112),YB(112),YB(112)
DIMENSION YEAR(13),YEAR(13),YEAR(13),YEAR(13)
, CBH(12),BLM(12),CBV(12),BLV(12)
DIMENSION MLD(300)
DIMENSION YB(111),DWH(111),T2(111),WH(111),DWH(111),TH(111)
, YB(111),DWH(111),TH(111),YB(111),DWH(111),T2(111)
, YB(111),DWH(111),T2(111),YB(111),DWH(111),T2(111)
, YB(111),DWH(111),T2(111),WH(111),DWH(111),TH(111)
, YB(111),DWH(111),TV(111)
EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(70)),(DV(1),TCON(140))
, (S(1),TCON(370)),(ND(1),TCON(421))
EQUIVALENCE (GD(11),GD(11)),(GD(11),GD(21)),(DATS(1),GD(140))
EQUIVALENCE (DWH(1),DV(321)),(DWH(1),DV(371)),(DV(1),DV(140))
, (DWT(1),DV(112))
EQUIVALENCE (YB(101),DWT(1401)),(YB(101),DWT(143))
, (YB(101),DWT(145)),(YB(101),DWT(147)),(YB(101),DWT(148))
EQUIVALENCE (YB(111),DWT(149)),(YB(111),DWT(152))
, (YB(111),DWT(155)),(YB(111),DWT(158)),(YB(111),DWT(161))
, (YB(111),DWT(163)),(YB(111),DWT(165)),(YB(111),DWT(167))
, (YB(111),DWT(169)),(YB(111),DWT(171)),(YB(111),DWT(173))
, (YB(111),DWT(175))
EQUIVALENCE (YB(111),DWT(177)),(YB(111),DWT(180))
, (YB(111),DWT(183)),(YB(111),DWT(186)),(YB(111),DWT(189))
, (YB(111),DWT(192))
EQUIVALENCE (YEAR(1),S(140)),(YEAR(1),S(162)),(YEAR(1),S(175))
, (YEAR(1),S(188))
EQUIVALENCE (MLD(1),S(101))
EQUIVALENCE (YB(1),MLD(14)),(DWH(1),MLD(15)),(T2(1),MLD(16))
, (WH(1),MLD(17)),(DWH(1),MLD(18)),(TH(1),MLD(19))
, (YB(1),MLD(20)),(DWH(1),MLD(21)),(T2(1),MLD(22))
, (YB(1),MLD(23)),(DWH(1),MLD(24)),(T2(1),MLD(25))
, (YB(1),MLD(26)),(DWH(1),MLD(27)),(T2(1),MLD(28))
, (WH(1),MLD(29)),(DWH(1),MLD(30)),(TH(1),MLD(31))
, (YB(1),MLD(32)),(DWH(1),MLD(33)),(TV(1),MLD(34))
EQUIVALENCE (CBH(1),MLD(35)),(BLM(1),MLD(36))
, (CBV(1),MLD(37)),(BLV(1),MLD(38))
DATA NY/1NY /, NZ/1NZ/
001 FORMAT(1M),NEX,SHSHEAR, SHPONENT AND TORQUE,SHX
, 21M** SHALS - (P(47) ** // 10K,15MINS ONLY AT
10, 33K, 23MINS AND CONTENTS AT 10// 20K, 15MFT POSITION, 33K,
23MFT POSITION GROSS HEIGHT 2 )
002 FORMAT(1M) 1, SH,SHSHEAR,SH,SHPONENT,SH,SHTORQUE,SH,SHDUTY PLANE
11X,SHSHEAR,SH,SHPONENT,SH,SHTORQUE, SH,1M1 //
003 FORMAT(114,3F12.0,SH,1F0.1,SH,3F12.0,SH,113 )
004 FORMAT(11M), 10K,15MINS ONLY AT 10,33K,23MINS AND CONTENTS AT 10
//10K,15MFT POSITION, 20K, 23MFT POSITION AT GROSS HEIGHT
1 )
005 FORMAT(1M),SH,21M** SHALS - (P(47) **//
10K, 23MINS AND CONTENTS AT 10, 30K, 23MINS AND CONTE
NTS AT 10 // SH, 23MFT POSITION AT GROSS HEIGHT 2, 10K,
23MFT POSITION AT GROSS HEIGHT 3 )

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CHART TITLE - NON-PROCEDURAL STATEMENTS

```
037 FORMAT(1H0,4X, 2PHET WIND LOADS AT 20 TALL// 3X, 3HFORWARD PO  
SITION AT CROSS HEIGHT 1 // 2X, 1H1,5X,SHSHEAR,5X,MPMENT, 5X,  
  @TORQUE, 5X,1@BUTT PLANE // )  
038 FORMAT(2X, 114, 2F10.0, 5X, 1F8.1 )  
040 FORMAT(1H1, 3X, 2@HORIZONTAL TAIL AND CONTENTS ,  
  2X,21H** @WALD - (P147) **//)  
041 FORMAT(7X,13HCOORD. OF C. A., 5X, 2HSECTION, 5X, 11HCOORDINATES /  
  11X, 1A1, 5X, 1H@, 5X, SHSHEAR, 5X, MPMENT, 5X, @TORQUE, 14X,  
  @HEIGHT, 5X, 1A1, 4H BAR, 5X, 5@X BAR // )  
043 FORMAT( 4X,2F10.2)  
045 FORMAT(7X,1F14.2,2F10.2/ 4X, 2F10.2, 3F14.0 )  
051 FORMAT(1H1,3X, 2@VERTICAL TAIL AND CONTENTS ,  
  2X,21H** @WALD - (P147) **//)
```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE DSMPR
.....



CHART TITLE - SUBROUTINE 0004PR

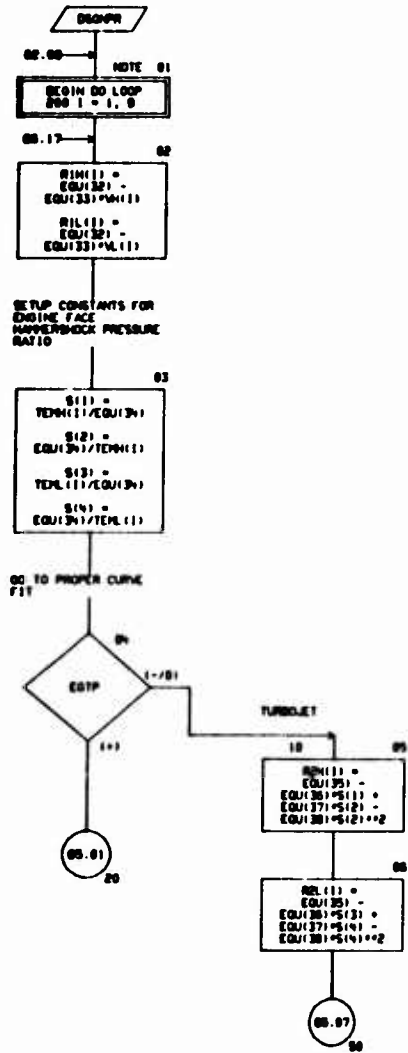


CHART TITLE - SUBROUTINE BEEP

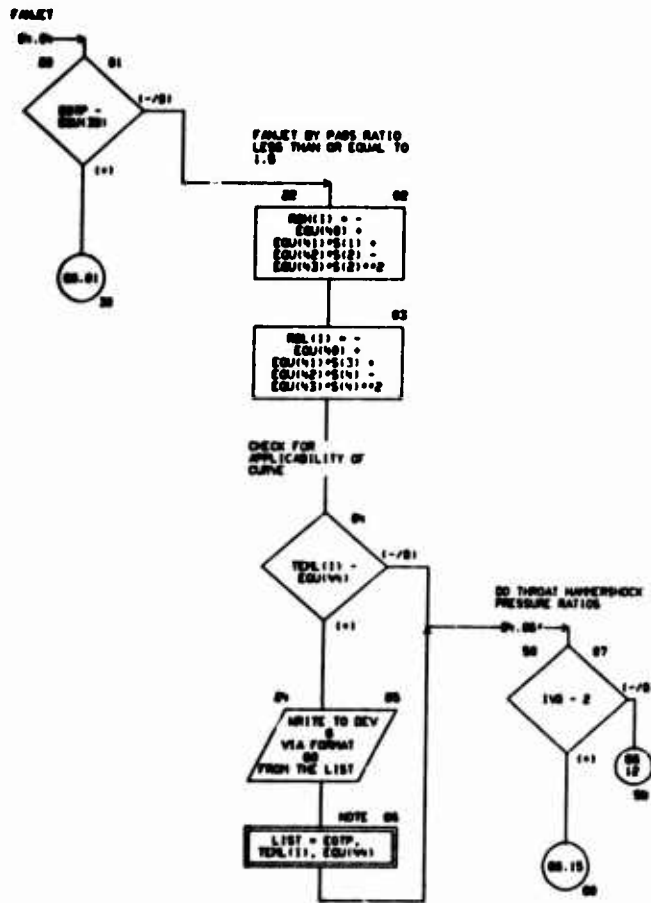


CHART TITLE - SUBROUTINE BEEPFR

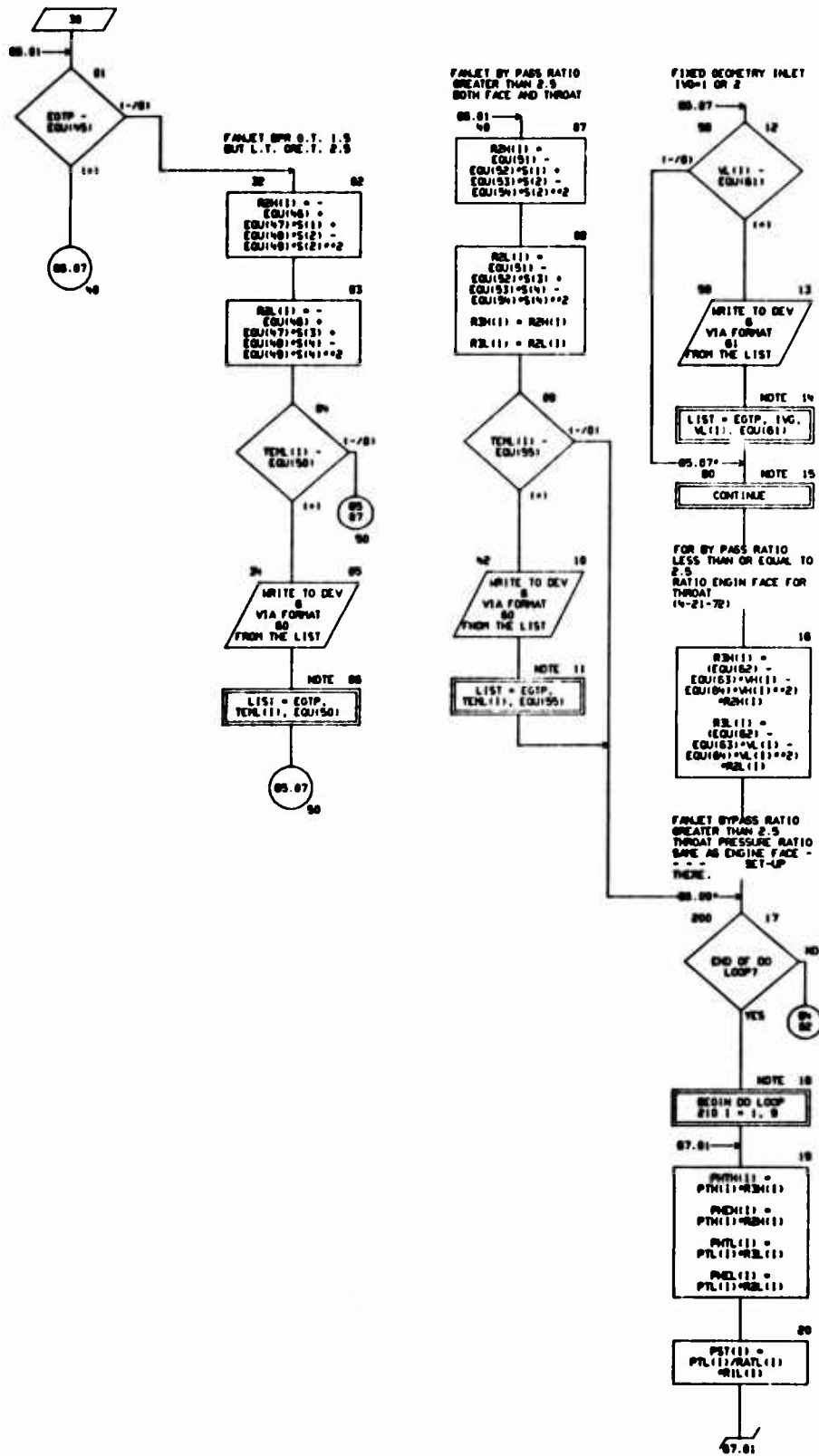


CHART TITLE - SUBROUTINE 00049

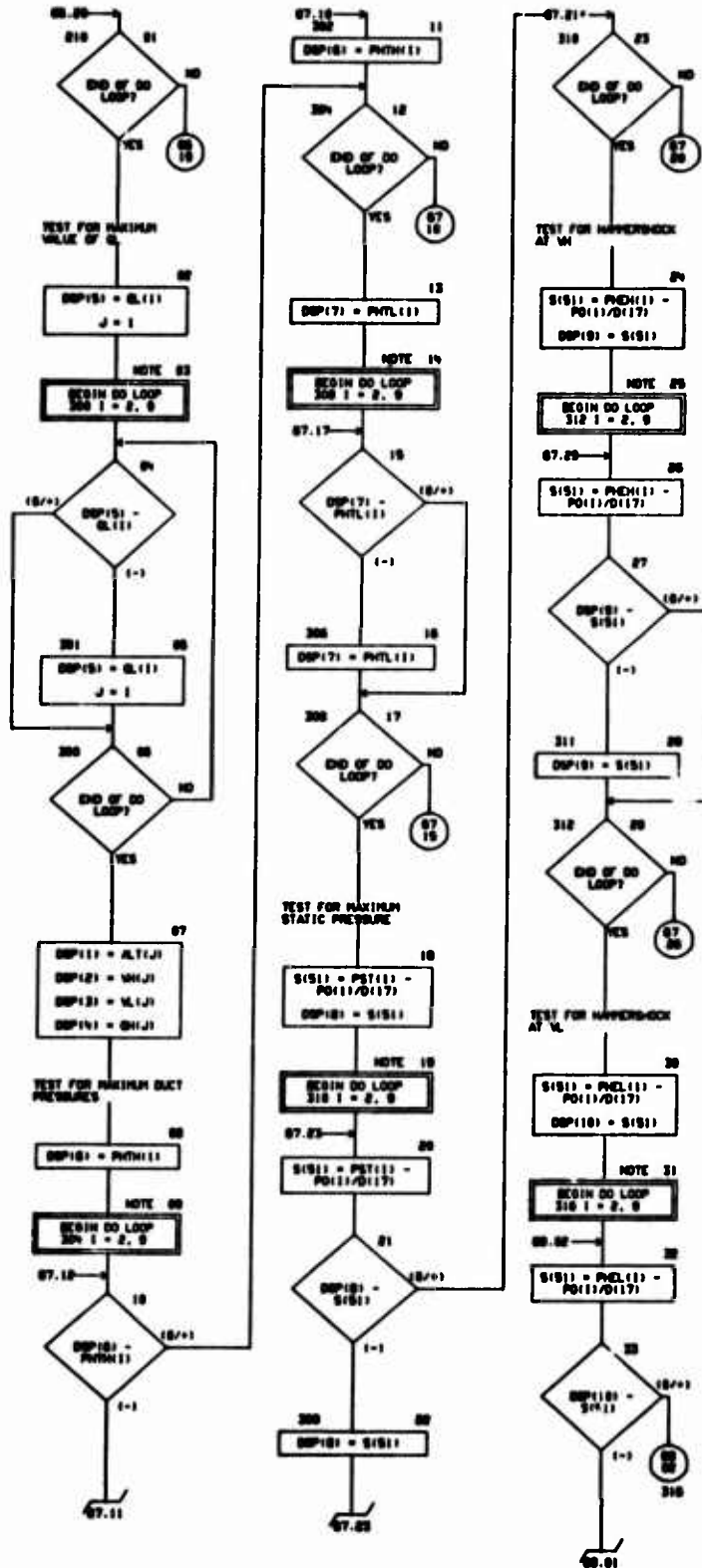


CHART TITLE - SUBROUTINE 0808PR

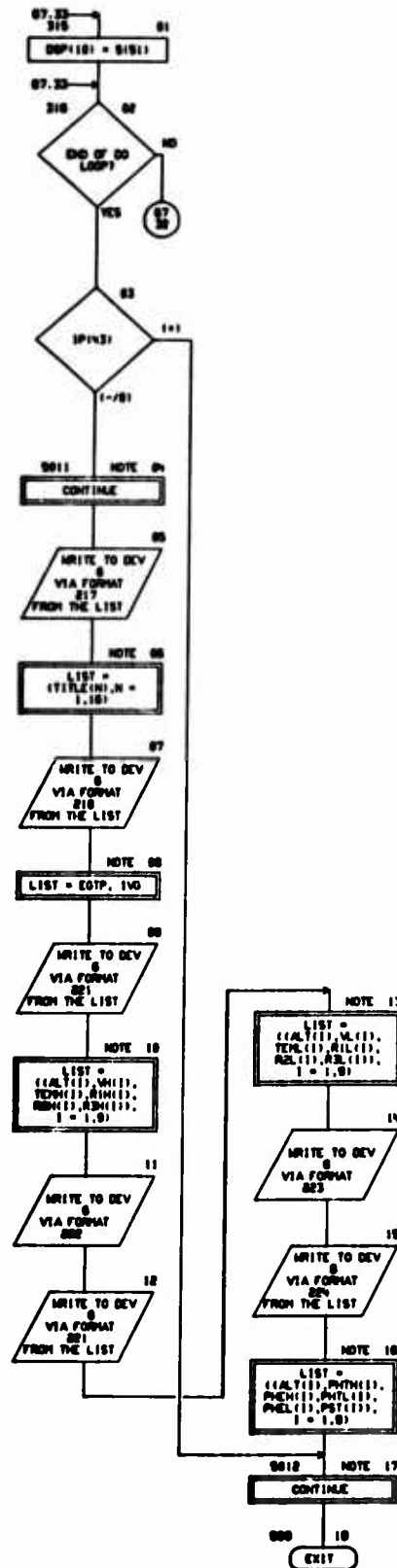


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(4200)
COMMON /MISC/ MISC(100)
COMMON /PRINT/ IP(00)
DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
DIMENSION EBU(200)
DIMENSION DATS(40)
DIMENSION TITLE(10)
DIMENSION ALT(10),WN(10),VL(10),TDM(10),TDL(10),PTH(10),
PTL(10),PL(10),RIM(10),RIL(10),RBM(10),REL(10),RDM(10),
RL(10),RPM(10),RPM(10),RPL(10),RPL(10),RST(10),RATL(10)
DIMENSION GH(10),GL(10),PD(10)
DIMENSION DSP(10)
EQUIVALENCE (D(1),TCON(1)),(D(1),TCON(70)),(DV(1),TCON(140)),
(S(1),TCON(370)),(ND(1),TCON(412))
EQUIVALENCE (EBU(1),D(0))
EQUIVALENCE (DATS(1),GD(40))
EQUIVALENCE (EOTP,DATS(2))
EQUIVALENCE (TITLE(1),MISC(09))
EQUIVALENCE (GH(1),DV(0)),(GL(1),DV(0)),
(PD(1),DV(2))
EQUIVALENCE (ALT(1),DV(1)),(WN(1),DV(0)),(VL(1),DV(7)),
(TDM(1),DV(14)),(TDL(1),DV(15)),(PTH(1),DV(16)),
(PTL(1),DV(17)),(PL(1),DV(18)),(RIM(1),DV(20)),
(RIL(1),DV(21)),(RBM(1),DV(22)),(REL(1),DV(23)),
(RDM(1),DV(24)),(RL(1),DV(25)),(RPM(1),DV(26)),
(RPM(1),DV(27)),(RPL(1),DV(28)),(RPL(1),DV(29)),
(RST(1),DV(30)),(RATL(1),DV(31))
EQUIVALENCE (DSP(1),DV(31))
EQUIVALENCE (ND(10),1),(ND(102),J)
EQUIVALENCE (ND(112),1V0)
00 FORMAT(1H,20X,23H*** WARNING MESSAGE ***/10X,
410RAN TEMPERATURE EXCEEDED FOR FANLET BPR =,F5.1/10X,
10RAN TEMP =,F8.2,74LINIT =,F8.2)
01 FORMAT(1H,20X,23H*** WARNING MESSAGE ***/10X,
430RPM EXCEEDED FOR ENGINE INLET COMBINATION/20X,
50RPM =,F5.1,2X,10HINLET TYPE =,13,2X,70RPM =,F5.2,2X,
12LINIT SPEED =,F5.2)
217 FORMAT(1H,20X,21H** DSMPR - IP(43) **/10X,0A10/10X,0A10)
218 FORMAT(10, 20X, 30RPM PROFILE DESIGN CONSTANTS
/ 100, 20X, 10HBYPASS RATIO =, F8.2, 20X, 0H1V0 =, 112 /
100, 4X, 7HTEMP(1H), 0X, 0HSTATIC(1H), 12X, 10HSHOCK(1H) /
10X, 3HALT, 12X, 0H, 0X, 11HDEG RANKINE, 0X, 11HPRES. RATIO,
0X, 4HFACE, 11X, 0HTHROAT )
021 FORMAT( 0X, 1F13.1, 1F14.2, 1F17.3, 3F10.4 )
022 FORMAT(10,4X,7HTEMP(1),0X,0HSTATIC(1),12X,10HSHOCK(1) /
10X, 3HALT, 12X, 0H, 0X, 11HDEG RANKINE, 0X, 11HPRES. RATIO,
0X, 4HFACE, 11X, 0HTHROAT )
023 FORMAT(10, 20X, 7HPRES(1H), 0X, 7HPRES(1H), 0X, 7HPRES(1), 0X,
7HPRES(1), 10X, 0HSTATIC / 27X, 11HTHROAT-PSIA, 0X,
11HENGINE-PSIA, 0X, 11HTHROAT-PSIA, 0X, 11HENGINE-PSIA, 0X,
11HPRES THROAT )
024 FORMAT( 0X, 1F13.1, 1F15.3, 4F10.3)

```

CHART TITLE - INTRODUCTORY COMMENTS

```

*****
SUBROUTINE 05TNR
*****

```



ROUTINE TITLE - SUBROUTINE 0570R

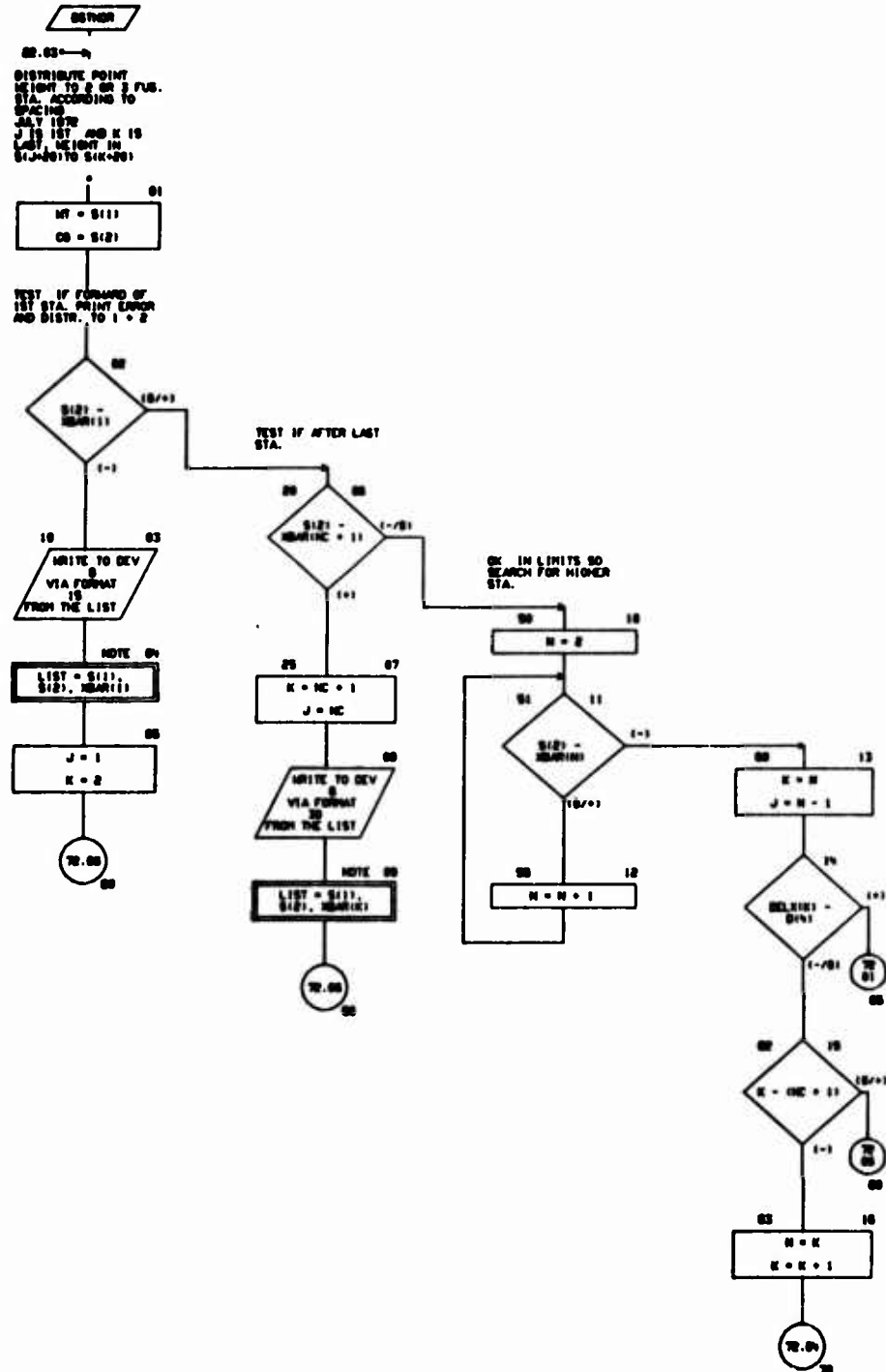


CHART TITLE - SUBROUTINE 0670R

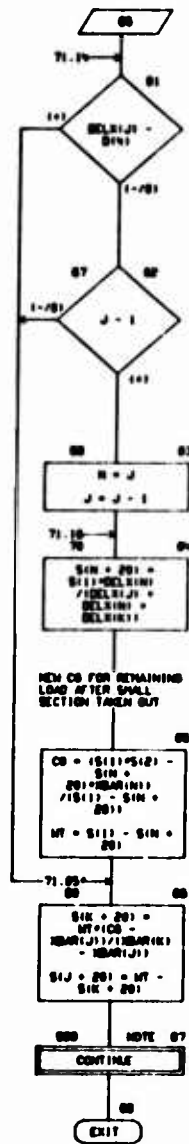


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TOCHN(20)
DIMENSION D(700),          D(1700),S(400),ND(200)
, ND(100), DELX(20), S(140)
DIMENSION (TCOH(1),S(1)), (TCOH(10),D(1))
, (TCOH(70),S(1)), (TCOH(101),ND(1))
, (ND(1),S(1))
, (ND(10),ND(1)), (ND(10),DELX(1))
, (ND(10),J), (ND(10),K), (ND(10),M)
10  FORMAT(1M,70)***** IN OTHER, HEIGHT, IE13.0,15H LO. LOCATED AT,
    IE13.0,15H IS END OF 1ST STA., IE13.0, 0H *****
20  FORMAT(1M,70)***** IN OTHER, HEIGHT, IE13.0,15H LO. LOCATED AT,
    IE13.0,0H IS AFT OF LAST STA., IE13.0, 0H *****

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE 0517R1
.....



CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(4320)
DIMENSION O(700),OD(700),OV(2320),S(400),ND(200)
DIMENSION ND(20),NSAR(20),DELX(20)
DIMENSION OOB(00),DNB(440)
EQUIVALENCE (O(1),TCON(1)),(OD(1),TCON(70)),(OV(1),TCON(140)),
             (S(1),TCON(210)),(ND(1),TCON(420))
EQUIVALENCE (OOB(1),OD(30)),(DNB(1),OV(43))
EQUIVALENCE (ND(1),OOB(50)),(NSAR(1),DNB(140)),(DELX(1),DNB(16))
EQUIVALENCE (1,ND(10)),(2,ND(102)),(K,ND(103)),(L,ND(104))

```

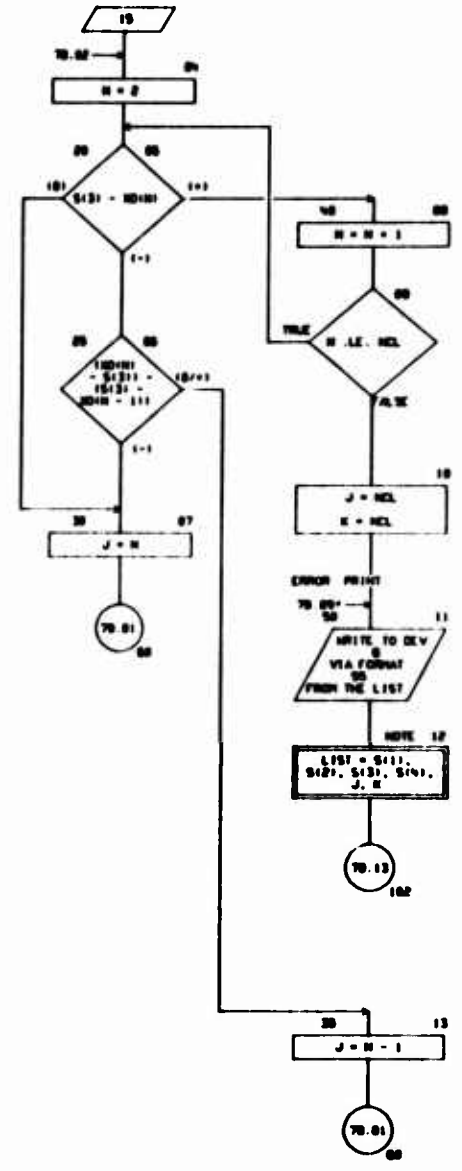
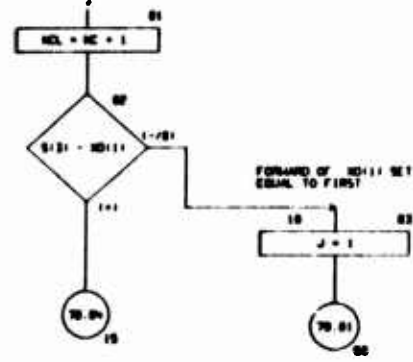
CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE P_017MP
.....



CHART TITLE - SUBROUTINE DS7NP

DS7NP
 01-02-70
 PROPORTIONAL
 DISTRIBUTION OF WT.
 JULY 1970
 --- NOTE
 INCREASING POINT
 VALUE ---
 S1(1), S1(2), S1(3),
 S1(4) ETC
 AND S1(1) IS DIST
 WT S1(1) AND S1(2)
 S1(3) - S1(4) = HEIGHT
 S1(1) = S.S.
 S1(1) = FORWARD EXTENT
 OF DISTRIBUTION
 S1(2) = WT EXTENT OF
 DISTRIBUTION
 S1(3) = J INDEX FOR
 THE BEAR AT WHICH
 LOAD IS PLACED.
 S INDEX FOR WT BEAR
 AT WHICH LOAD IS
 PLACED
 S1(2) THRU S1(4) =
 HEIGHTS FT ABOVE
 BEAR LOCATIONS.



CHRT TITLE - SUBROUTINE 0070P

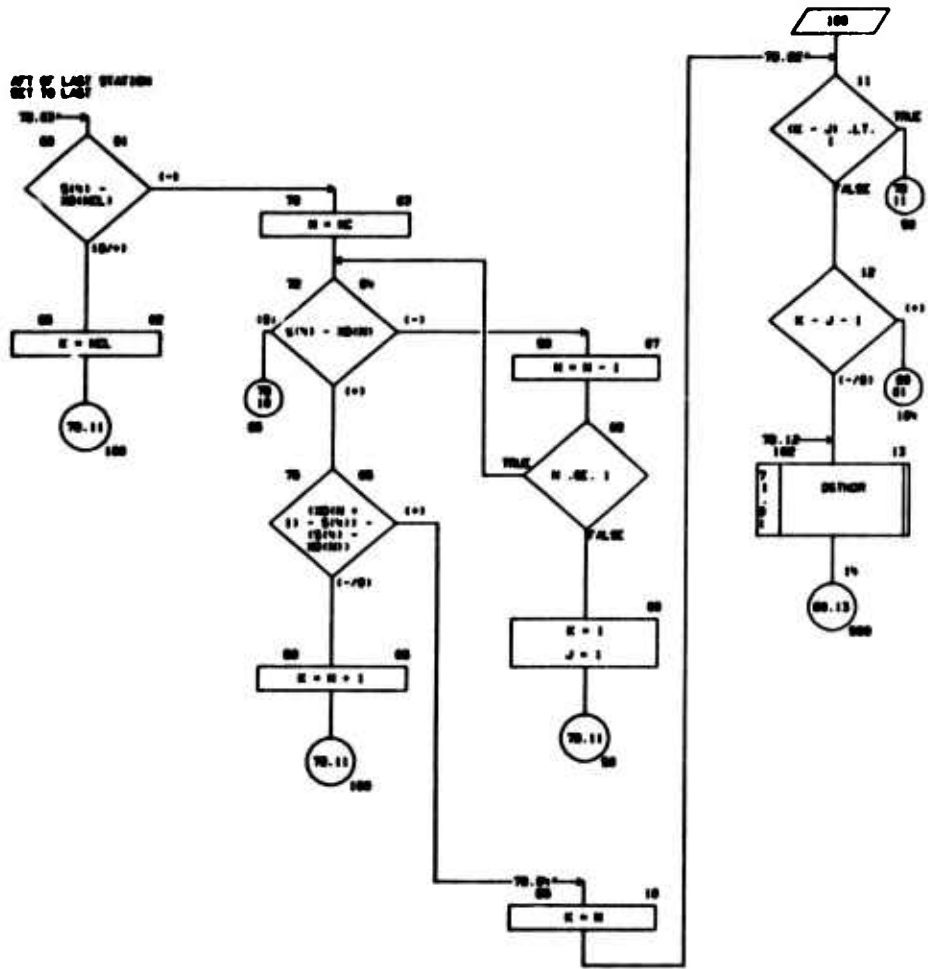


CHART TITLE - SUBROUTINE 00110P

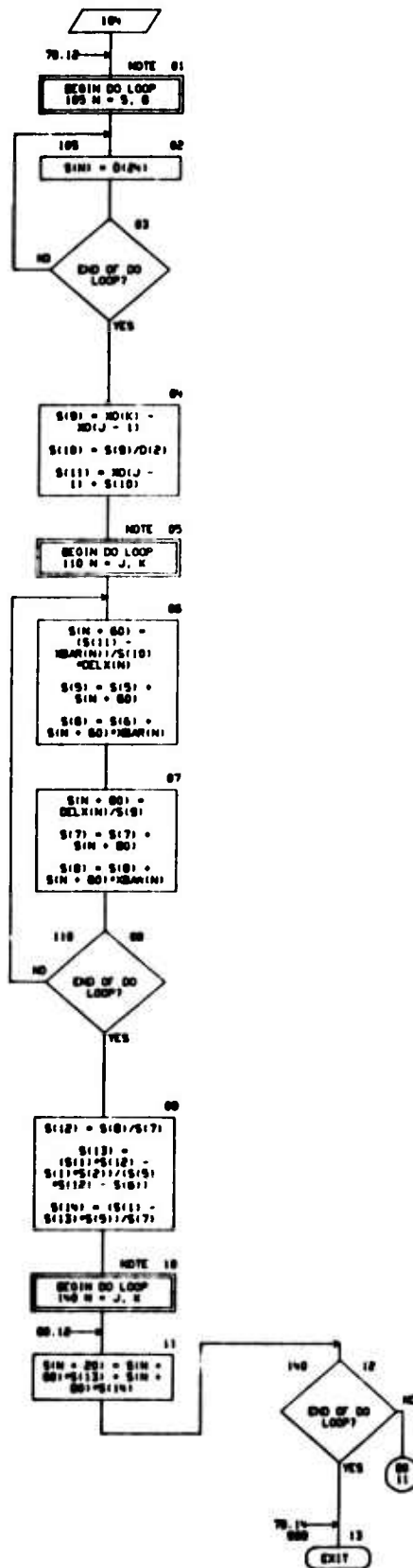


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(420)
DIMENSION D(700),ND(700),DV(2320),S(400),ND(200)
. GDB(00), GDB(40), ND(20), NBAR(20), DELX(20)
SUBROUTINE (TCON(1),S(1)), (TCON(70),S(1)), (TCON(140),S(1))
. (TCON(270),S(1)), (TCON(420),ND(1))
. (GDB(30),GDB(1)), (GDB(00),ND(1))
. (DV(40),DV(1)), (DV(140),NBAR(1)), (DV(180),DELX(1))
. (ND(10),J), (ND(10),K), (ND(110),NC)
** FORMAT(//1H0,VDH***** IN GETTRP, HEIGHT CANNOT BE DISTRIBUTED /
10K, 20K=,1714.2,2K, 30K=,170.2, 2K, 40K=, 170.2, 40K=,
170.2,10RETURN J,K =, 113, 1H,,113 )

```

CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE SUCCED

CHART TITLE - SUBROUTINE SUCED

SUCED
02.11
WRITTEN 23 MARCH 1970
TO DEVELOP SACT
SEQUENT

SETUP INDICATORS AND
COUNTERS

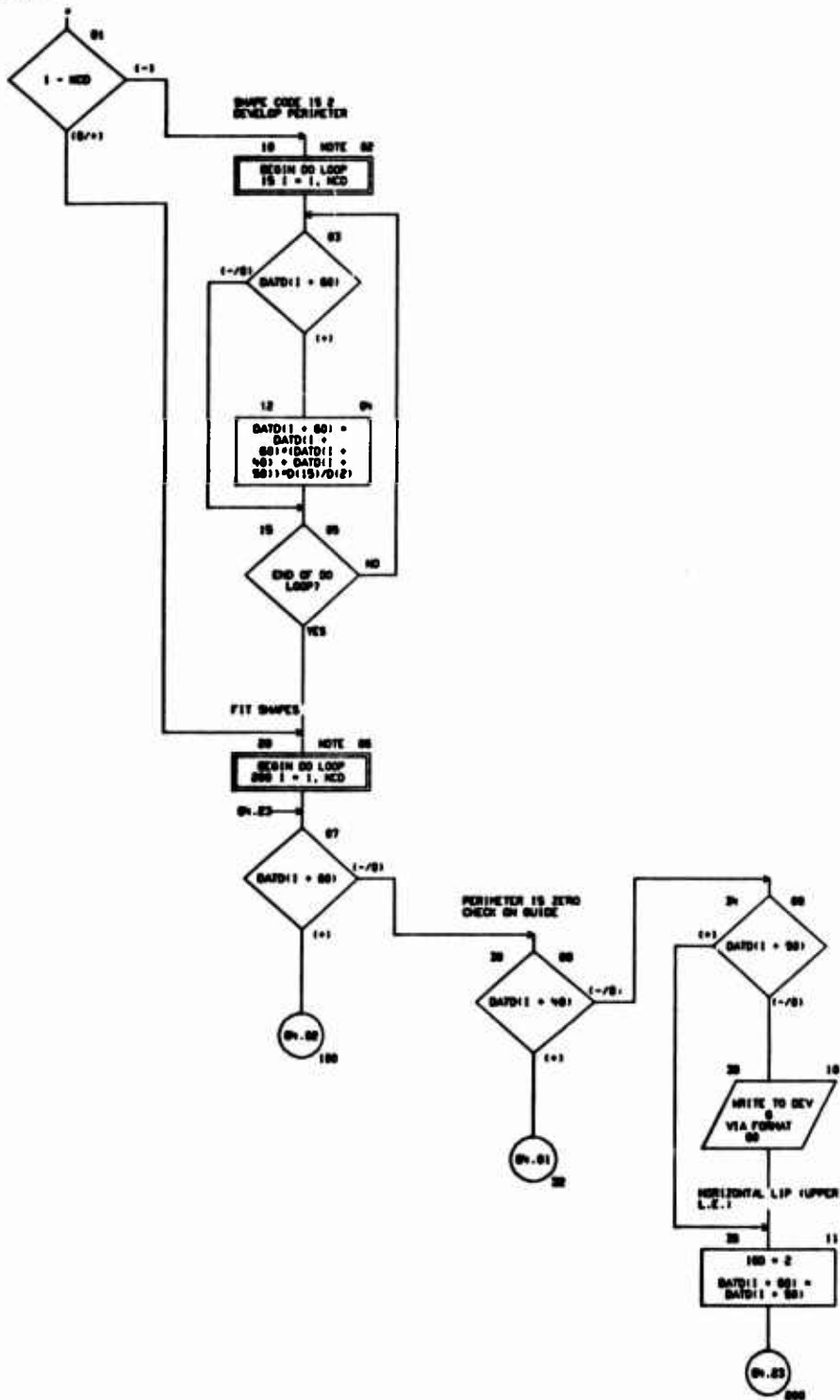


CHART TITLE - SUBROUTINE DUCED

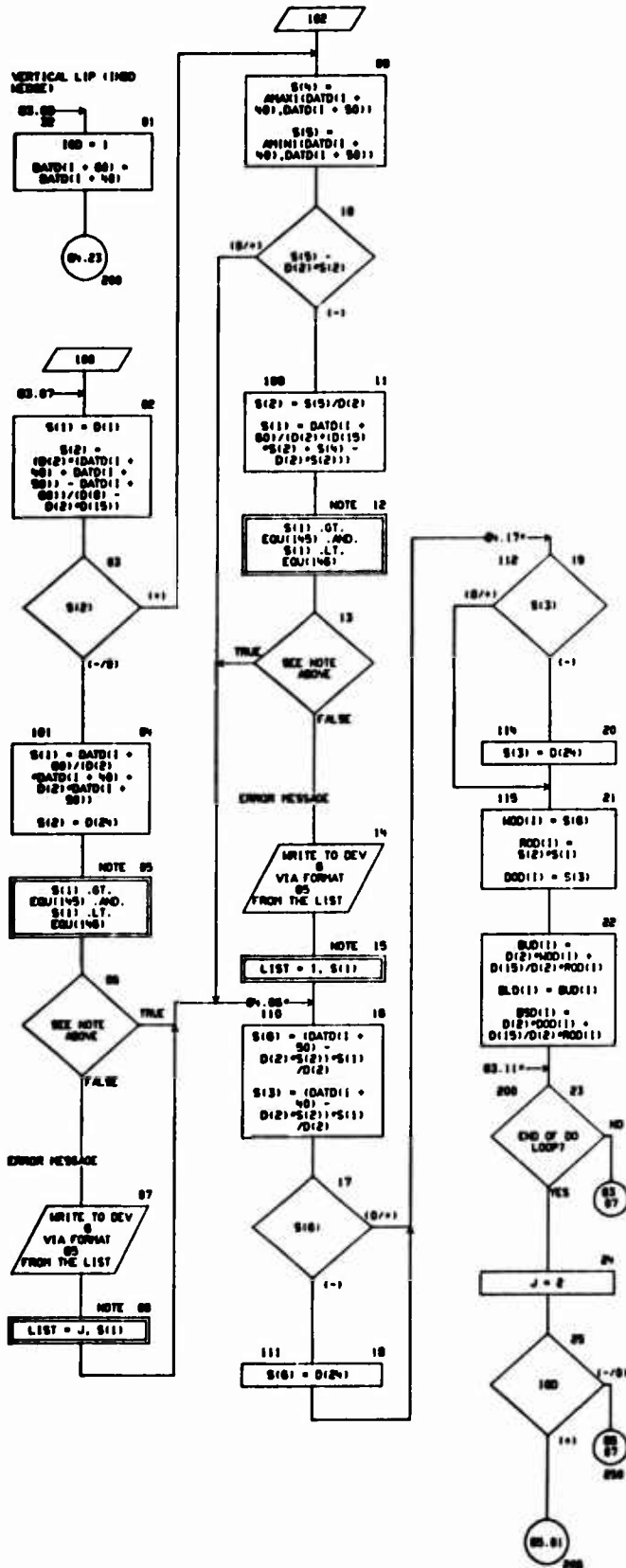
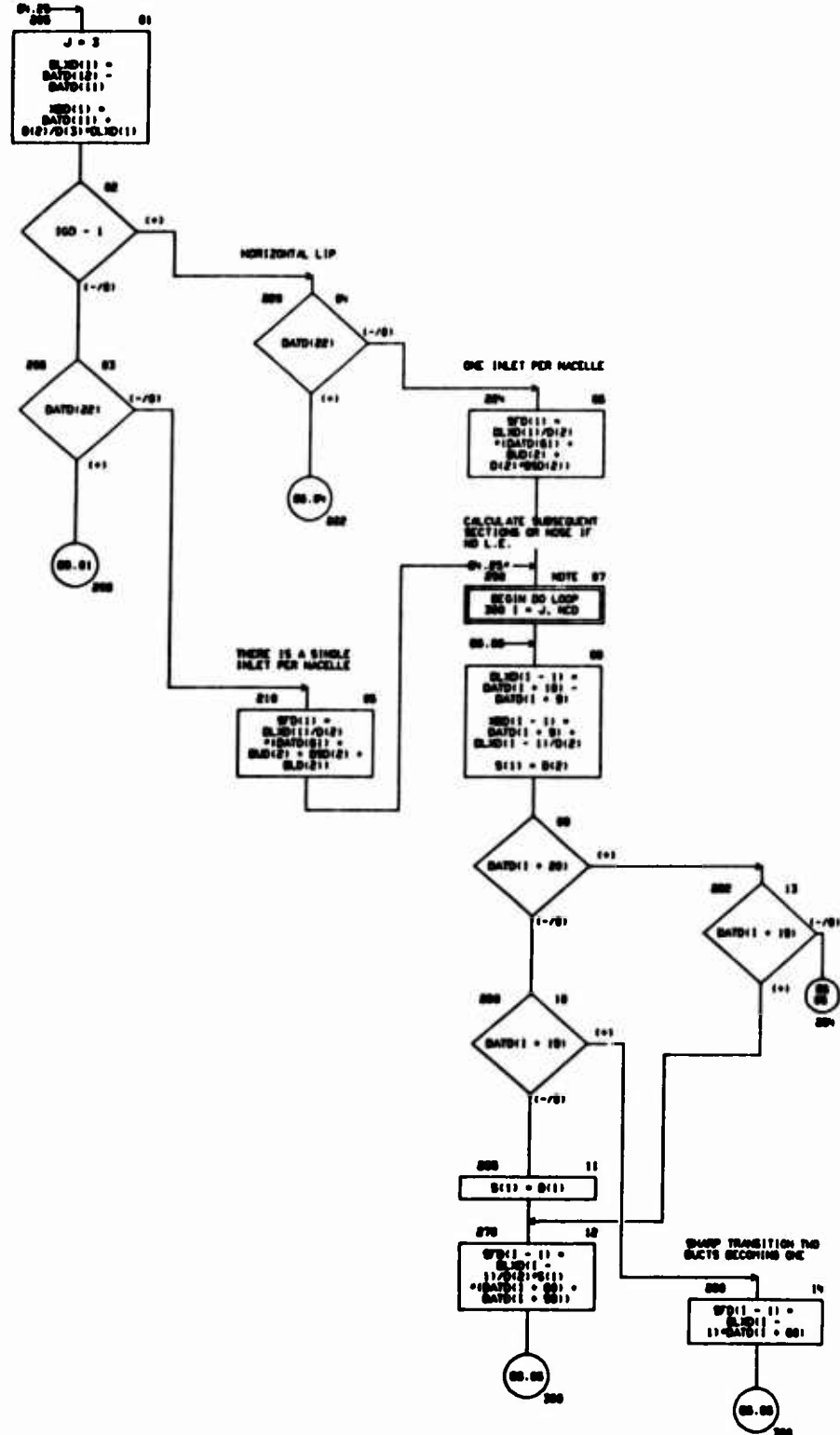


CHART TITLE - SUBROUTINE BUCKED

CALCULATE LEADING EDGE SURFACE

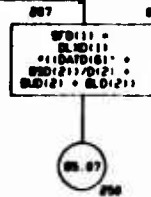


DATA TITLE - SUBROUTINE DUCHEO

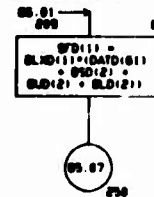
SECOND CUT IS OFFSET
THEREFORE THERE ARE
TWO INLETS PER
RACELLE



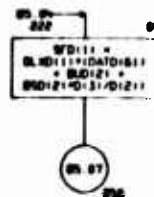
FOR VERTICAL LIP
CALCULATE LIP, TWO
TRIANGLES PLUS
VERTICAL LIP



SPLIT INLET AS PER
FUEL/AGE RELATED



TWO INLETS PER
RACELLE



LOOP TRANSITION ONE
DUET BECOMING TWO

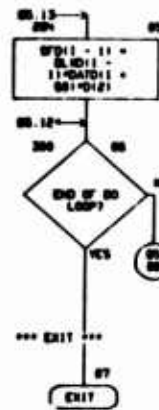


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

OPEN TOSH220)
DIMENSION D(100),ED(700),SV(220),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION SARD(70)
DIMENSION SVD(100)
DIMENSION MED(10),RED(10),SD(10),SLD(10),SLD(10),SD(10),
SLD(10),SFD(10),SD(10)
EQUIVALENCE (D(1),TOSH(1)),(ED(1),TOSH(70)),(SV(1),TOSH(40)),
(S(1),TOSH(22)),(ND(1),TOSH(12))
EQUIVALENCE (EQU(1),D(1))
EQUIVALENCE (SARD(1),ED(1))
EQUIVALENCE (SVD(1),SV(1))
EQUIVALENCE (MED(1),SND(1)),(RED(1),SFD(1)),(SD(1),SFD(2)),
(SLD(1),SND(3)),(SLD(1),SFD(4)),(SD(1),SFD(5)),
(SLD(1),SFD(6)),(SFD(1),SFD(7)),(RED(1),SVD(1))
EQUIVALENCE (ND(10),1), (ND(102),J)
EQUIVALENCE (ND(11),100), (ND(117),K0), (ND(110),K0)
00 FORMAT(30CHARS FROM SLICES IN DATA MANAGEMENT / 30N,23DUCT LIP
GEOMETRY ERROR )
05 FORMAT(30CHARS FROM SLICES IN DATA MANAGEMENT / 0N SECTION,
112, 4IN IS RECT. OR RELATED RECT., CORRECTION IS, IF 7, N )

```

01/08/74

ALPACON CHART SET - SHEEP DATA IMMEDIATE HUBBLE

PAGE 00

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBSTITUTE BRANDS
.....

CHRT TITLE - SUBROUTINE SWP00

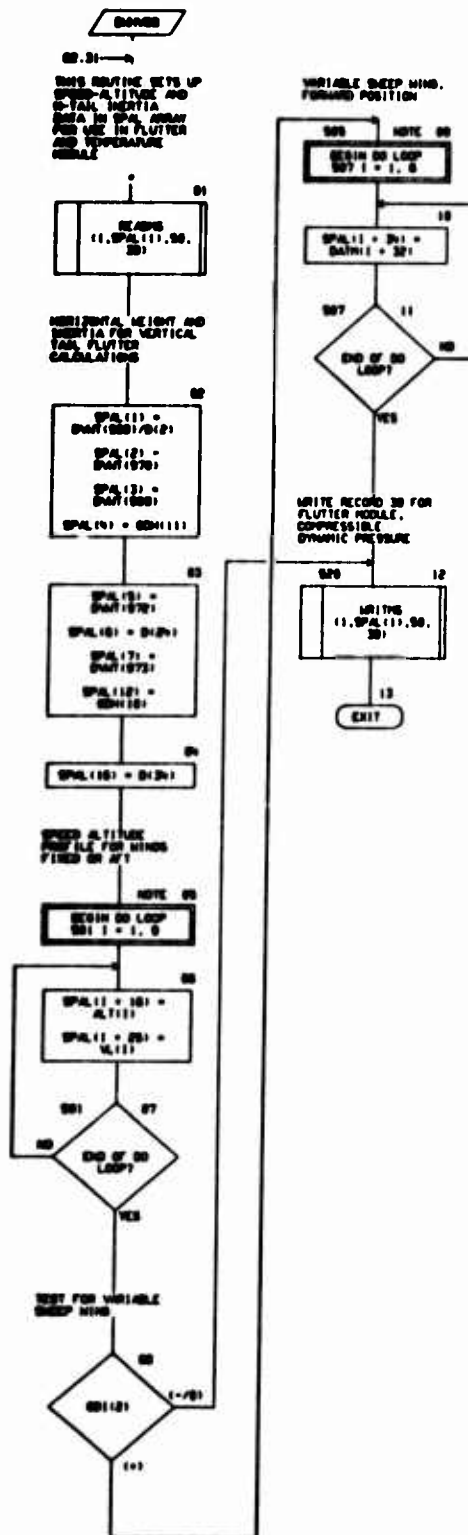


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

GIVEN TCON(20)
DIMENSION S(1700),SD(1700),DV(2200),S(1400),ND(200)
DIMENSION SPAL(50)
DIMENSION SD(100),SDH(40),DATH(40),ALT(10),VL(10)
DIMENSION SPAT(1000)
EQUIVALENCE (S(1),TCON(1)),(SD(1),TCON(70)),(DV(1),TCON(100))
    ,(S(1),TCON(370)),(ND(1),TCON(12))
EQUIVALENCE (SPAL(1),S(1))
EQUIVALENCE (SD(1),SD(1)),(SDH(1),SD(30)),(DATH(1),SD(5))
    ,(ALT(1),DV(1)),(VL(1),DV(7))
EQUIVALENCE (SPAT(1),DV(112))

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE TOTAL
.....

CHART TITLE - SUBROUTINE FTOTAL

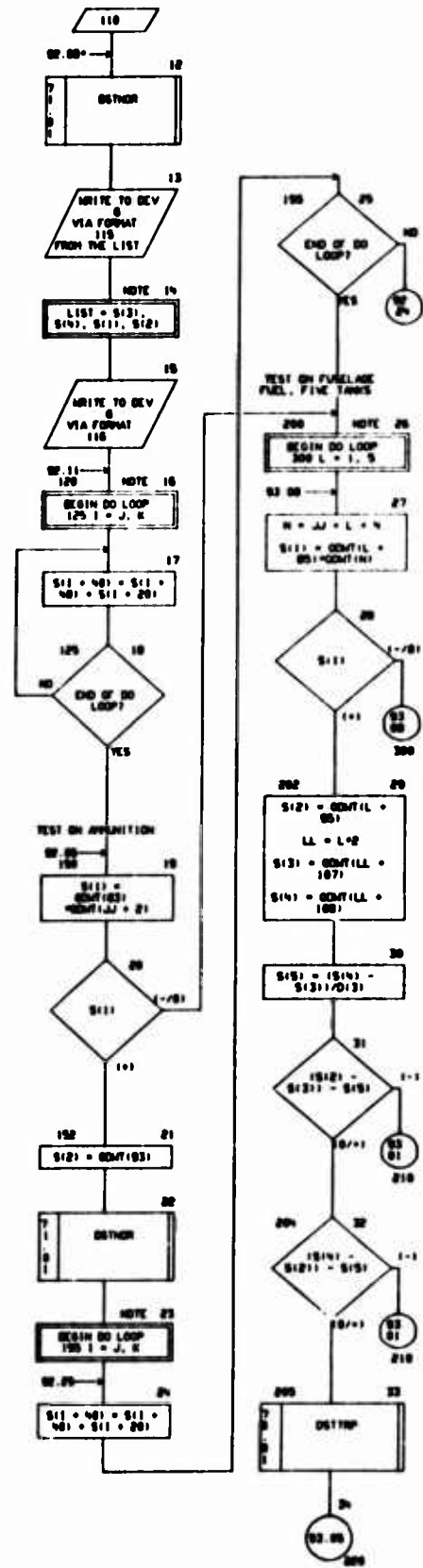
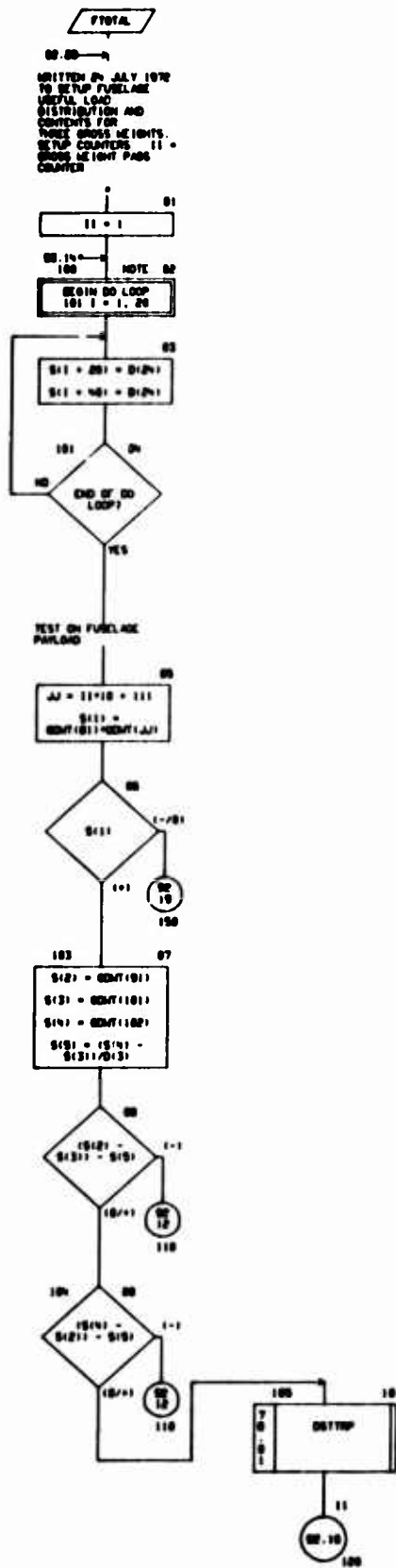


CHART TITLE - SUBMITTING TOTAL

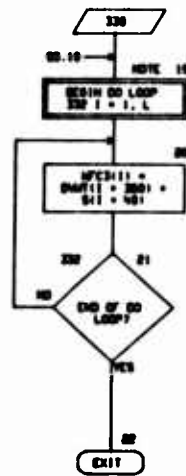
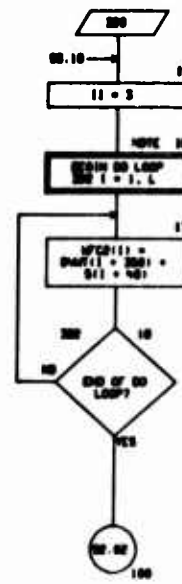
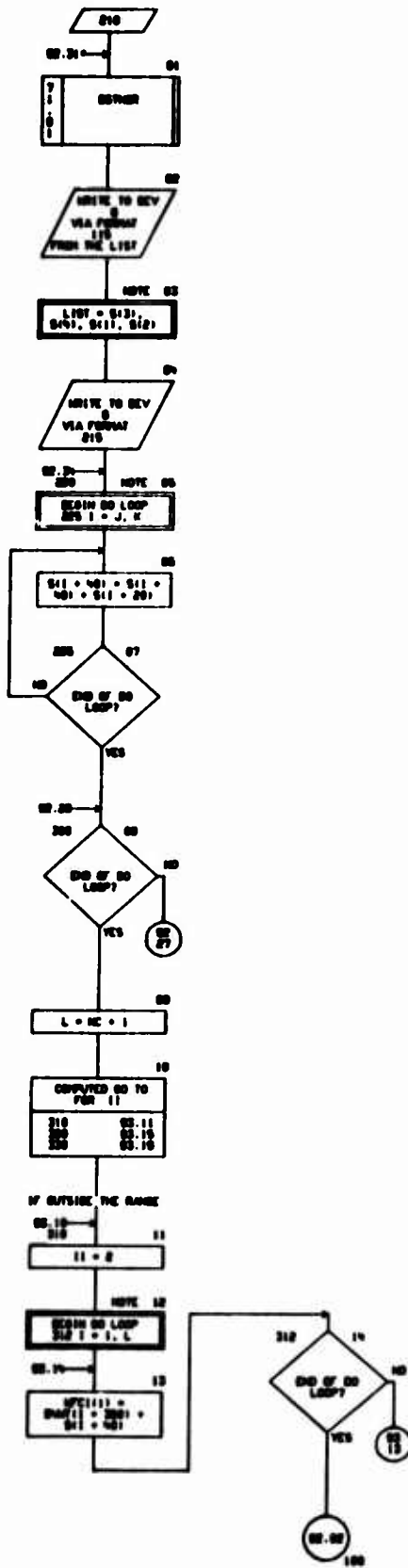


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

      COORDIN TCON(4320)
      DIMENSION B(1700),BD(1700),DV(2320),S(400),ND(200)
      DIMENSION BMT(100)
      DIMENSION BMT(1000),MFC(120),MFC(120),MFC(120)
      EQUIVALENCE (B(1),TCON(1)),(BD(1),TCON(70)),(DV(1),TCON(140)),
      (S(1),TCON(270)),(ND(1),TCON(412))
      EQUIVALENCE (BMT(1),BD(0))
      EQUIVALENCE (BMT(1),DV(112)),(MFC(1),BMT(70)),
      (MFC(1),BMT(80)),(MFC(1),BMT(82))
      EQUIVALENCE (I,ND(10)),(J,ND(102)),(K,ND(103)),(L,ND(104)),
      (M,ND(105)),(N,ND(107)),(O,ND(108)),(P,ND(110))
      EQUIVALENCE (NC,ND(115))
110  FORMAT(20H*** WARNING FROM FTOTAL *** /
      20H, 20HPREVIOUS FORE AND AFT LIMITS HERE, 2F10.2/
      20H, 2F10.2, 17H LBS AT FUS. STA., 2F8.2, 10H, 2INDISTRIBUTED BY D5THOR)
120  FORMAT(10H, 10H, 10H FUSELAGE PAYLOAD )
210  FORMAT(10H, 20H, 10H FUSELAGE FUEL )

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE FURDST
.....



CHART TITLE - SUBROUTINE FURDST

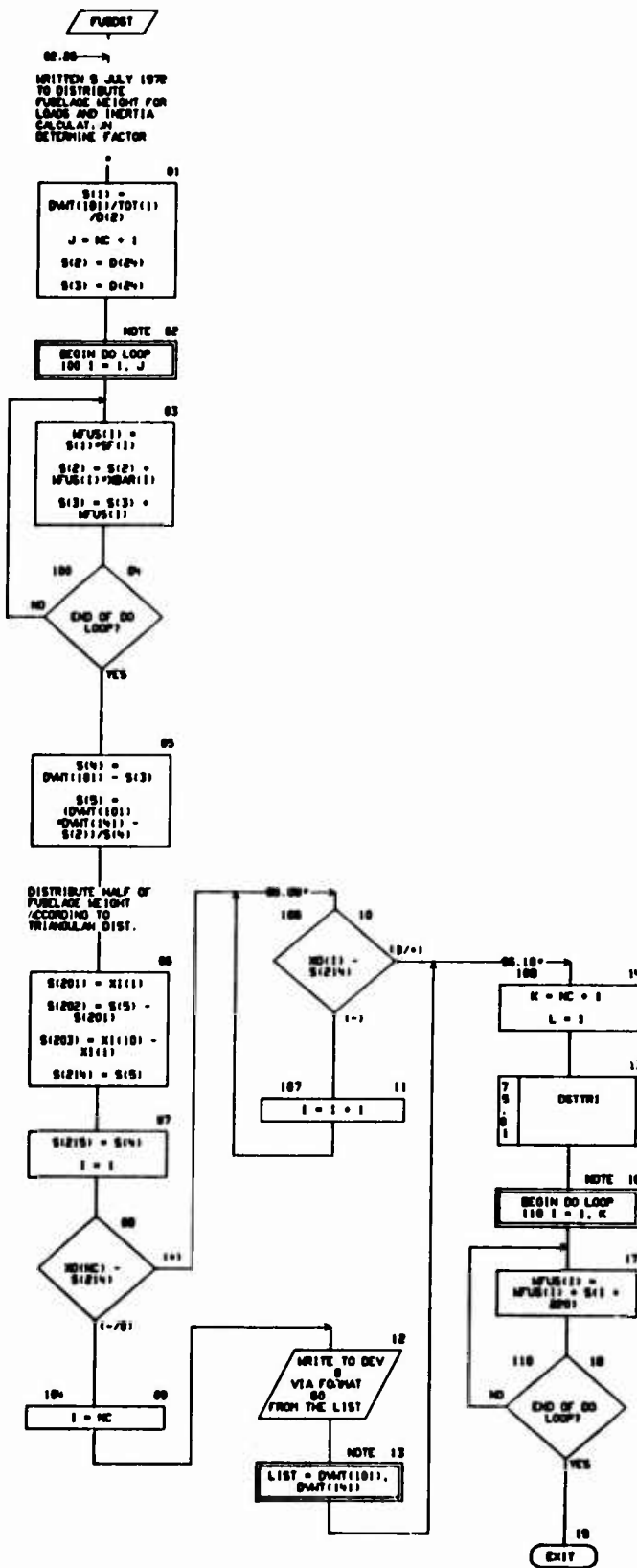


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

      OPEN TCON(4200)
      DIMENSION D(170),GD(170),DV(220),S(400),ND(700)
      DIMENSION DWT(500),MFUS(20)
      DIMENSION GDB(50),DVB(440)
      DIMENSION XI(10),ND(20),HBR(20),WF(20),TOT(20)
      EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(70)),(DV(1),TCON(140)),
        (S(1),TCON(210)),(ND(1),TCON(421))
      EQUIVALENCE (DWT(1),DV(112)),(MFUS(1),DWT(31))
      EQUIVALENCE (GDB(1),GD(30)),(DVB(1),DV(43))
      EQUIVALENCE (XI(1),GDB(6)),(ND(1),GDB(56)),(HBR(1),DVB(14)),
        (WF(1),DVB(18)),(TOT(1),DVB(38))
      EQUIVALENCE (I,ND(10)),(J,ND(102)),(K,ND(103)),(L,ND(104))
      EQUIVALENCE (M,ND(115))
00  FORMAT(21H** FURST WARNING ** /10X,20CHECK MT AND CS DATA,
      /10X,20FURDLAGE MT DIST IS NOT REALISTIC,/10X,40MT =,F10.2,
      2X,400 =,F8.2)

```

CHART TITLE - INTRODUCTORY COMMENTS

```

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<
SUBROUTINE FUSDED
<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

```



CHART TITLE - SUBROUTINE FURB0



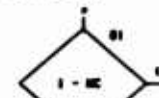
00.00 ->
INITIAL ROUTINE FOR
EXTERNAL SHELL
GEOMETRY
FAMILY OF BOUNDED
RECTANGLES

EQUIVALENCE SCRATCH
COUNTERS

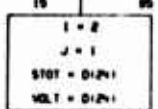
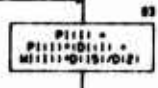
Z0 = FURLEAVE WATER
PLANE FOR EVALUATION
M0 = PLAT HORIZONTAL
D00 = PLAT VERTICAL
DESCRIPTION OF OUTPUT
ARRAYS
D00 = CONTROL OF
SEGMENT DELTA =
SEGMENT LENGTH
D01 = UPPER PANEL
D02 = LOWER PANEL
D03 = SIDE PANEL
D04 = RADIUS OF CURVATURE
UPPER
D05 = RADIUS OF
CURVATURE LOWER
D06 = RADIUS OF CURVATURE
SIDE
D07 = PERIMETER
D08 = CORNER RADIUS
D09 = SURFACE AREA
D10 = VOL =
VOLUME OF SEGMENT

DESCRIPTION OF INPUT
ARRAYS
Z1 = FURLEAVE WATER
PLANE FOR GEOMETRY
Z2 = FUR STATION FOR
GEOMETRY D1 = FUR
DEPTH
M1 = FUR WIDTH
P1 = PERIMETER - KC =
1
P2 = PERIMETER
CORRECTION - KC=2 M0
= FUR STATION FOR
EVALUATION
I = INPUT GEOMETRY
COUNTS
J = OUTPUT GEOMETRY
COUNTS

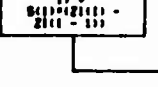
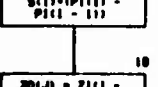
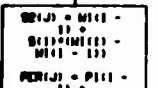
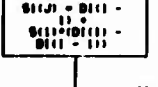
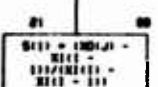
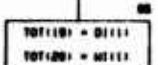
SCRATCH ARRAYS
D1 = DEPTH
D2 = WIDTH
D3 = AREA
D4 = CROSS-SECTION



CONVERT PERIMETER
CORRECTION TO
PERIMETER AND
SUBSTITUTE



STRAIGHT LINE
INTERPOLATION



SHAPE FIT

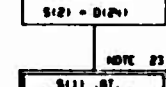
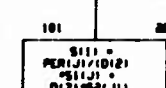
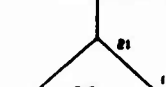
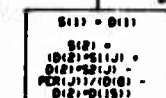
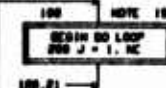


CHART TITLE - SUBROUTINE FURBER

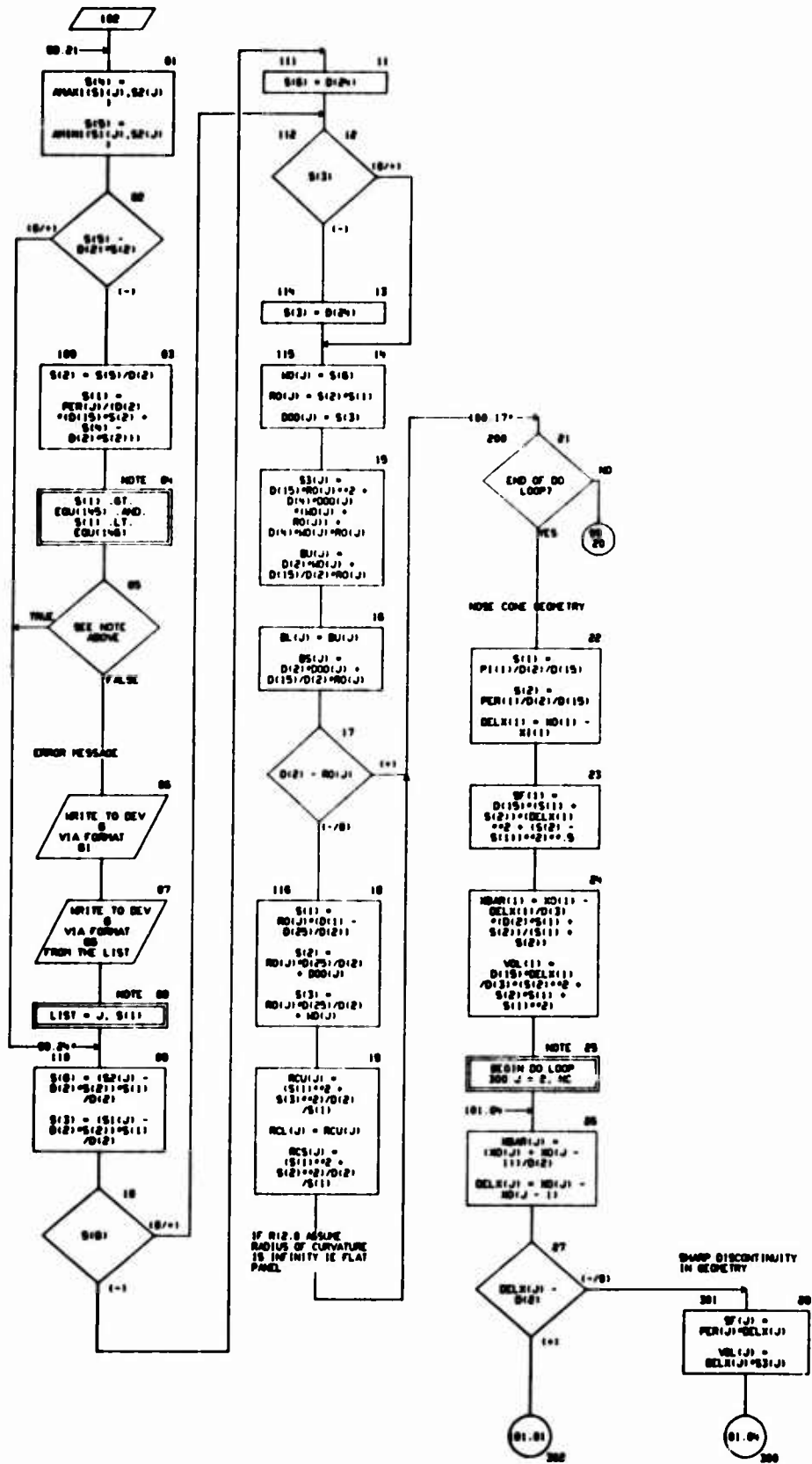


CHART TITLE - SUBROUTINE PUMBO

NORMAL GEOMETRY POSITION

100.07
01
S(1) = PER(J) -
P(1)/D(1)/D(1)
S(2) = P(2)/D(1)/D(1)

02
W(J) =
D(1)*S(1) +
D(2)*S(2) +
W(0) + S(2) -
S(1)*S(2)

03
VOL(J) =
DEL(X)/D(1) +
P(3)/D(1) -
S(1) +
P(3)/D(1) -
S(1)*S(1)

100.08
04
END OF DO LOOP?
YES
NO

TAIL CODE GEOMETRY

05
J = NC
S(1) = PER(J)/D(1)
S(2) = P(10)/D(1)
ND(J) = 1 +
Z(10)

06
ND(J) = 1 +
Z(10)
DEL(X) = 1 +
S(10) - ND(J)

07
ND(J) = 1 +
ND(J) + DEL(X) +
P(3)/D(1) +
S(2) +
S(1)*S(2) +
S(1)

08
W(J) = 1 +
D(1)*S(1) +
D(2)*S(2) +
W(0) + S(2) -
S(1)*S(2)

09
VOL(J) = 1 +
D(1)*DEL(X) +
P(3)/D(1) +
S(1) +
P(3)/D(1) -
S(1)*S(1)

NOTE 10
BEGIN DO LOOP
000 J = 1, 1

101.10
11
STOT = STOT +
W(J)
VOLT = VOLT +
VOL(J)

100
12
END OF DO LOOP?
YES
NO

DESCRIPTION OF OUTPUT
ARRAYS
UIE = UNIT ROLL
INERTIA
UIY = UNIT YAW
INERTIA
UIZ = UNIT YAW
INERTIA

NOTE CODE
13
S(1) = P(1)/D(1)
S(2) = PER(1)/D(1)
S(3) = ND(1) -
ND(1)

14
UIX(1) =
D(3)/D(1)*S(1) +
S(1)*S(2) +
S(1)*S(2)*S(2) +
S(1)*S(2)*S(2) +
S(2)*S(1)*S(1) +
S(2)*S(2)

15
UIY(1) =
D(1)*S(1) +
D(10)/D(1)*S(2) +
D(10)/D(1)*S(2)*S(2)

NOTE 10
BEGIN DO LOOP
000 J = 1, NC

100.01
17
DEL(X) =
S(1) -
S(1)

01.03
000

NORMAL GEOMETRY POSITION

101.17
01
S(1) = 1000(J) +
100(J) - S(1)/D(1)
S(2) = 100(J) +
100(J) - S(1)/D(1)
S(3) = 100(J) +
100(J) - S(1)/D(1)

02
S(1) =
D(1)*S(1)*S(1) +
S(3) +
D(1)*S(1)*S(1) +
D(1)*S(1)*S(1)

03
S(1) =
D(1)/D(1)*S(2) +
S(1) +
S(1)*S(1) +
D(1)/D(1)*S(3) +
S(1)*S(1) +
D(1)/D(1)*S(3) +
S(1)*S(1) +
D(1)*S(1) +
S(1)*S(1)

04
S(1) =
D(1)/D(1)*S(1) +
S(2) +
S(1)*S(1) +
D(1)/D(1)*S(3) +
S(1)*S(1) +
D(1)/D(1)*S(3) +
S(1)*S(1) +
D(1)*S(1) +
S(1)*S(1)

05
S(1) =
D(1)/D(1)*S(1) +
S(2) +
S(1)*S(1) +
D(1)/D(1)*S(3) +
S(1)*S(1) +
D(1)/D(1)*S(3) +
S(1)*S(1) +
D(1)*S(1) +
S(1)*S(1)

SHARP DISCONTINUITY IN GEOMETRY

01
S(1) =
D(1)*ND(J) +
1000(J) +
ND(J) +
D(1)*ND(J)*1000(J) +
D(1)*ND(J)*S(2)

02
S(1) =
D(1)/D(1)*ND(J) +
1000(J) +
ND(J) +
D(1)/D(1)*ND(J) +
1000(J) +
D(1)/D(1)*ND(J) +
1000(J) +
D(1)*ND(J) +
S(2)*1000(J)*S(2)

03
S(1) =
D(1)/D(1)*ND(J) +
1000(J) +
ND(J) +
D(1)/D(1)*ND(J) +
1000(J) +
D(1)/D(1)*ND(J) +
1000(J) +
D(1)*ND(J) +
S(2)*1000(J)*S(2)

04
S(1) =
D(1)/D(1)*ND(J) +
1000(J) +
ND(J) +
D(1)/D(1)*ND(J) +
1000(J) +
D(1)/D(1)*ND(J) +
1000(J) +
D(1)*ND(J) +
S(2)*1000(J)*S(2)

05
UIX(J) = S(1) +
S(1)/S(1)
UIY(J) =
S(1)/S(1) +
DEL(X) +
D(1)

06
UIZ(J) =
S(1)/S(1) +
DEL(X) +
D(1)

CHRT TITLE - SUBROUTINE PUSGEO

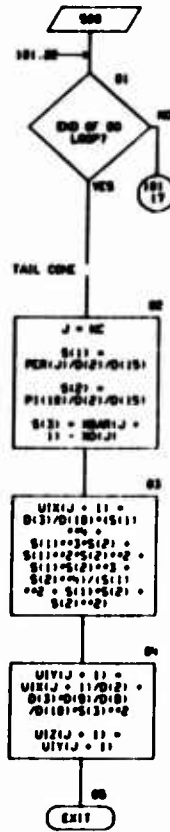


CHART TITLE - MIN-PROCEDURAL STATEMENTS

```

COMMON TCON(120)
DIMENSION O(1700),OO(1700),OV(2320),S(400),NO(200)
DIMENSION EQU(200)
DIMENSION GOB(80),DVB(440)
DIMENSION XI(10),ZI(10),DI(10),MI(10),PI(10),RO(20)
DIMENSION ZO(20),RCU(20),RCL(20),RCS(20),BU(20),BL(20),
      OS(20),HBAR(20),DELX(20),SF(20),VOL(20),DOO(20),NO(20),RO(20),
      PER(20)
DIMENSION S(120),SP(20),S3(20),TOT(20)
DIMENSION UIX(20),UIY(20),UIZ(20)
EQUIVALENCE (O(1),TCON(1)),(OO(1),TCON(70)),(OV(1),TCON(140)),
      (S(1),TCON(372)),(NO(1),TCON(421))
EQUIVALENCE (EQU(1),O(8))
EQUIVALENCE (GOB(1),OO(30)),(DVB(1),OV(43))
EQUIVALENCE (XI(1),GOB(6)),(ZI(1),GOB(16)),(DI(1),GOB(26)),
      (MI(1),GOB(36)),(PI(1),GOB(46)),(RO(1),GOB(56))
EQUIVALENCE (ZO(1),DVB(1)),(RCU(1),DVB(21)),(RCL(1),DVB(41)),
      (RCS(1),DVB(61)),(BU(1),DVB(81)),(BL(1),DVB(101)),
      (OS(1),DVB(121)),(HBAR(1),DVB(141)),(DELX(1),DVB(161)),
      (SF(1),DVB(181)),(VOL(1),DVB(201)),(DOO(1),DVB(221)),
      (NO(1),DVB(241)),(RO(1),DVB(261)),(PER(1),DVB(281))
EQUIVALENCE (S(1),DVB(301)),(SP(1),DVB(321)),(S3(1),DVB(341)),
      (TOT(1),DVB(361))
EQUIVALENCE (UIX(1),DVB(381)),(UIY(1),DVB(401)),(UIZ(1),DVB(421))
EQUIVALENCE (TOT(1),STOT), (TOT(2),VOLT)
EQUIVALENCE (IND(1),KC), (IND(16),KC)
EQUIVALENCE (IND(101),J), (IND(102),J)

```

- 01 FORMAT: 3D-DRAWING FROM FUSED IN DATA MANAGEMENT 1
- 05 FORMAT: 04 SECTION, 113, 324 IS RECTANGULAR, CORR FACTOR 15, FB 31
- 06 FORMAT: 04 SECTION, 113, 344 IS ROUNDED RECT, CORR FACTOR 15, FB 31

01/08/74

AUTOFLIGHT SET - SHEEP DATA MANAGEMENT MODULE

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CURT TITLE - INTERJECTORY COMMENTS

.....
SUBMIT THE NAMES
.....

CHART TITLE - SUBROUTINE MACRO



00.19
WRITTEN 8 APRIL 1970
TO DEVELOP MACELLE
GEOMETRY

SETUP INDICATORS AND
COUNTERS

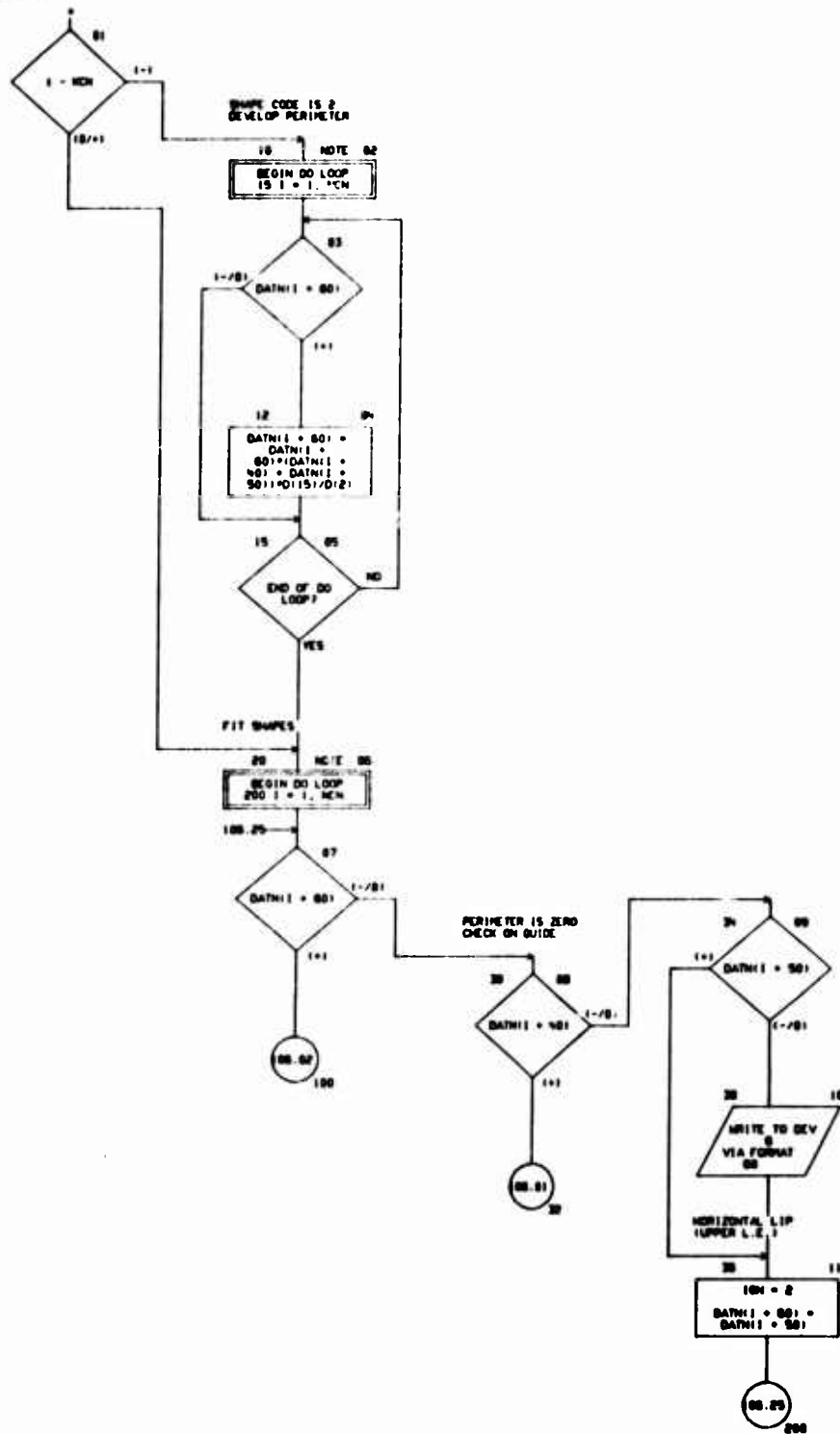


CHART TITLE - SUBROUTINE NAME(S)

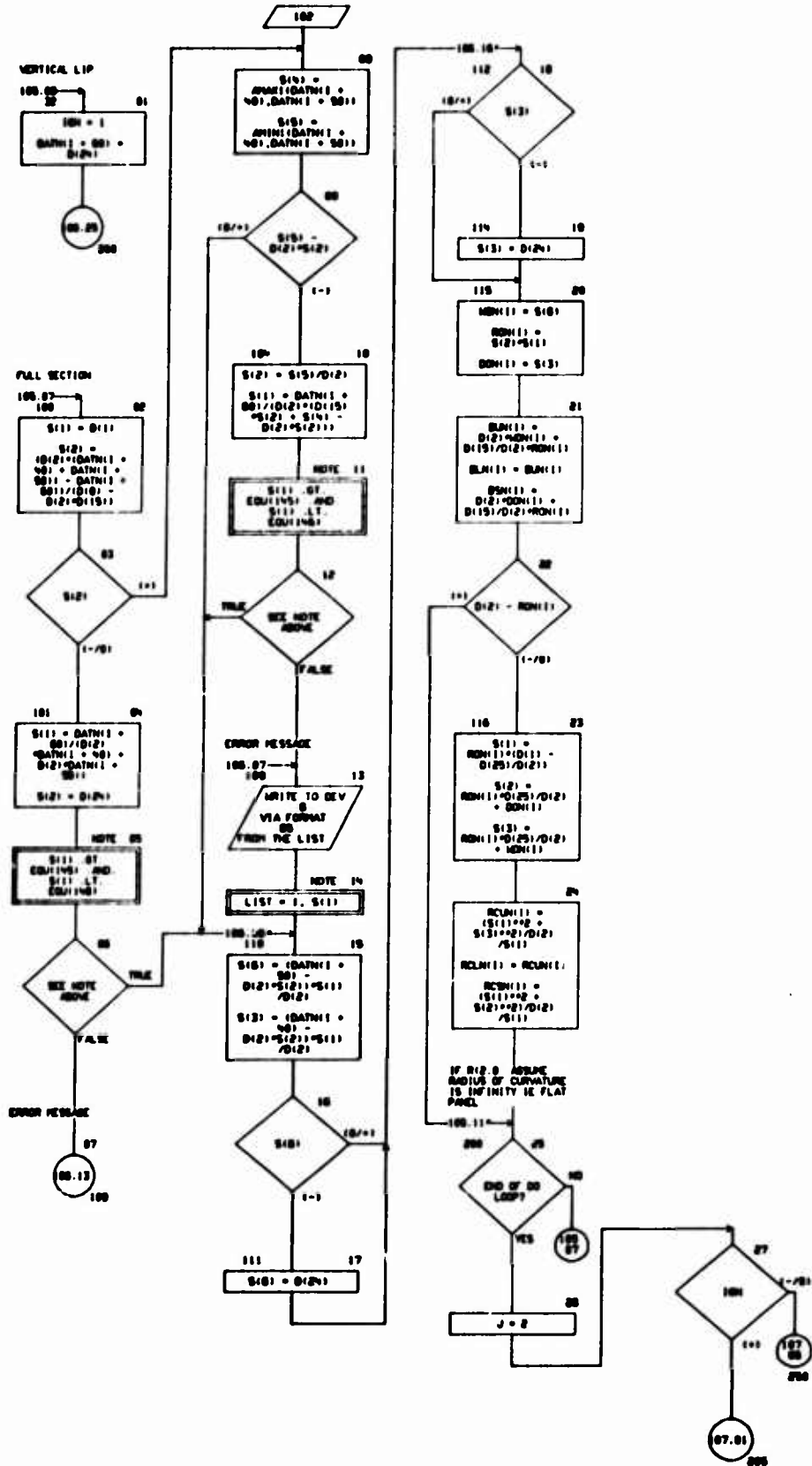


CHART TITLE - SUBROUTINE INCODE

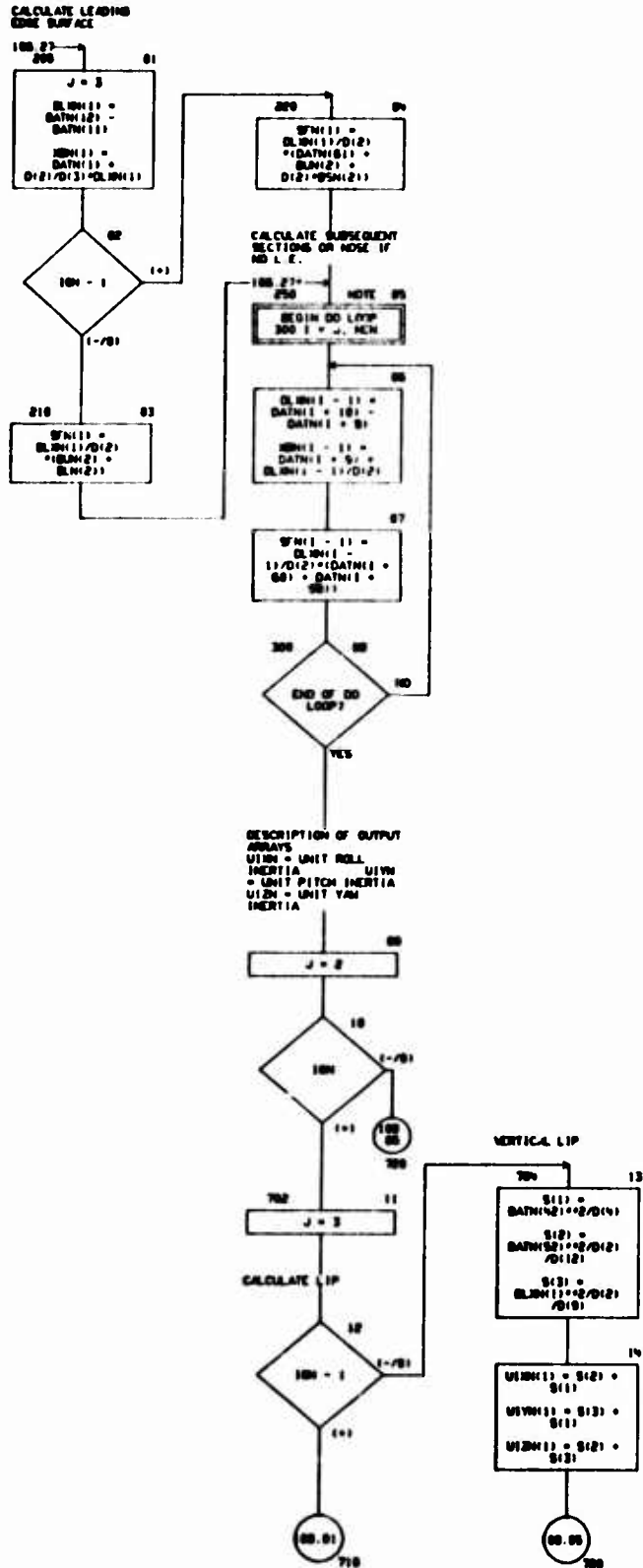


CHART TITLE - SUBROUTINE MACRO

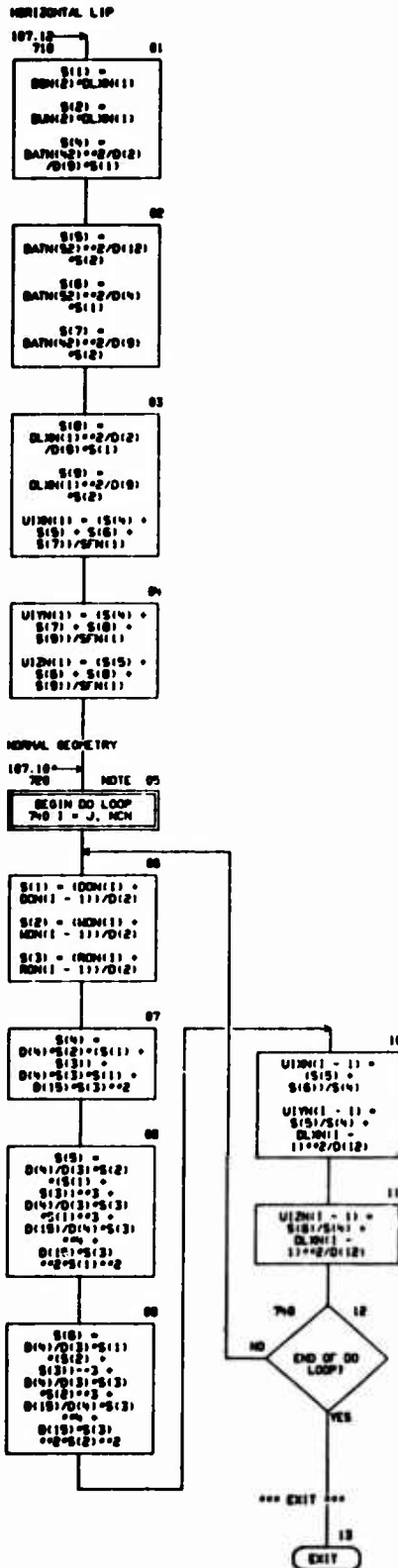


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(1320)
DIMENSION D(1700),DD(1700),DV(2320),S(1400),ND(200)
DIMENSION DAT(170)
DIMENSION DWH(150)
DIMENSION EQU(200)
DIMENSION MDH(10),RDN(10),ODN(10),BLN(10),BLN(10),BSN(10),
      BLN(10),SFN(10),RCLN(10),RCLN(10),RCSN(10),XBN(10)
DIMENSION U1N(10),U1YH(10),U1ZH(10)
EQUIVALENCE (D(1),TCON(1)),(D(11),TCON(701)),(DV(1),TCON(1401)),
      (S(1),TCON(1371)),(ND(1),TCON(121))
EQUIVALENCE (EQU(1),D(81))
EQUIVALENCE (DAT(1),DD(501))
EQUIVALENCE (DWH(1),DV(871))
EQUIVALENCE (MDH(1),DWH(1)),(RDN(1),DWH(1)),(ODN(1),DWH(21)),
      (BLN(1),DWH(31)),(BLN(1),DWH(41)),(BSN(1),DWH(51)),
      (BLN(1),DWH(61)),(SFN(1),DWH(71)),(RCLN(1),DWH(81)),
      (RCLN(1),DWH(91)),(RCSN(1),DWH(101)),(XBN(1),DWH(111))
EQUIVALENCE (U1N(1),DWH(121)),(U1YH(1),DWH(131)),
      (U1ZH(1),DWH(141))
EQUIVALENCE (ND(101),1),(ND(102),J)
EQUIVALENCE (NDH,ND(110)),(KCN,ND(120)),(ION,ND(121))
00  FORMAT (40#WARNING FROM NACGED IN DATA MANAGEMENT,10X,
      2#NACELLE LIP GEOMETRY ERROR)
05  FORMAT (40#WARNING FROM NACGED IN DATA MANAGEMENT /SH SECTION,
      113,47# IS RECTANGLE OR ROUNDED RECT., CORR. FACTOR IS, (F6.3)

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE NORGE0
.....

CHART TITLE - SUBROUTINE N0060

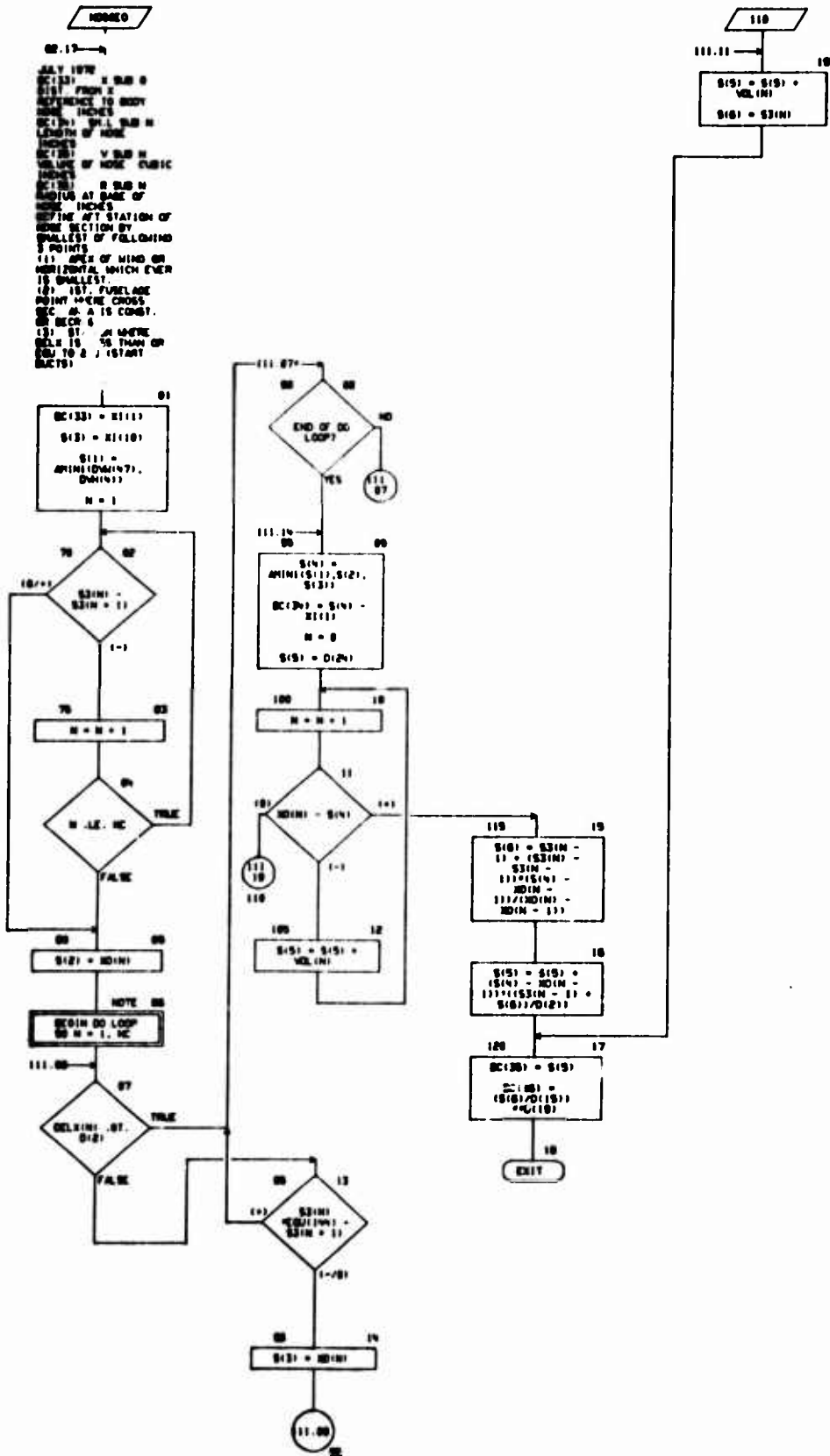


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCOM(420)  
DIMENSION D(170),GD(170),DV(232),S(40),ND(20)  
,GD(80),DVI(40),BC(20),DVI(50),DVI(30)  
,DEL(80),VOL(20),S3(20),ND(20),X(10),EQ(20)  
EQUIVALENCE (TCOM(1),D(1)), (TCOM(70),GD(1)), (TCOM(40),DV(1))  
, (TCOM(37),S(1)), (TCOM(42),ND(1))  
, (DVI(2),DVI(1)), (DVI(37),DVI(1)), (DVI(43),DVI(1))  
, (DVI(16),DEL(1)), (DVI(20),VOL(1)), (DVI(34),S3(1))  
, (GD(30),GD(1)), (GD(10),X(1)), (GD(50),ND(1))  
, (ND(10),ND(1))  
, (DVI(2),BC(1)), (EQ(1),D(1))
```

COURT TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE PRIME
.....

CHART TITLE - NON-PROCEDURAL STATEMENTS

```

OPEN TCON(320)
DIMENSION D(700), OD(700), DV(2320), S(400), ND(200)
DIMENSION OMT(100)
DIMENSION OMT(1000)
DIMENSION F(40), M(20), H(10), V(10), AJ(20), AD(20)
DIMENSION T(6,40)
EQUIVALENCE (D(1),TCON(1)), (OD(1),TCON(701)), (DV(1),TCON(1401)),
  (S(1),TCON(1701)), (ND(1),TCON(1911))
EQUIVALENCE (OMT(1),OD(1))
EQUIVALENCE (OMT(1),DV(1211))
EQUIVALENCE (F(1),OMT(101)), (M(1),OMT(101)), (H(1),OMT(121)),
  (V(1),OMT(141)), (AJ(1),OMT(161)),(AD(1),OMT(181))
EQUIVALENCE (T(1,1),S(1))
20  FORMAT(1H,2HX,21H** PRIME - (P) **
      3H DATA MANAGEMENT *** OPERATIONAL HEIGHT EMPTY *** /
      1HX, 2HTOTAL AND MAJOR COMPONENT BREAK DOWN // 2HX,
      1HTOTAL WT. 3H, 3HARM 4X, 3HFUSELAGE 3X, 4HWDING 2X,
      1HORIZONTAL 3X, 1HVERTICAL 11H 1H MACELLE 11H 1H MACELLE )
30  FORMAT(1H WING 12X, 1H HORIZONTAL 3X, 1H VERTICAL
      3X, 1H BODY 12X, 1H MAIN GEAR 7X, 1H NOSE GEAR 7X, 1H SURF. CONTROL 3X,
      1H ENG. SECTION 4X, 1H OTHER STRUCTURE 11X,
      1H ENGINES 3X, 1H ACCESSORY 3X,
      1H AIS STRUCTURE 3X, 1H AIS ACT AND REC. 3X,
      1H EXHAUST 3X, 1H COOL. AND DRNG. 3X,
      1H LUBE SYSTEM 5X, 1H FUEL SYSTEM 5X,
      1H ENGINE CONTROLS 3X,
      1H STARTING SYS. 3X, 1H A P U 11X, 1H INSTRUMENTS
      3X, 1H HYDRAULICS 3X, 1H ELECTRICAL 3X,
      1H ELECTRONIC 3X, 1H APPARENT 3X, 1H FURNISHINGS
      3X, 1H AIR CONDITION. 2X, 1H PHOTO. 10X,
      1H ARM. GEAR 7X, 1H OTHER EQUIPMENT 11X,
      1H CREW 12X, 1H TRAP. FUEL 3X,
      1H LUB. 12X, 1H MISCELLANEOUS 3X,
      1H M. EXT. TANKS 3X,
      1H F. EXT. TANKS 3X )
100  FORMAT(1H,2HX,21H** PRIME - (P) **
      4H DATA MANAGEMENT --- EXPENDABLE USEFUL LOAD // 3HX,
      2H----- CAPACITY -----, 3H WTDEN, 3H WFDEN, 3H WLODM / 3HX,
      3HWEIGHT, 3H 3HARM // 1HX, 2HPASSENGERS OR PAYLOAD, 1HX,
      1HX, 1HWDING PAYLOAD, 1HX, 1HX, 1HWEIGHT, 1HX,
      1HX, 1HWDING FUEL TANK 1, 4X, 1HX,
      1HWDING FUEL TANK 2, 4X, 1HX )
110  FORMAT ( 1HX, 1HFUSELAGE FUEL TANK, 12, X, 1HX )

```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBMITTING QUINCE
.....



CHART TITLE - SUBROUTINE QUNKE

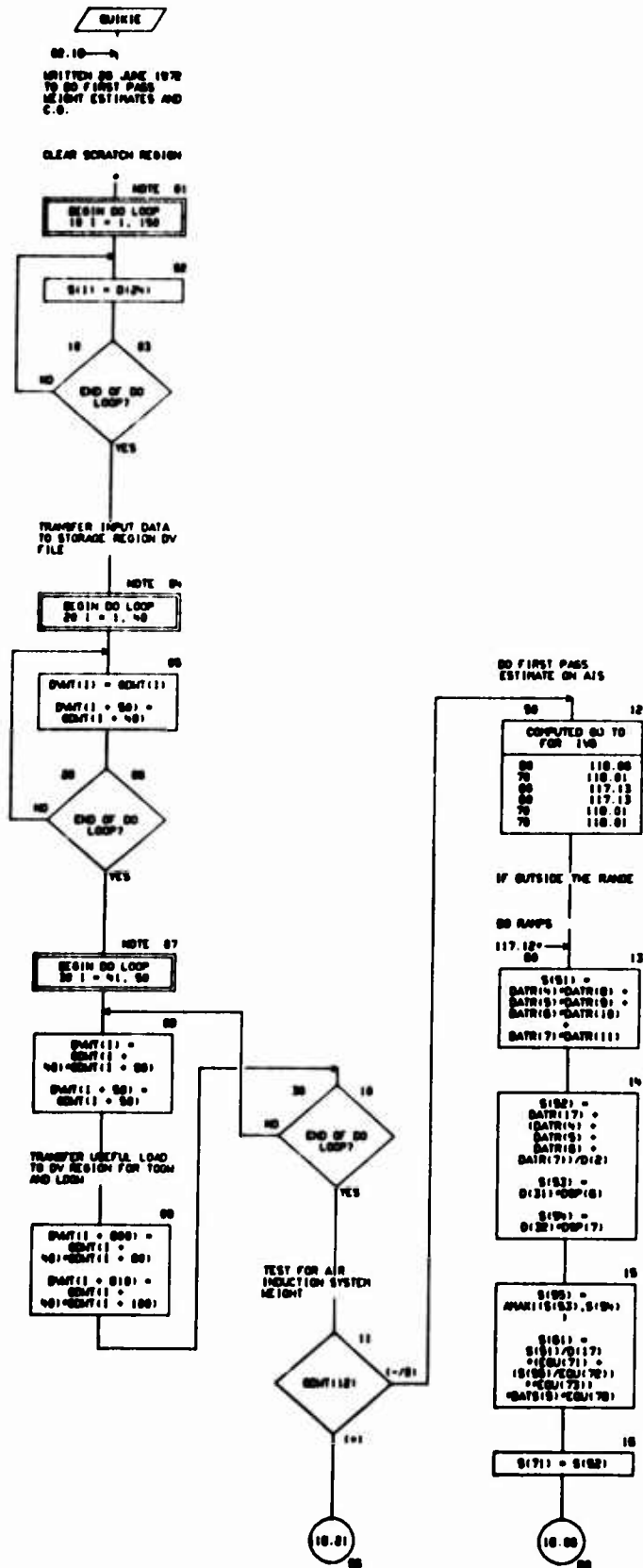


CHART TITLE - SUBROUTINE SUB10E

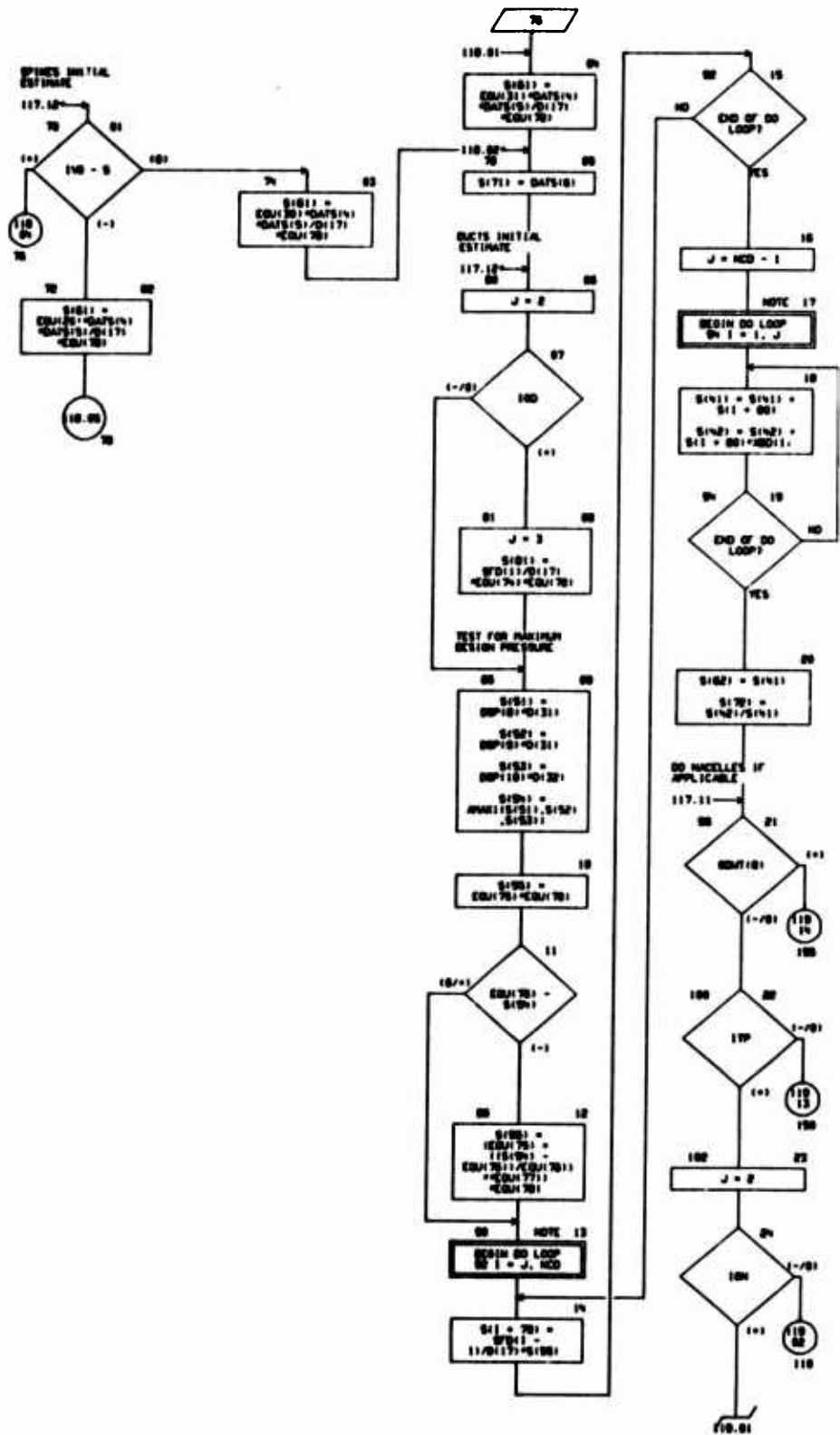


CHART TITLE - SUBROUTINE QUIKIE

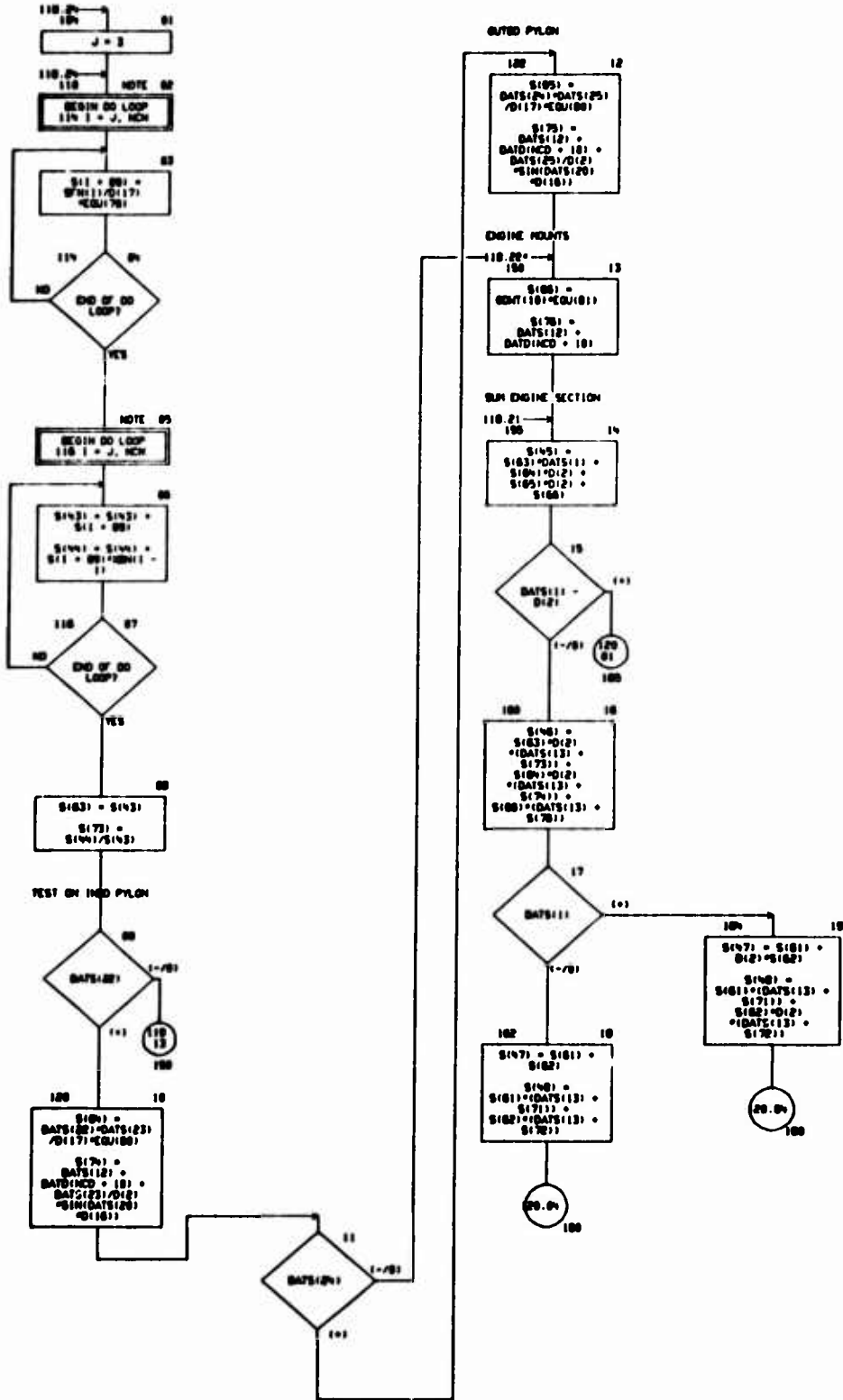


CHART TITLE - SUBROUTINE QUINIE

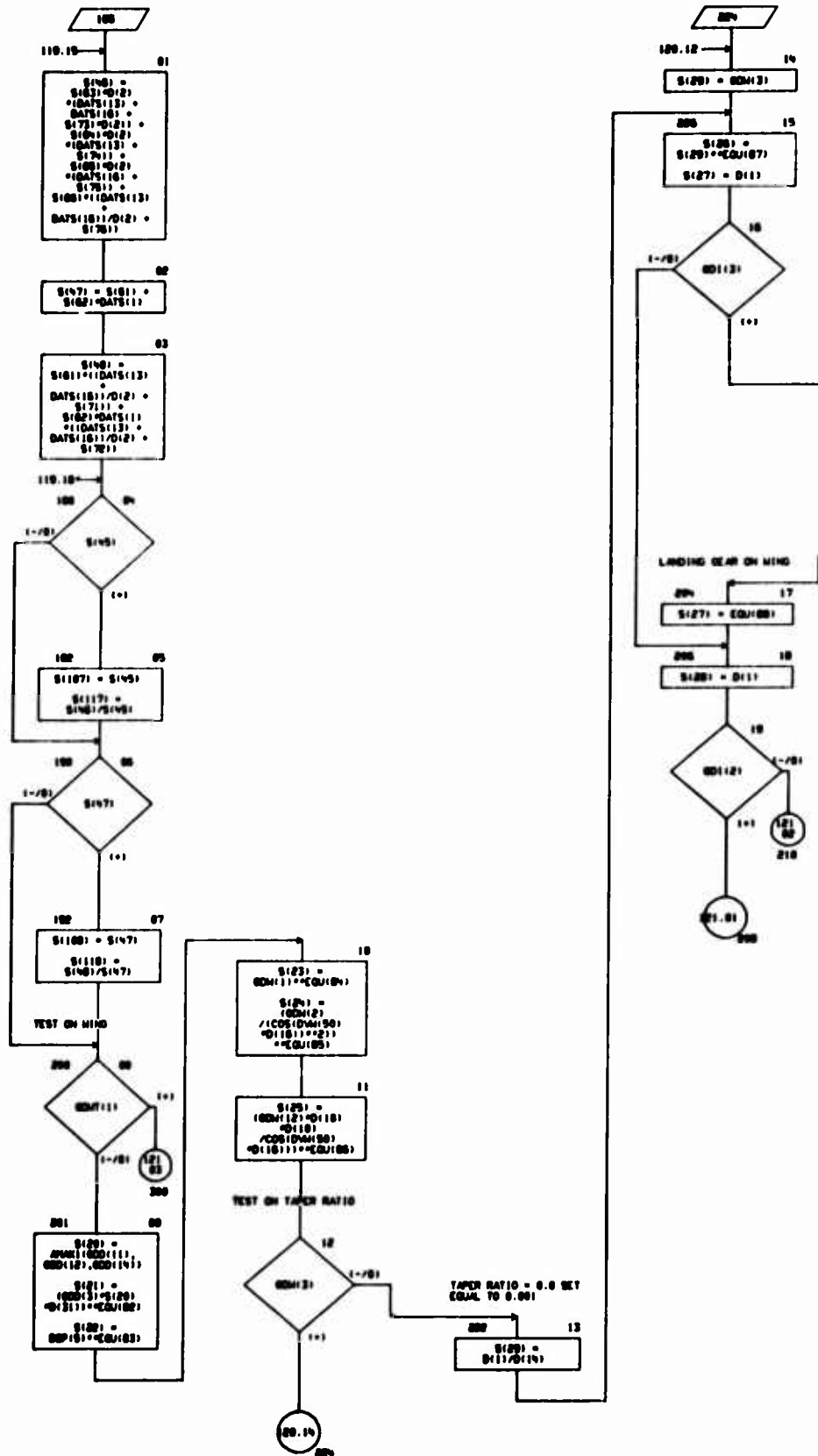


CHART TITLE - SUBROUTINE QWIKC

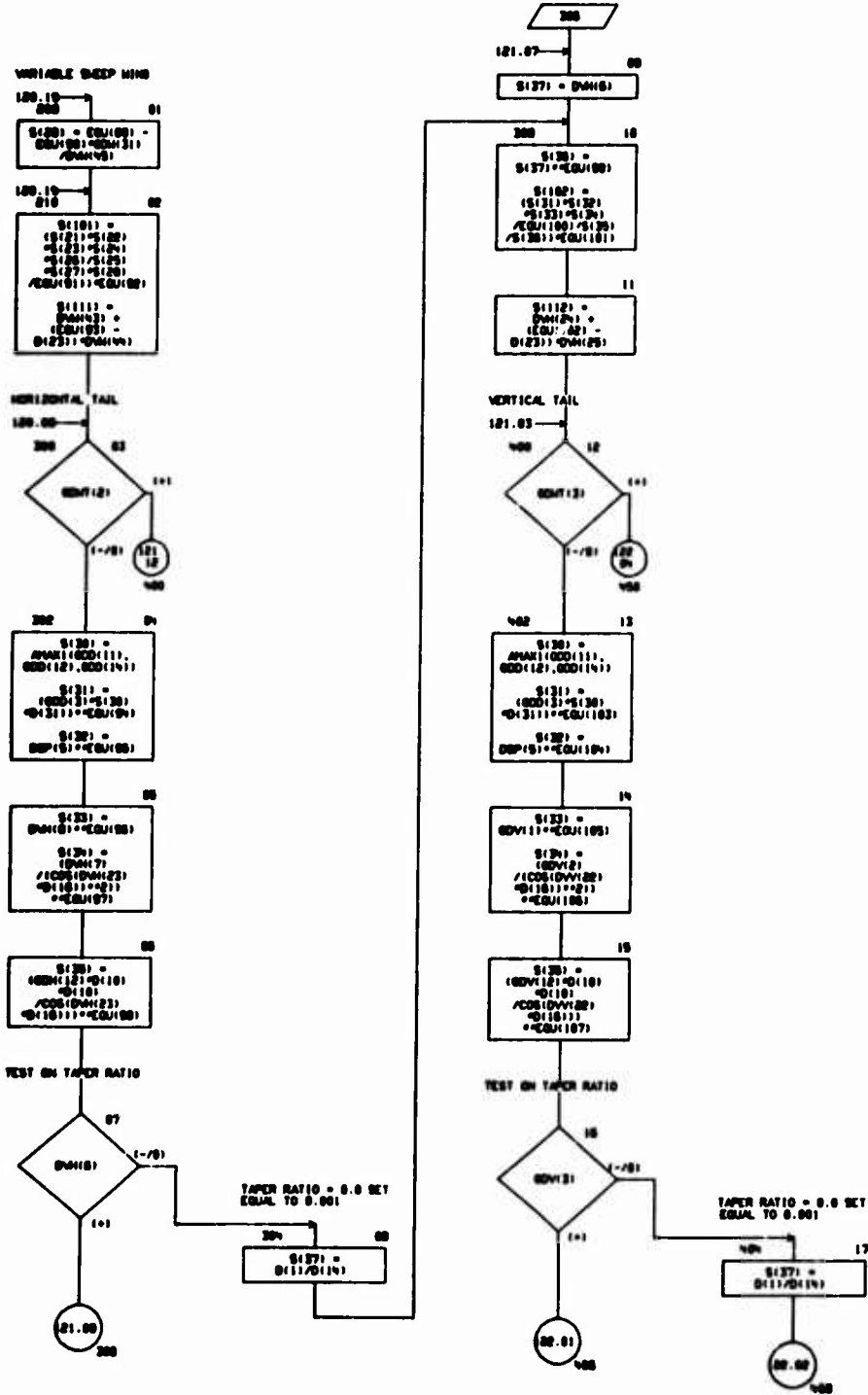


CHART TITLE - SUBROUTINE QJIKK

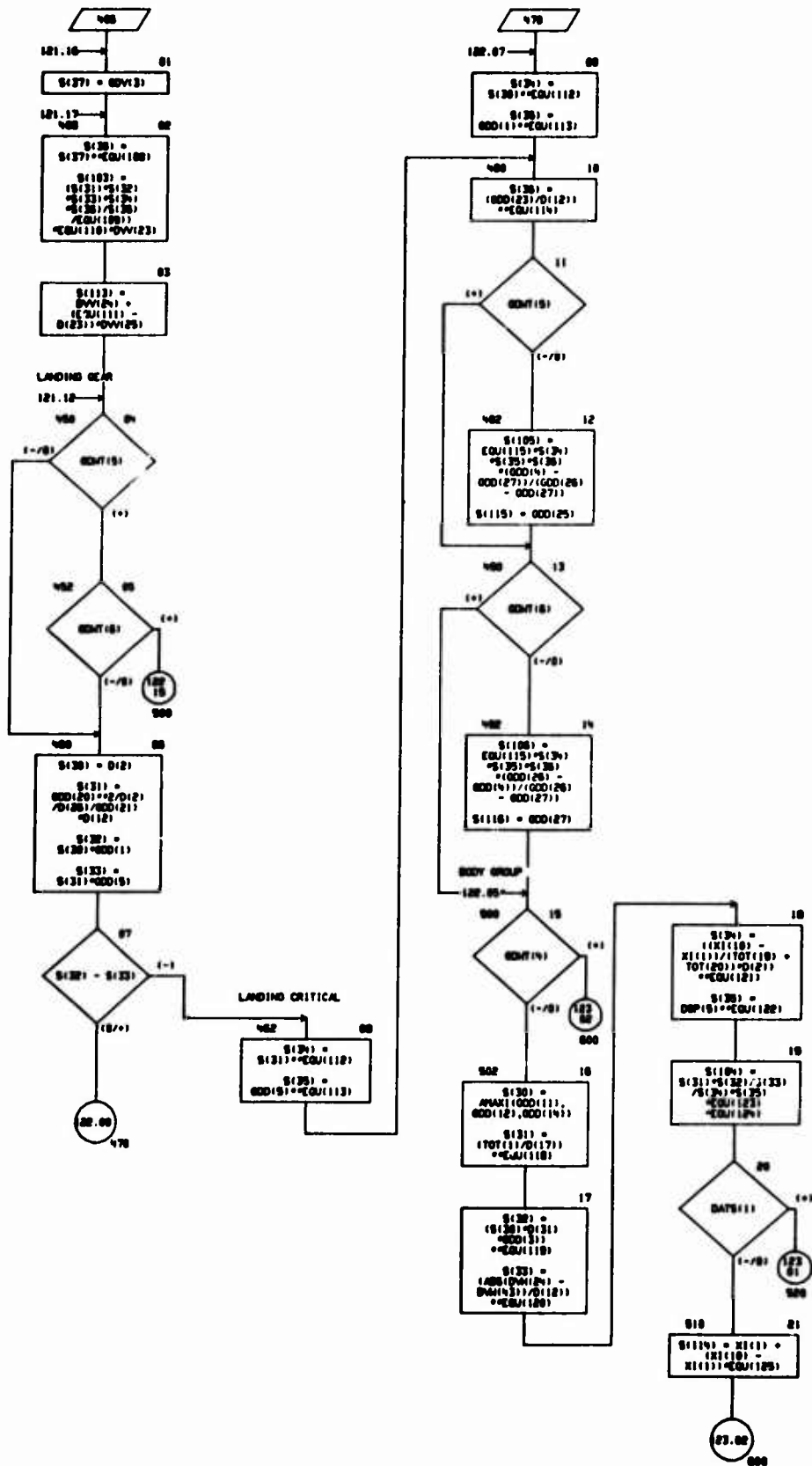


CHART TITLE - SUBROUTINE @UKIE

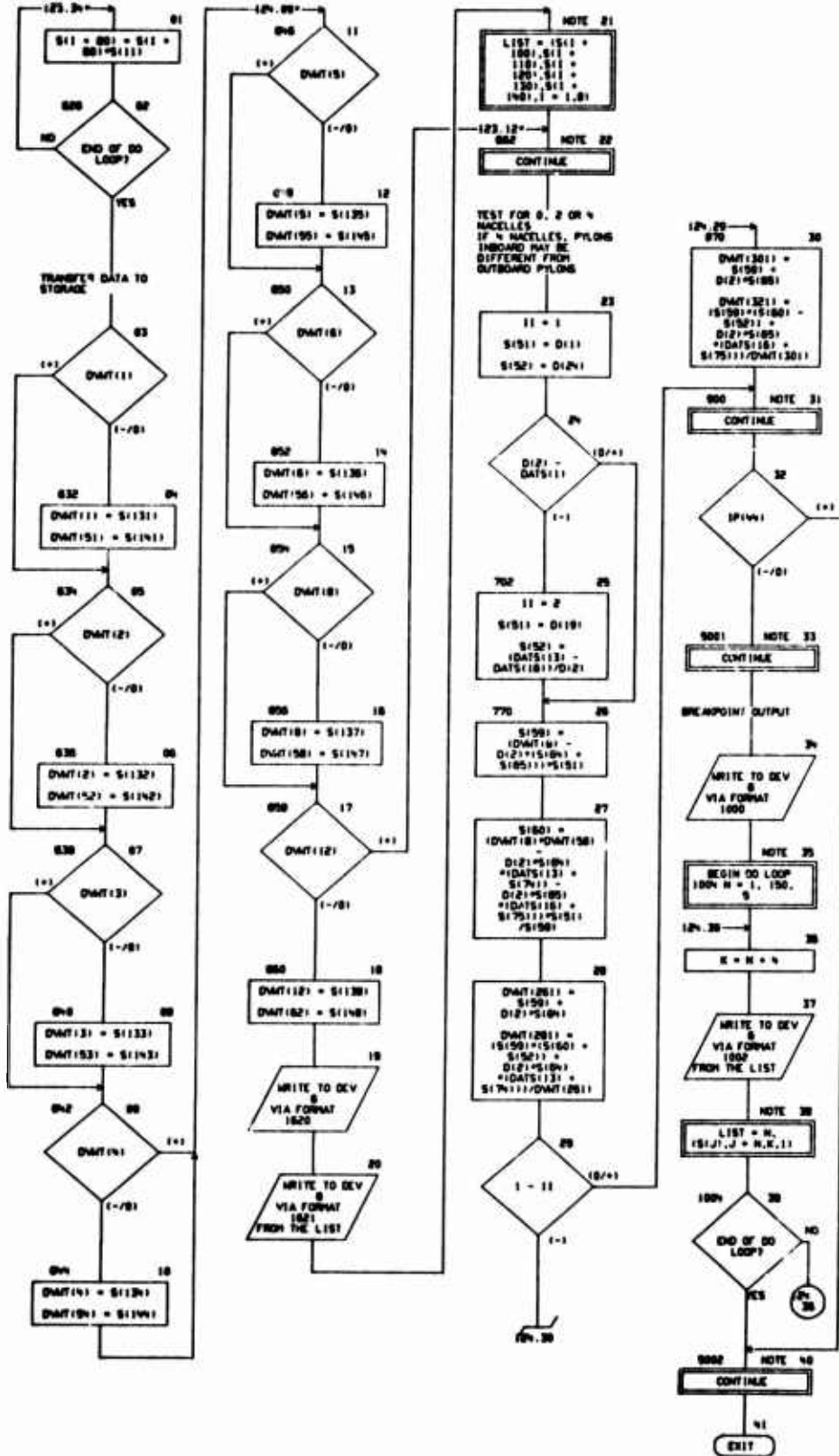


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(4320)
COMMON /IPRINT/ IP(100)
DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION OD(20),OD(30),ODT(100),ODH(50),ODH(40),ODV(40),
ODB(00),DATS(40),DATD(70),DATR(20),DATN(70)
DIMENSION DVA(50),DVH(30),DVI(30),DVB(440),DVD(100),DVH(150),
DWT(1000)
DIMENSION DSP(10)
DIMENSION X(10)
DIMENSION TOT(20),XND(10),SFD(10),XBN(10),SFM(10)
EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(701)),(DV(1),TCON(1401)),
(S(1),TCON(3701)),(ND(1),TCON(4121))
EQUIVALENCE (EQU(1),D(01))
EQUIVALENCE (OD(1),OD(11)),(OD(2),OD(21)),(ODT(1),OD(01)),
(ODH(1),OD(251)),(ODH(2),OD(301)),(ODV(1),OD(341)),
(ODB(1),OD(381)),(DATS(1),OD(461)),(DATD(1),OD(501)),
(DATR(1),OD(571)),(DATN(1),OD(581))
EQUIVALENCE (X(1),OD(6))
EQUIVALENCE (DVA(1),DV(321)),(DVH(1),DV(371)),(DVI(1),DV(401)),
(DVB(1),DV(431)),(DVD(1),DV(871)),(DVH(1),DV(971)),
(DWT(1),DV(1121))
EQUIVALENCE (DSP(1),DV(311))
EQUIVALENCE (TOT(1),DVB(301)),(SFD(1),DVD(71)),
(XND(1),DVB(01)),(SFM(1),DVH(71)),(XBN(1),DVH(111))
EQUIVALENCE (1,ND(101)),(1,ND(102))
EQUIVALENCE (1,ND(107))
EQUIVALENCE (1TP,ND(111)),(1VQ,ND(112)),(1QD,ND(114)),
(1NC,ND(115)),(1ND,ND(117)),(1CH,ND(119)),(1ON,ND(121))
0145 FORMAT(/// 62#0***** ALL DETAIL HEIGHTS AND C.G.S WERE INPUT
***** ///)
1020 FORMAT(1H1,2BX,5X,STRUCTURE HEIGHT DATA FROM QUIKIE IN DATA MANAGE
MENT//32X,10HINITIAL ESTIMATE,4X,14HCHARACTERISTIC,0X,
10HCONNECTED ESTIMATE/30X,0#HEIGHT,5X,0#HORIZ ARM,6X,0#LENGTH,
13X,0#HEIGHT,5X,0#HORIZ ARM)
1021 FORMAT(0X,4H1ND,11X,2F12.1,4X,F12.1,4X,2F12.1/
0X,15#HORIZONTAL TAIL,2F12.1,4X,F12.1,4X,2F12.1/
0X,15#VERTICAL TAIL,2X,2F12.1,4X,F12.1,4X,2F12.1/
0X,0#FUSELAGE,7X,2F12.1,4X,F12.1,4X,2F12.1/
0X,0#MAIN GEAR,6X,2F12.1,4X,F12.1,4X,2F12.1/
0X,0#NOSE GEAR,6X,2F12.1,4X,F12.1,4X,2F12.1/
0X,1#ENGINE SECTION,1X,2F12.1,4X,F12.1,4X,2F12.1/
0X,1#HAIR IND. SYSTEM,2F12.1,4X,F12.1,4X,2F12.1)
1000 FORMAT(1H1,32X,11H S-REGION,45X,21H** QUIKIE - IP(44) **)
1002 FORMAT(4X,14,9F10.4)

```

01/00/76

AUTOFLSH CHART SET - SHEEP DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

```
*****  
SUBROUTINE SPDLT  
*****
```

CHART TITLE - SUBROUTINE SPBAL7

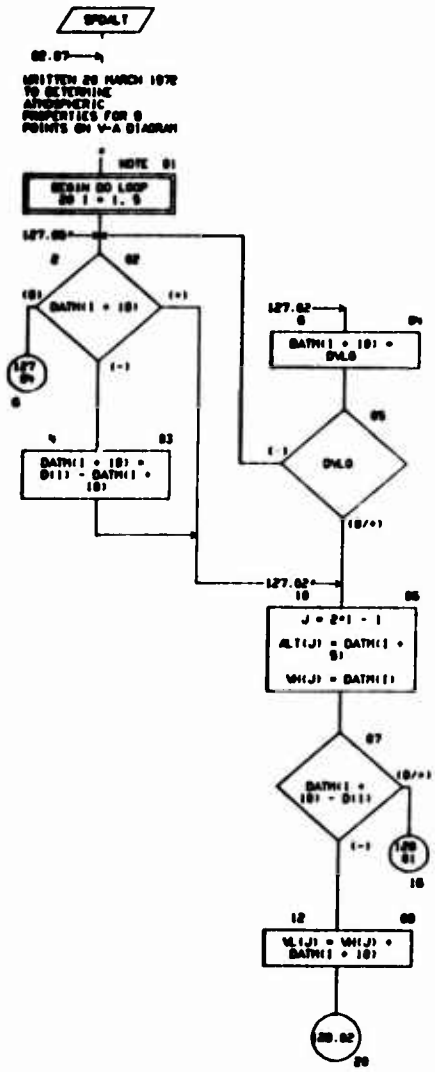


CHART TITLE - SUBROUTINE SP0LT

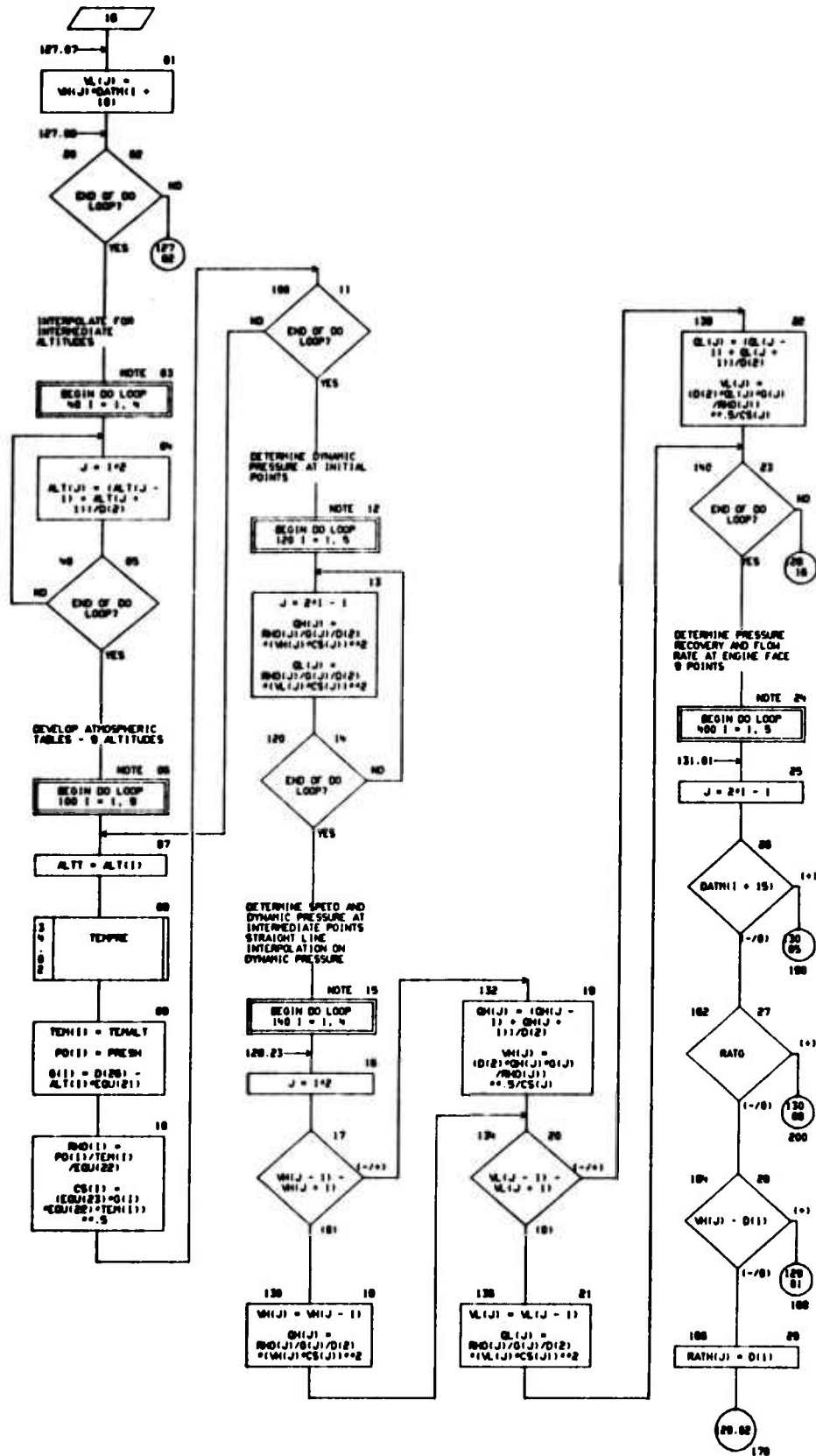


CHART TITLE - SUBROUTINE SPDL1

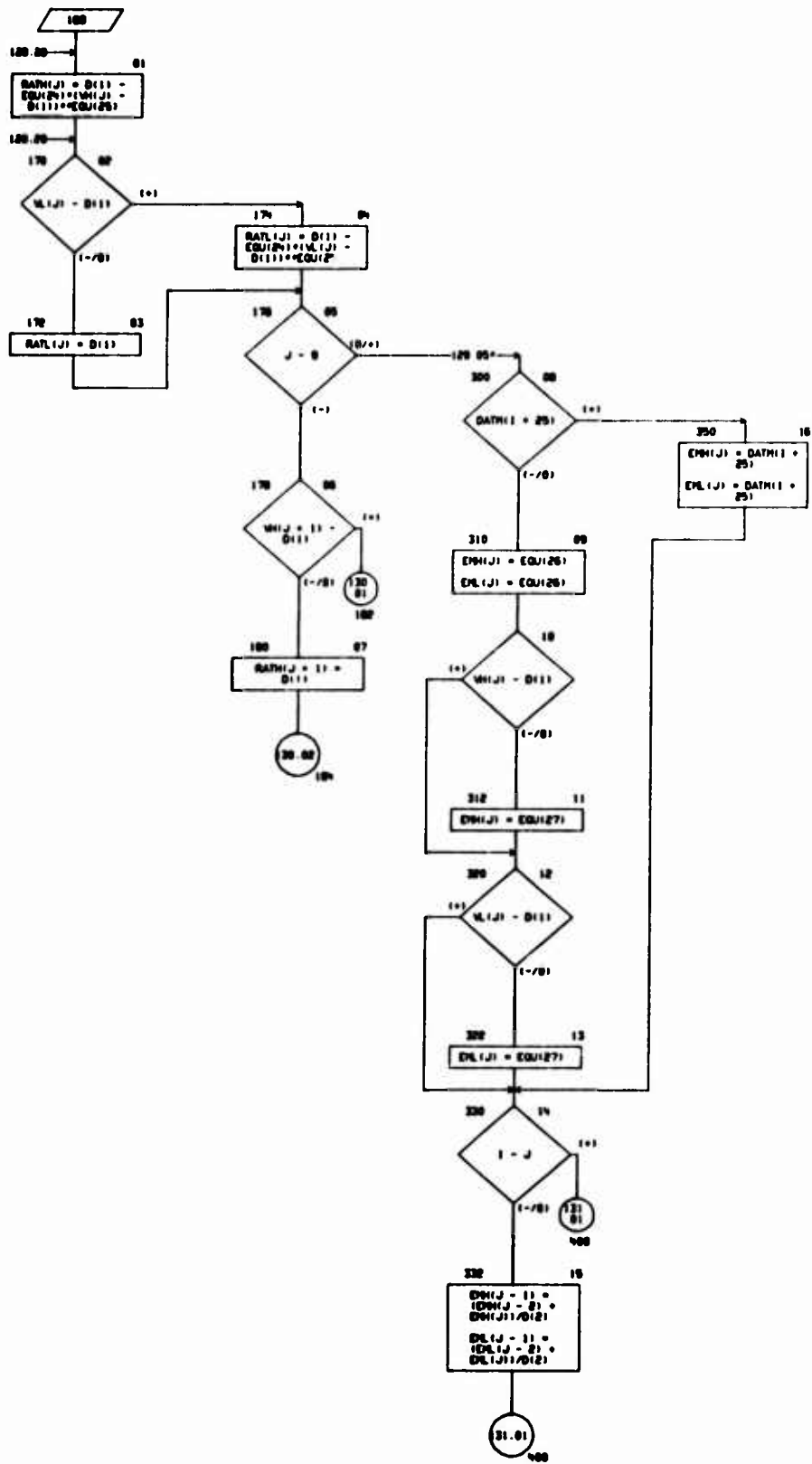


CHART TITLE - SUBROUTINE SPDL1

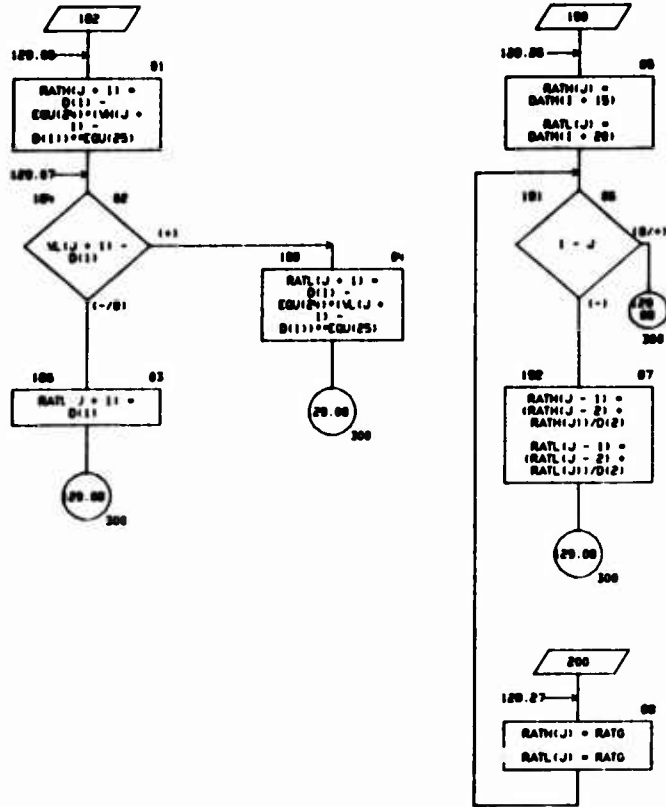


CHART TITLE - SUBROUTINE SPDALY

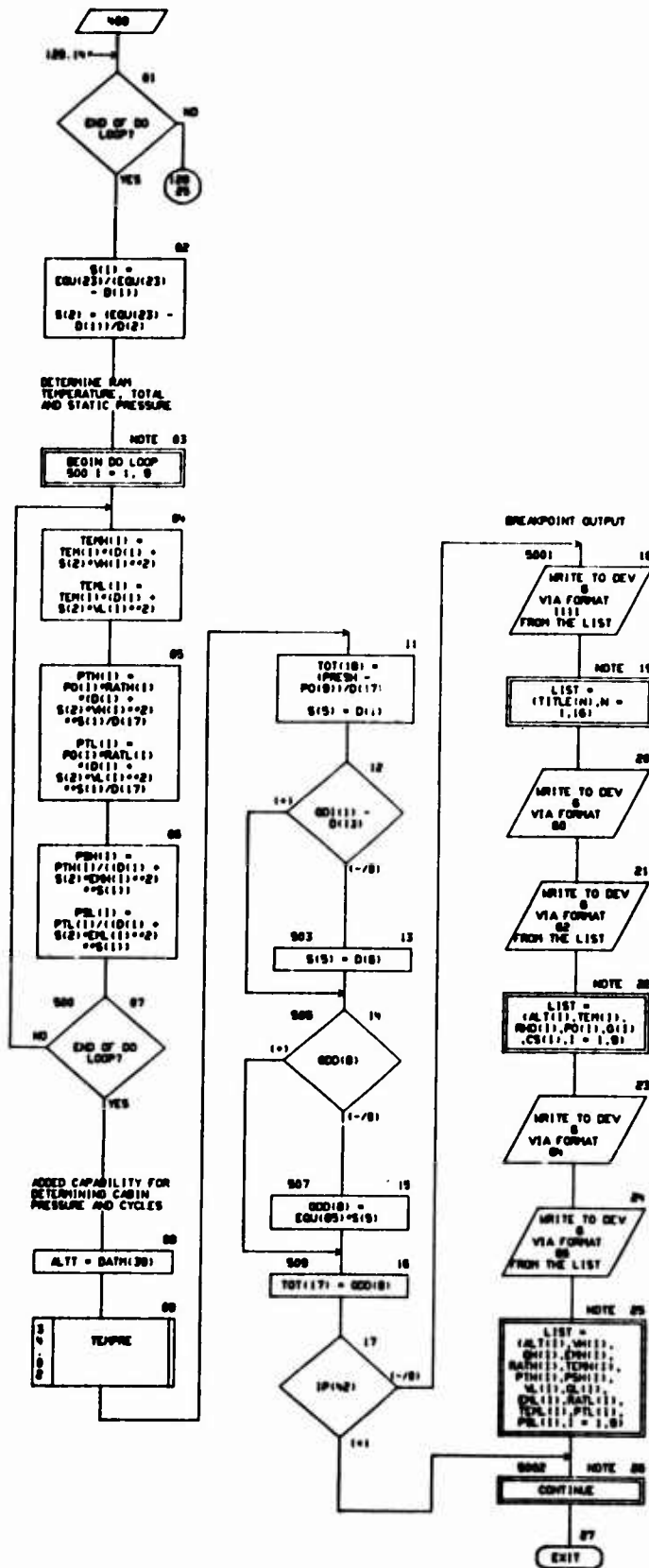


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(1320)
COMMON /IPRINT/ IP(100)
COMMON /MISC/ MISC(100)
DIMENSION D(700),GD(700),DV(720),S(400),ND(200)
DIMENSION GD(120),GDD(20)
DIMENSION DATH(40)
DIMENSION EQU(200)
DIMENSION TITLE(10)
DIMENSION ALT(10),TCH(10),PO(10),G(10),CS(10),RD(10)
DIMENSION WH(10),VL(10),GH(10),GL(10),EM(10),EPL(10),
RATH(10),RATL(10),TEPH(10),TEPL(10),PTH(10),PTL(10),PSH(10),
PBL(10)
DIMENSION DNB(440),TOT(20)
EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(701)),(DV(1),TCON(1401)),
( S(1),TCON(371)),(ND(1),TCON(121))
EQUIVALENCE (D(01),EQU(1))
EQUIVALENCE (GD(11),GD(1)),(GDD(11),GDD(21))
EQUIVALENCE (DATH(1),GD(5))
EQUIVALENCE (DATH(31),D(40),DATH(32),RATD)
EQUIVALENCE (TITLE(1),MISC(05))
EQUIVALENCE (S(1),TCH(1),S(2),PRESH),S(4),ALT)
EQUIVALENCE (ALT(1),DV(1)),(TEH(1),DV(11)),(PO(1),DV(21)),
(G(1),DV(31)),(CS(1),DV(41)),(RD(1),DV(51))
EQUIVALENCE (WH(1),DV(61)),(VL(1),DV(71)),(GH(1),DV(81)),
(GL(1),DV(91)),(EM(1),DV(101)),(EPL(1),DV(111)),
(RATH(1),DV(121)),(RATL(1),DV(131)),(TEPH(1),DV(141)),
(TEPL(1),DV(151)),(PTH(1),DV(161)),(PTL(1),DV(171)),
(PSH(1),DV(181)),(PBL(1),DV(191))
EQUIVALENCE (DNB(1),DV(451)),(TOT(1),DNB(136))
EQUIVALENCE (ND(101),1),ND(102),J)
1111 FORMAT(1H,3X,21H** SPALT - IP(42) **/10X,3A10/10X,3A10)
00 FORMAT(10H,3X,37H*** SPEED ALTITUDE PROFILE TABLES ***
/4X,10HSTANDARD ATMOSPHERE//15X,0H,ALTITUDE,3X,
11HTEMPERATURE,5X,7HDENSITY,5X,0HPRESSURE,5X,1H0,5X,
14HVELOCITY OF SOUND/17X,4HFEET,5X,11HDEG RANKINE,7X,3HPCF,10X,
3HPSF,5X,0HFT/SEC SQ,7X,0HFT/SEC)
01 FORMAT(12X,F11.1,F12.3,5X,F10.7, F12.2,F11.3,F14.2)
02 FORMAT(//4X,13HPROFILE TABLE//4X,
4HULT,3X,4HVIN),4X,4H(1H),5X,0HPE,2X,7HPTZ/PTO,2X,
0HRAH T,4X,3HPTZ,4X,0HPE,4X,4H(1H),4X,4H(1H),5X,0HPE,2X,
7HPTZ/PTO,2X,0HRAH T,4X,3HPTZ,4X,0HPE,4X,
4HFEET,4X,0H0N,5X,3HPSF,4X,0H0N,11X,3H000 R,4X,3HPSI,4X,3HPSI,
4X,0H0N,5X,3HPSF,4X,0H0N,11X,3H000 R,4X,3HPSI,4X,3HPSI)
03 FORMAT(10.1,F0.2,F0.2,F0.2,F7.4,F0.2,F7.2,F7.2,F0.2,F0.2,
F7.4,F0.2,F7.2)

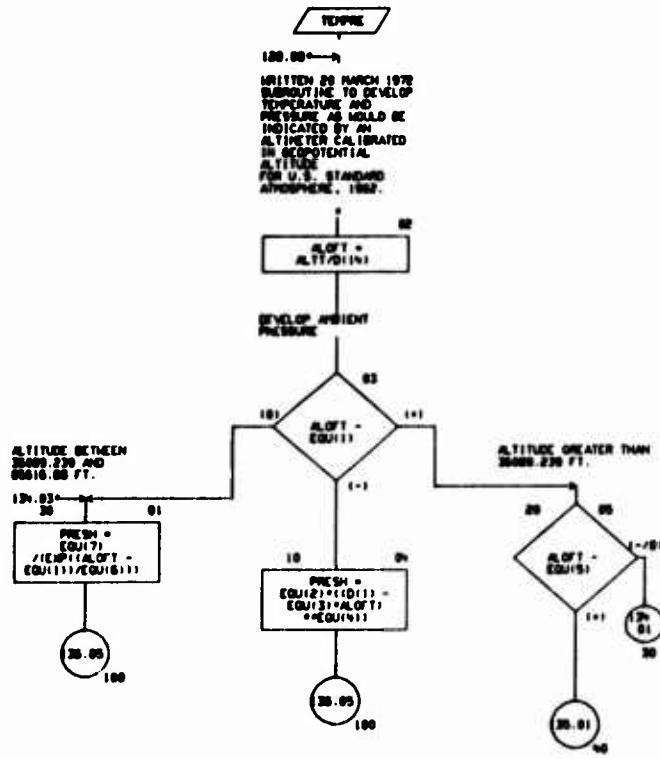
```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE TEMPRE
.....



CHART TITLE - SUBROUTINE TEMPRE



WRITTEN 20 MARCH 1972
 SUBROUTINE TO DEVELOP
 TEMPERATURE AND
 PRESSURE AS SHOULD BE
 INDICATED BY AN
 ALTIMETER CALIBRATED
 IN GEOPOTENTIAL
 ALTITUDE
 FOR U.S. STANDARD
 ATMOSPHERE - 1962.

CHART TITLE - SUBROUTINE TYPE

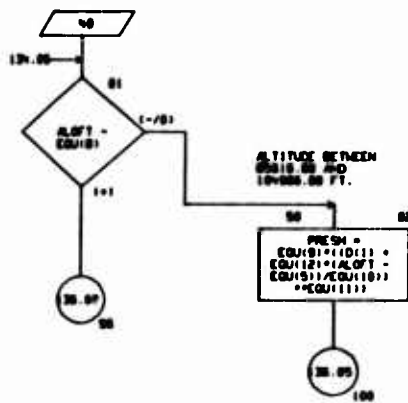


CHART TITLE - SUBROUTINE TEMPRE

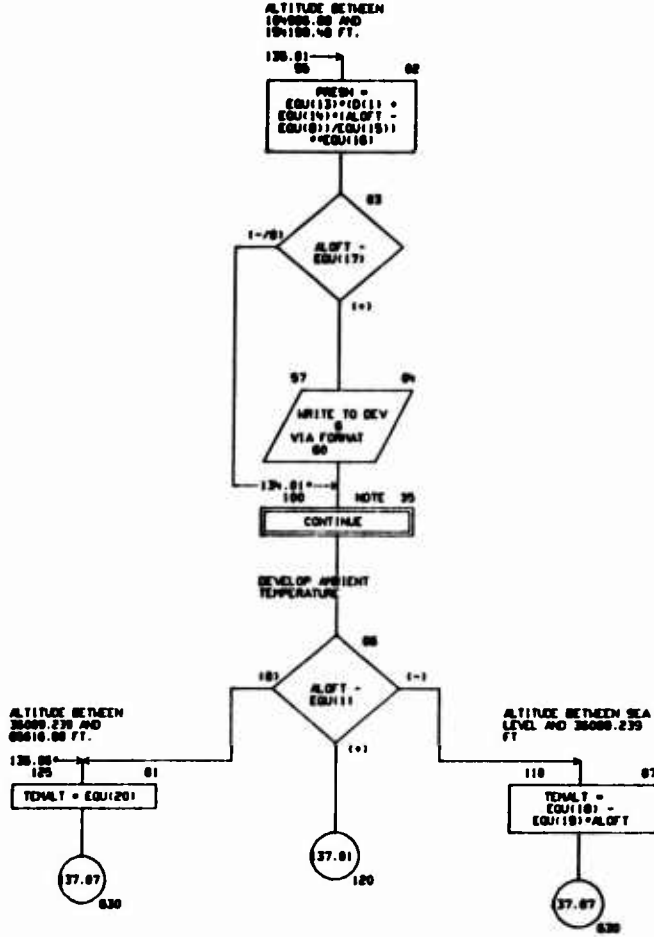


CHART TITLE - SUBROUTINE TOPRE

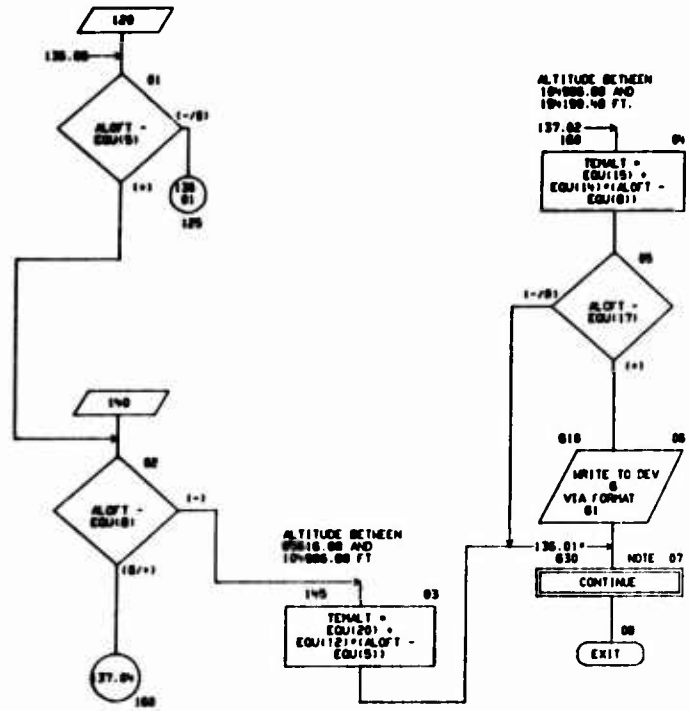


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCON(4320)
DIMENSION O(1700),OD(1700),OV(2320),S(400),ND(200)
DIMENSION EQU(200)
EQUIVALENCE (O(1),TCON(1)),(O(1),TCON(701)),(OV(1),TCON(101)),
             (S(1),TCON(371)),(ND(1),TCON(421))
EQUIVALENCE (O(0),EQU(1))
EQUIVALENCE (S(1),TEMP(1)),(S(2),PRES), (S(3),ALOF), (S(4),ALTI)
00  FORMAT(1H0,5X,23H*** WARNING MESSAGE ***.15X,
        48H ALTITUDE IS BEYOND VALID RANGE OF PRESSURE)
01  FORMAT(1H0,5X,23H*** WARNING MESSAGE ***.15X,
        48H ALTITUDE IS BEYOND VALID RANGE OF TEMPERATURE)
```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE HEIGHT
.....



CHART TITLE - SUBROUTINE ME1061

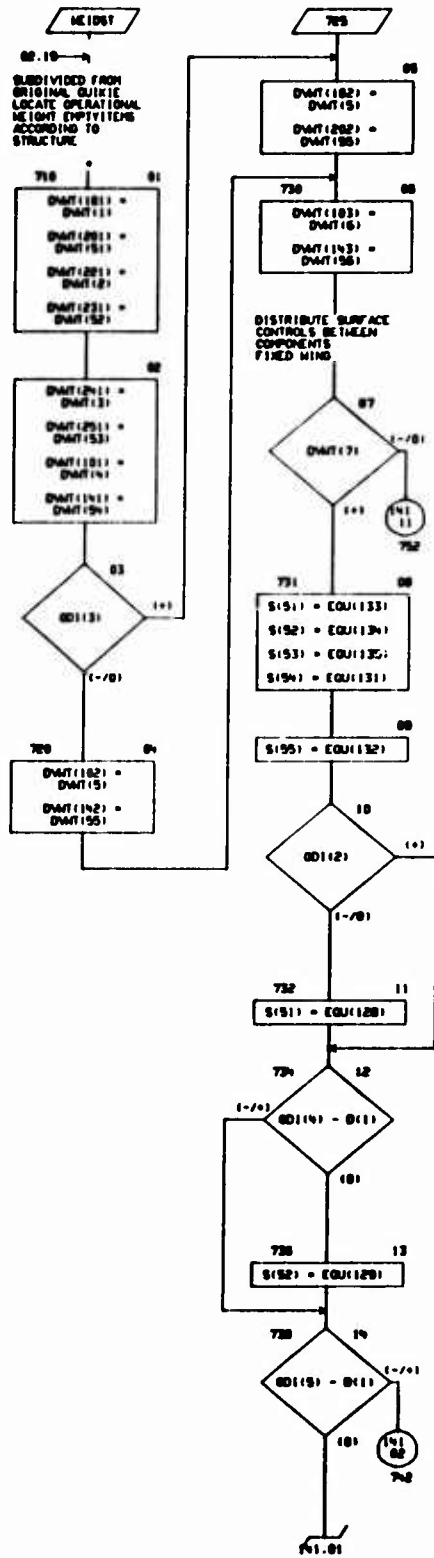


CHART TITLE - SUBROUTINE ME1061

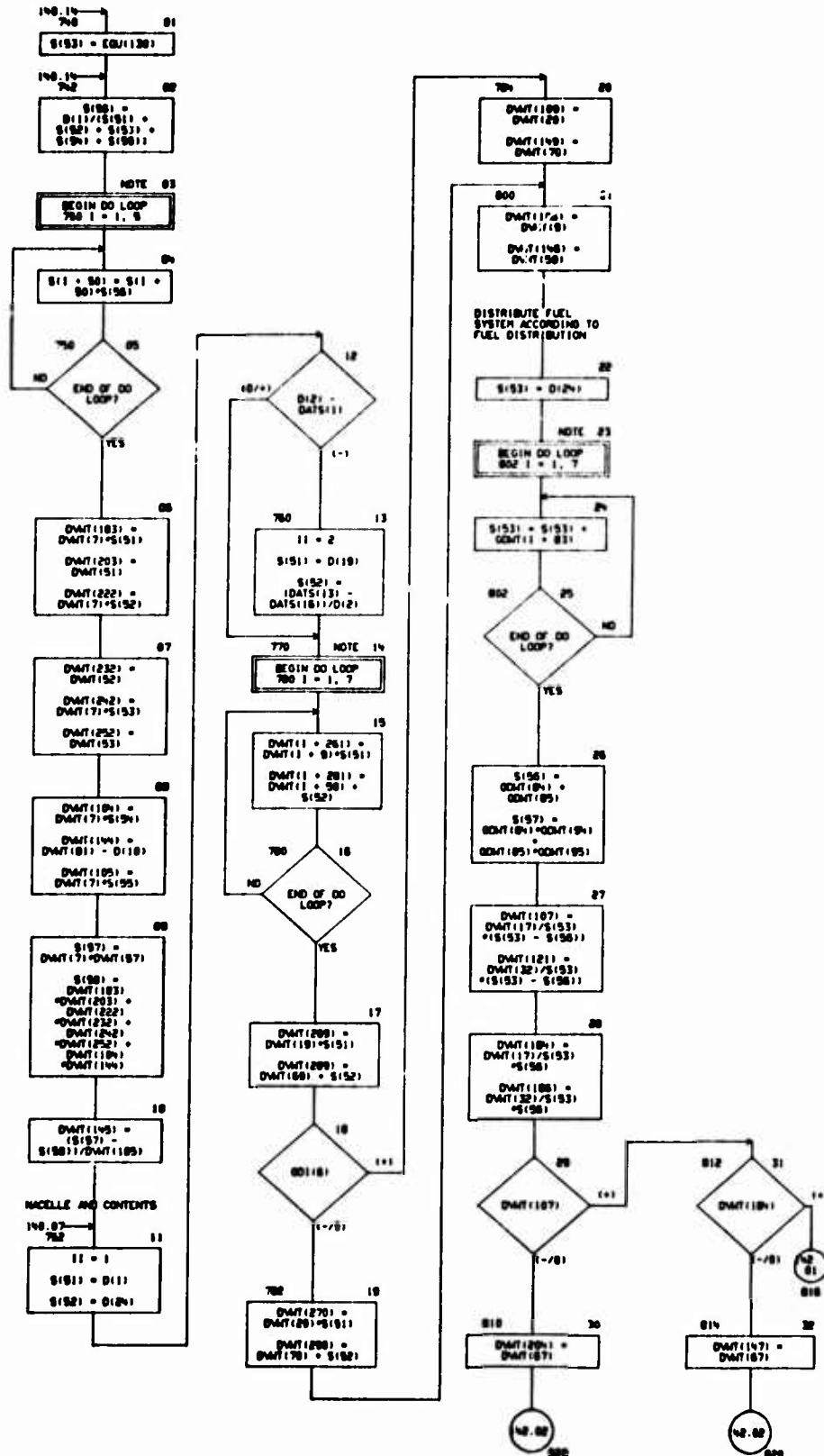


CHART TITLE - SUBROUTINE ACENST

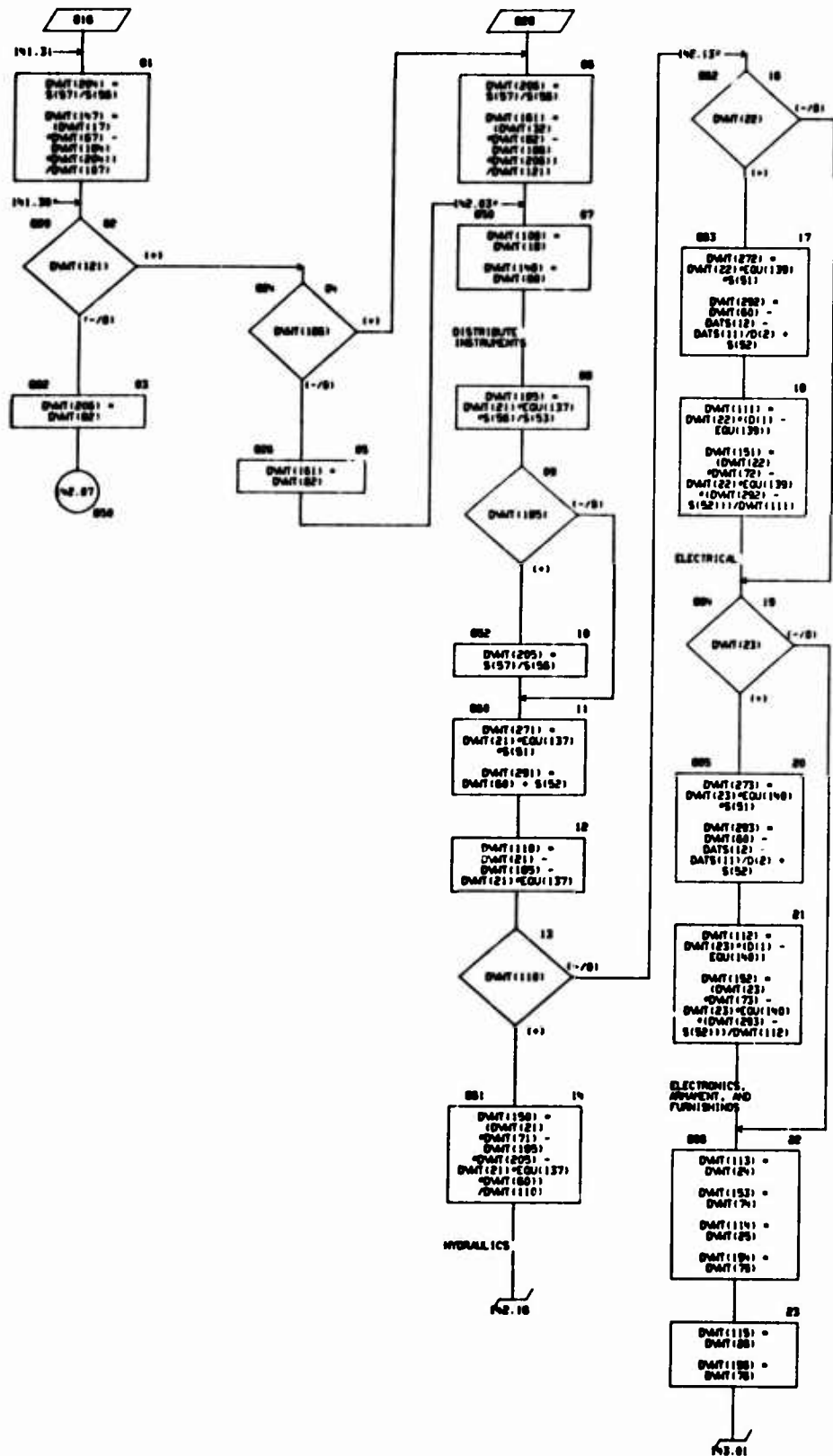


CHART TITLE - SUBROUTINE MCDIST

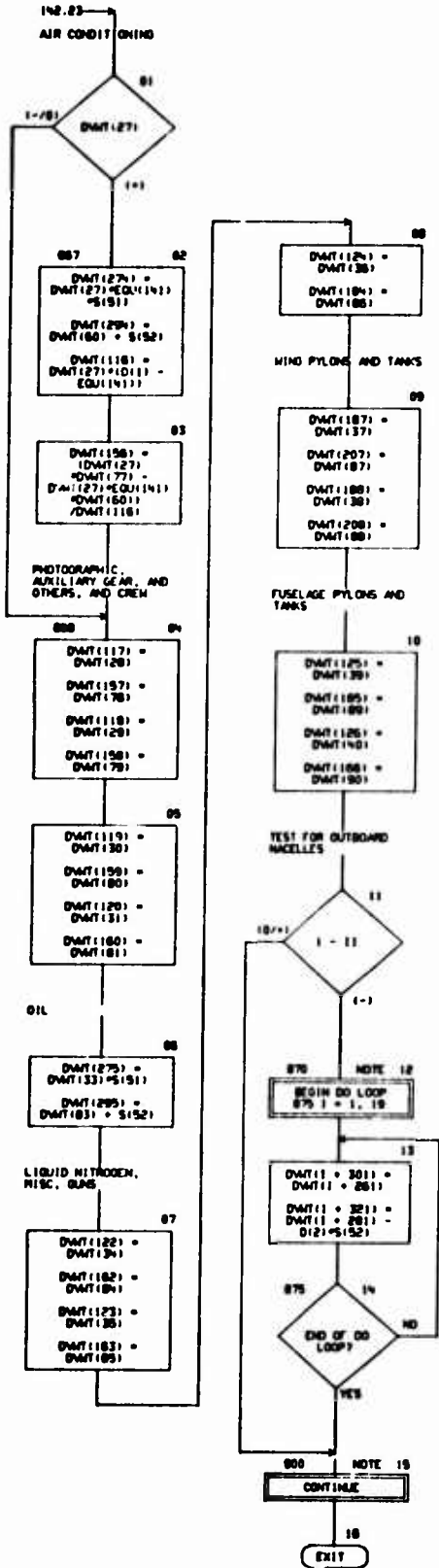


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCOM(4320)
COMMON /PRINT/ (P100)
DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
DIMENSION (G(1200)
DIMENSION GD(120),GDM(100),DATS(40),DMAT(1000)
EQUIVALENCE (D(1),TCOM(1)),(GD(1),TCOM(70)),(DV(1),TCOM(140)),
             (S(1),TCOM(370)),(ND(1),TCOM(412))
EQUIVALENCE (GD(1),GD(1)),(GDM(1),GD(10)),(DATS(1),GD(46))
             , (DMAT(1),DV(112))
EQUIVALENCE (G(1),D(1))
EQUIVALENCE (I,ND(10)),(J,ND(102)),(K,ND(107))
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CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE M4402
#####



CHART TITLE - SUBROUTINE WPMR0

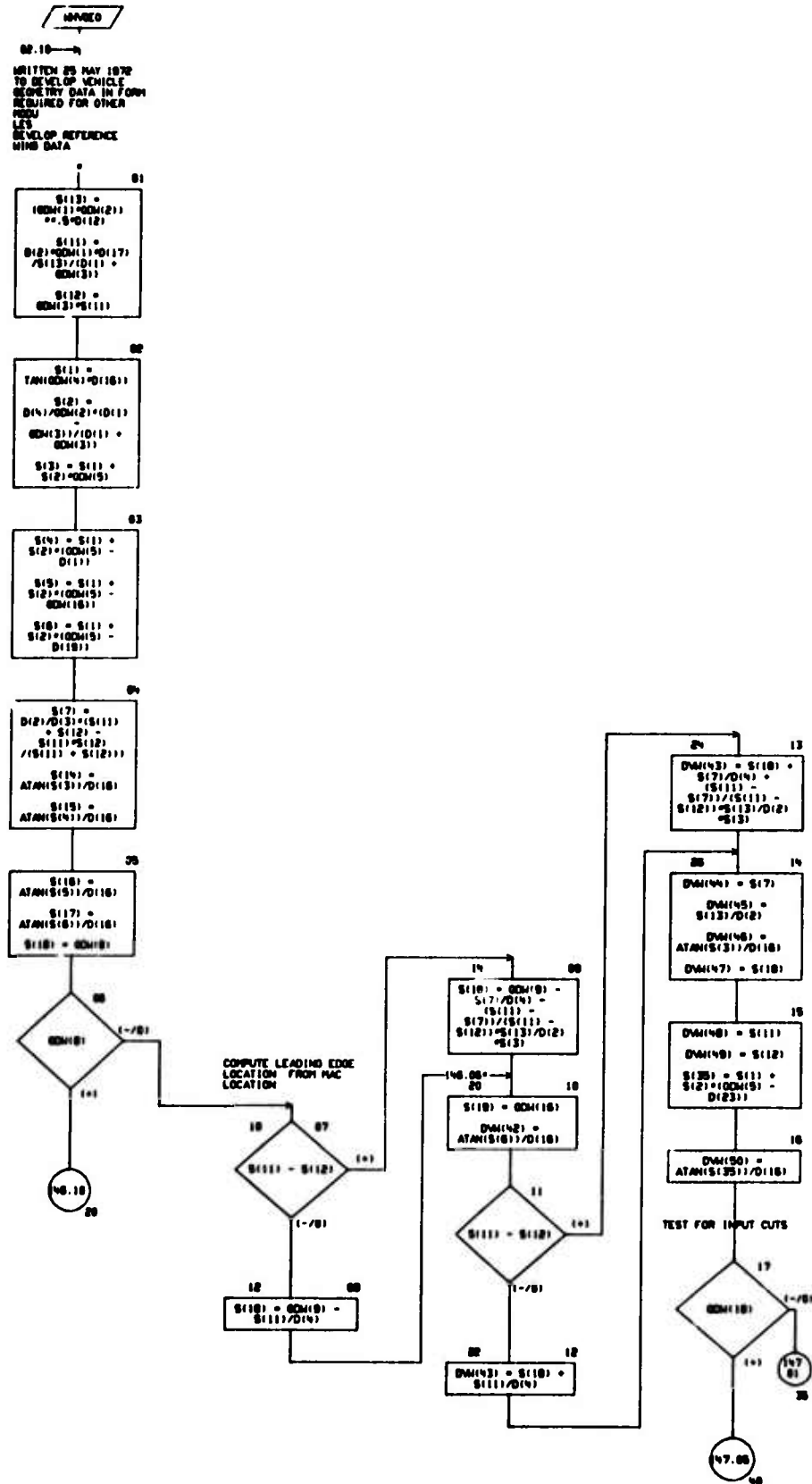


CHART TITLE - SUBROUTINE MANDRO

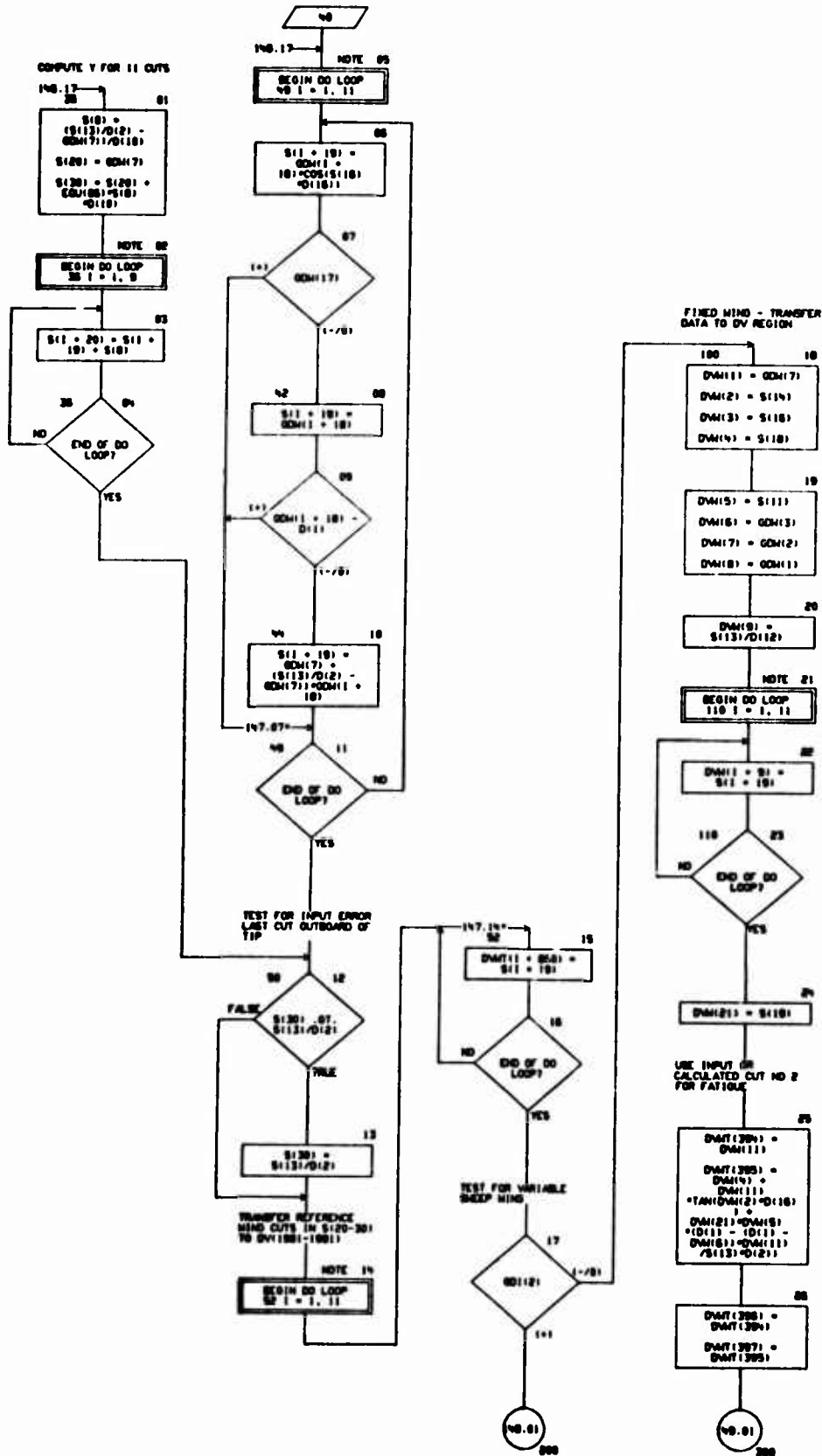


CHART TITLE - SUBROUTINE NAME

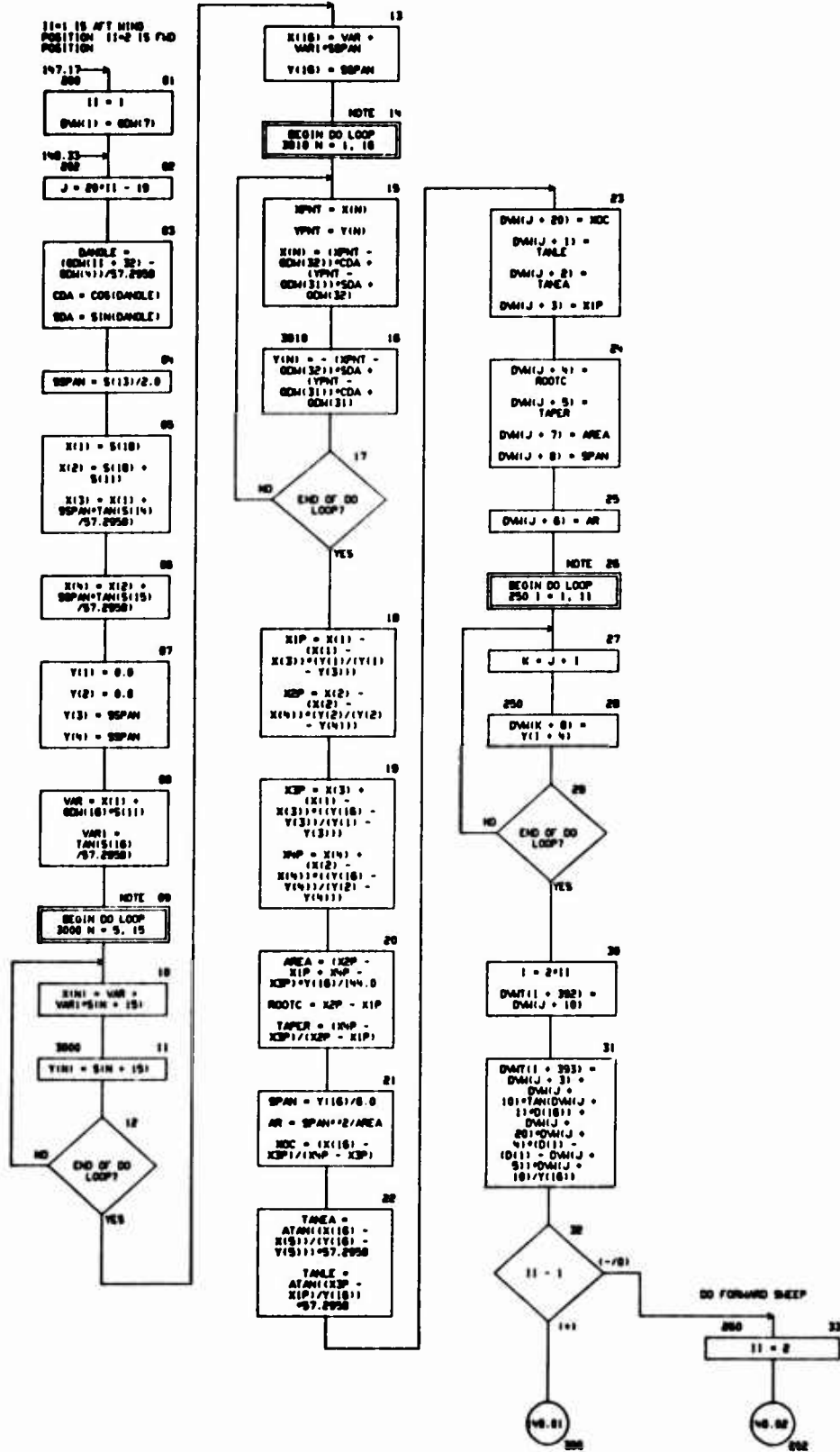


CHART TITLE - SUBROUTINE NAME

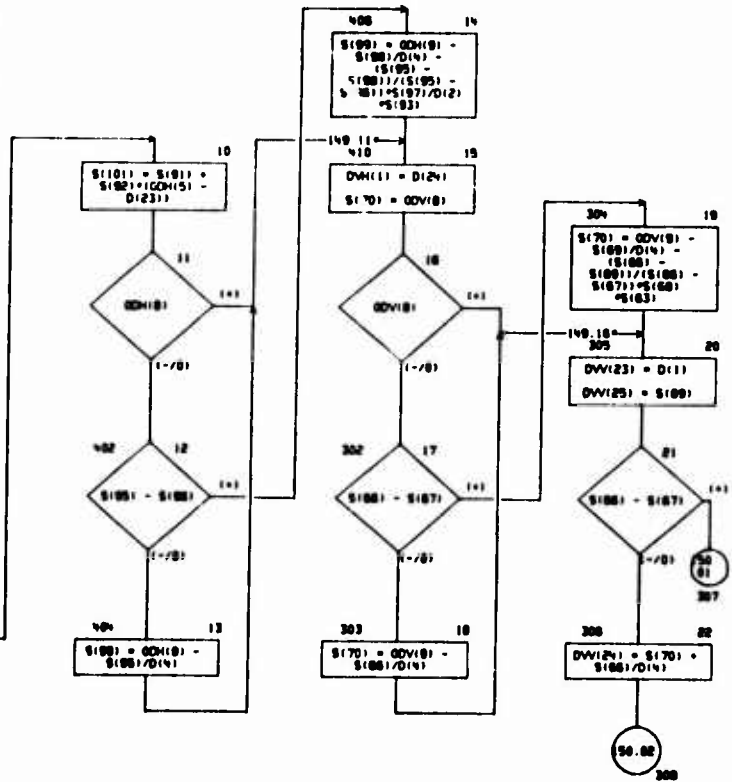
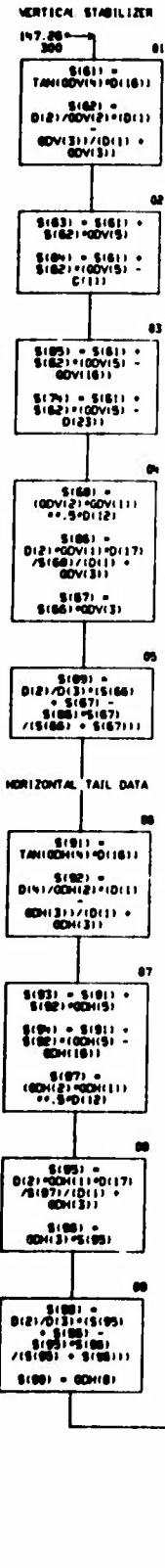


CHART TITLE - SUBROUTINE WAVECO

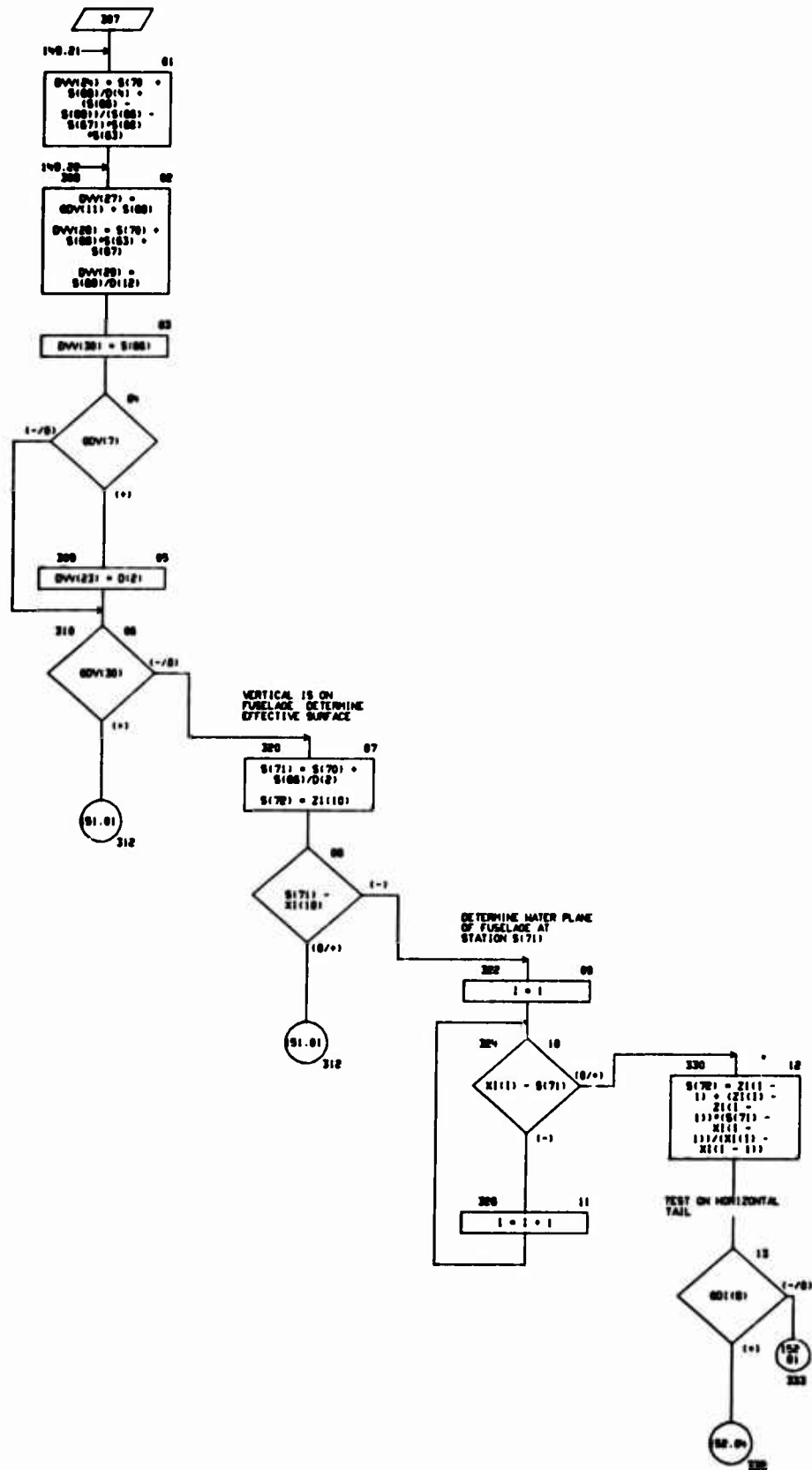
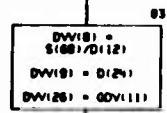
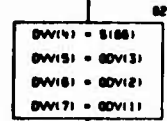
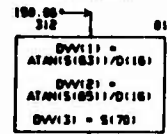


CHART TITLE - SUBROUTINE WAG00

VERTICAL IS ON WIND
OR FT OFFURELAGE



COMPUTE CUTS

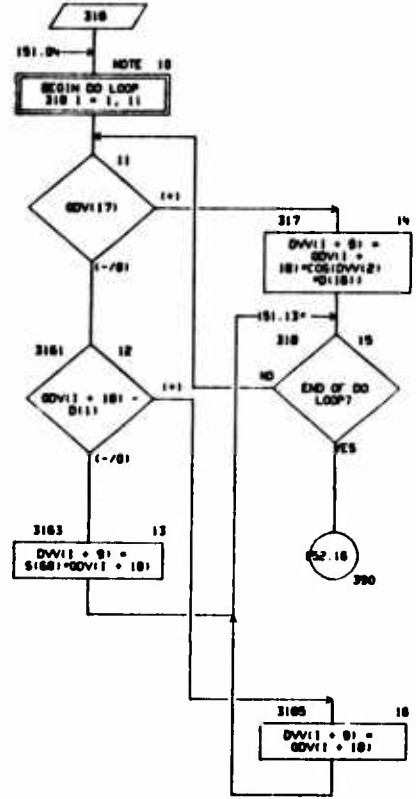
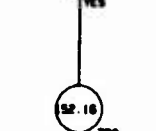
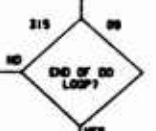
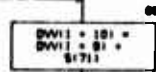
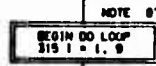
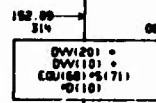
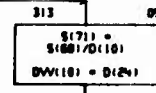


CHART TITLE - SUBROUTINE NAME0

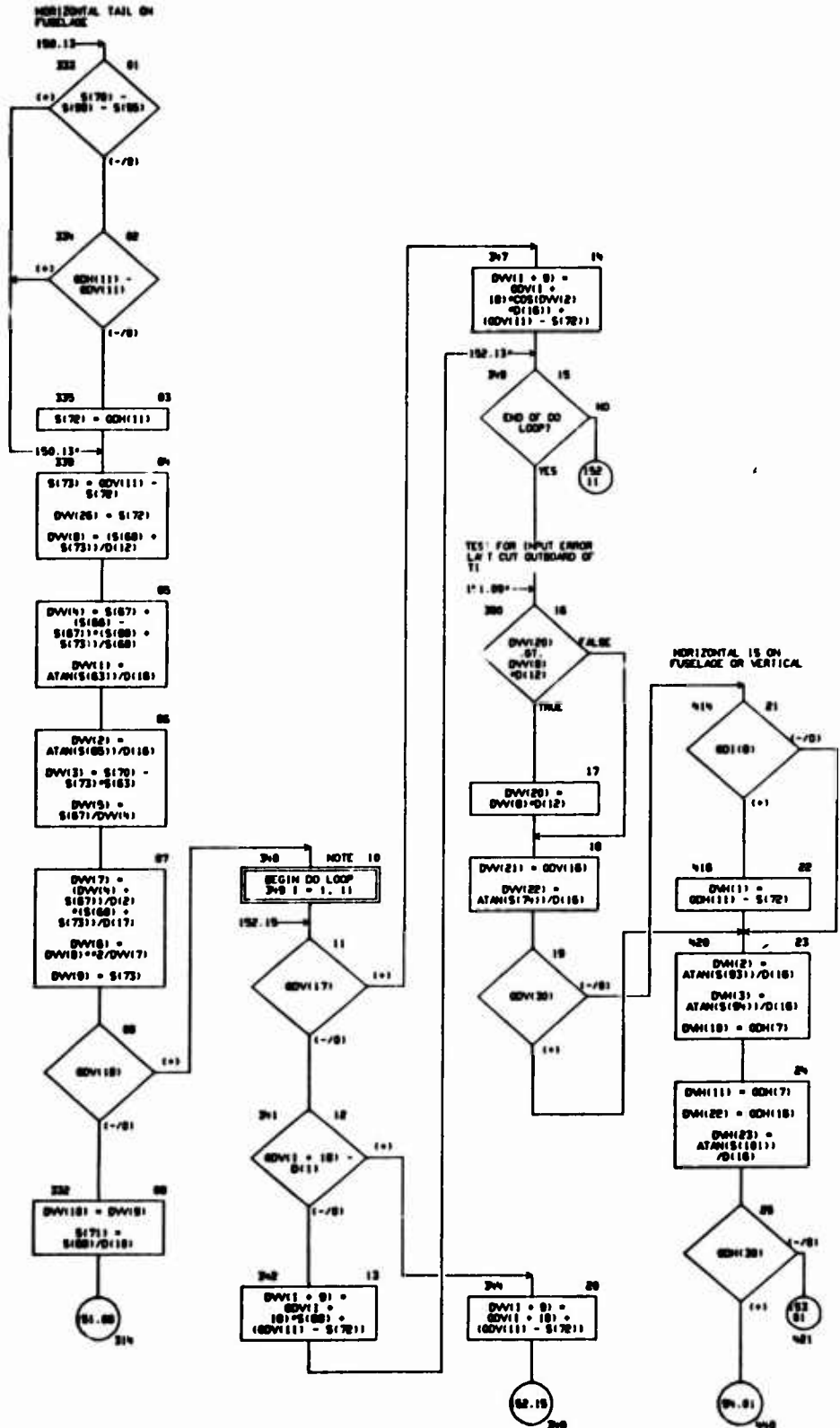


CHART TITLE - SUBROUTINE MW80

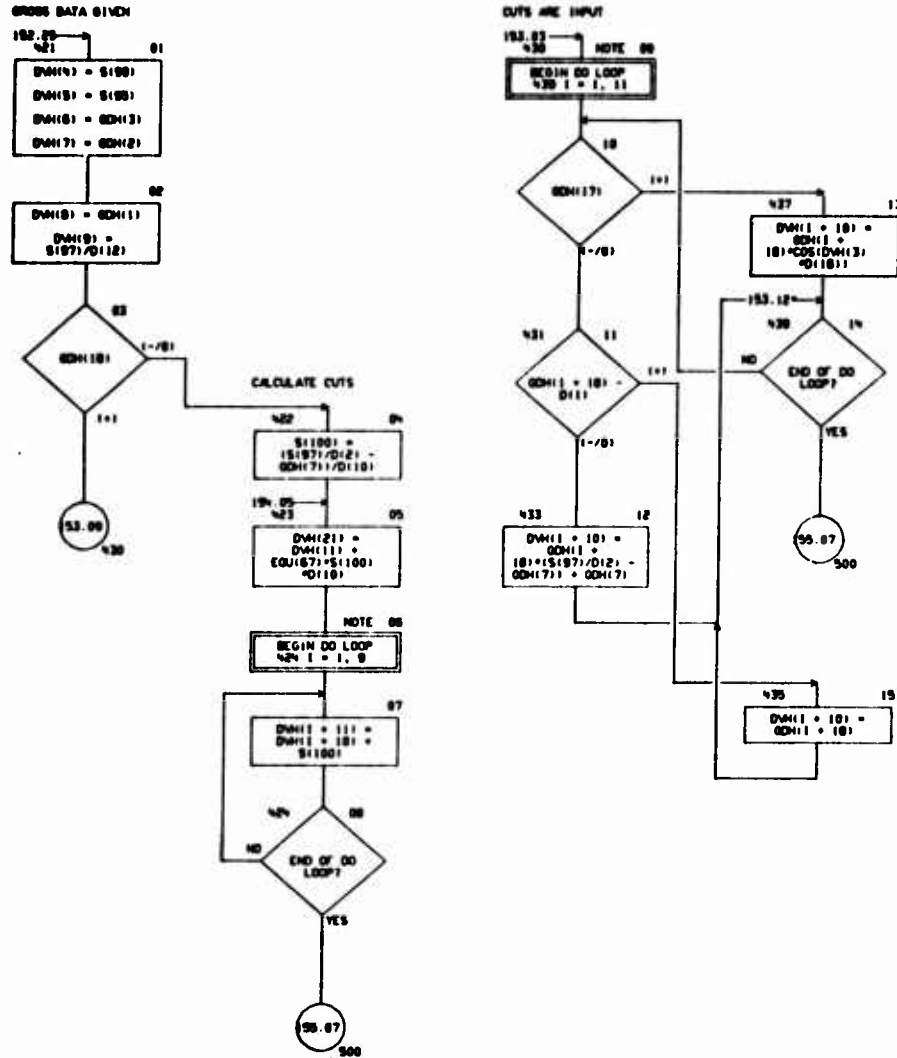


CHART TITLE - SUBROUTINE WANG20

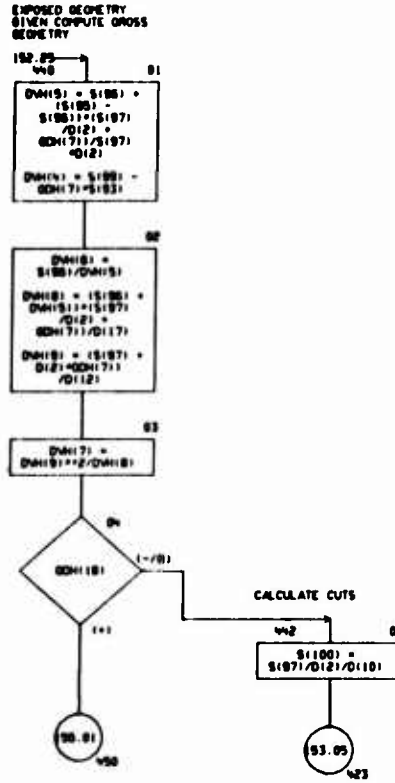


CHART TITLE - SUBROUTINE MANDCO

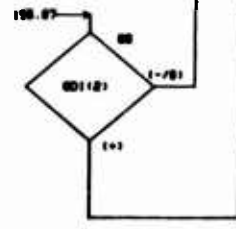
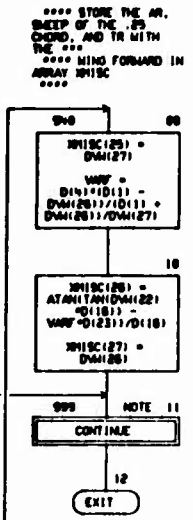
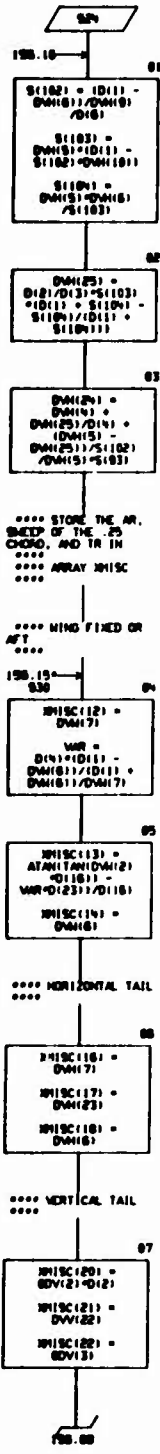


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCOM(4320)
COMMON /MISC/ MISC(100)
DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION GD(20),GD(80),X(110),Z(110)
DIMENSION GD(50),GD(40),GD(40),DWH(50),DWH(30),DWH(30)
DIMENSION DWT(1000)
DIMENSION X(10),Y(10)
EQUIVALENCE (D(1),TCOM(1)),(D(11),TCOM(70)),(DV(1),TCOM(140)),
             (S(1),TCOM(370)),(ND(1),TCOM(42))
EQUIVALENCE (EQU(1),D(0))
EQUIVALENCE (GD(1),GD(1)),(GD(1),GD(30))
             , (X(1),GD(8)),(Z(1),GD(10))
EQUIVALENCE (GD(1),GD(25)),(GD(1),GD(30)),(GD(1),GD(34)),
             (DWH(1),DV(32)),(DWH(1),DV(37)),(DWH(1),DV(40))
EQUIVALENCE (DWT(1),DV(112))
EQUIVALENCE (I,ND(10)),(J,ND(102)),(K,ND(103)),(L,ND(107))
```

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE WNDOST
.....

CHART TITLE - SUBROUTINE MNDST

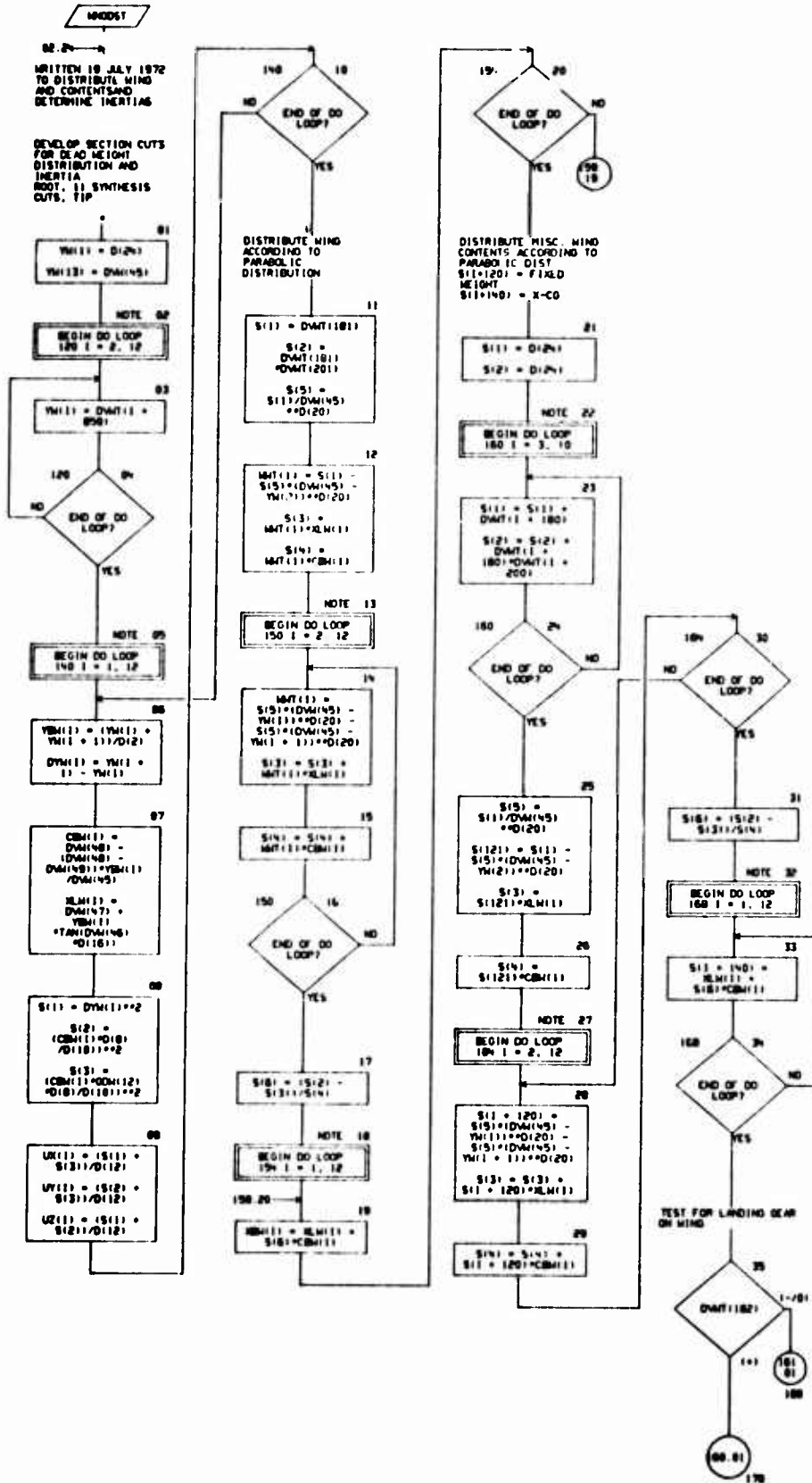


CHART TITLE - SUBROUTINE M0001

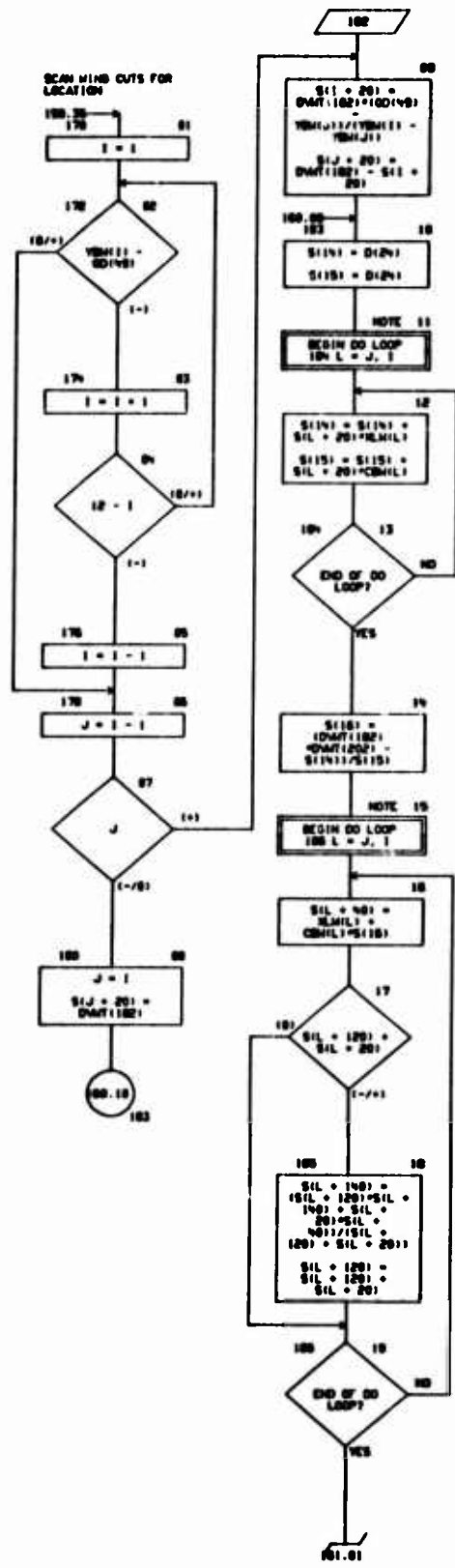


CHART TITLE - SUBROUTINE MNDST

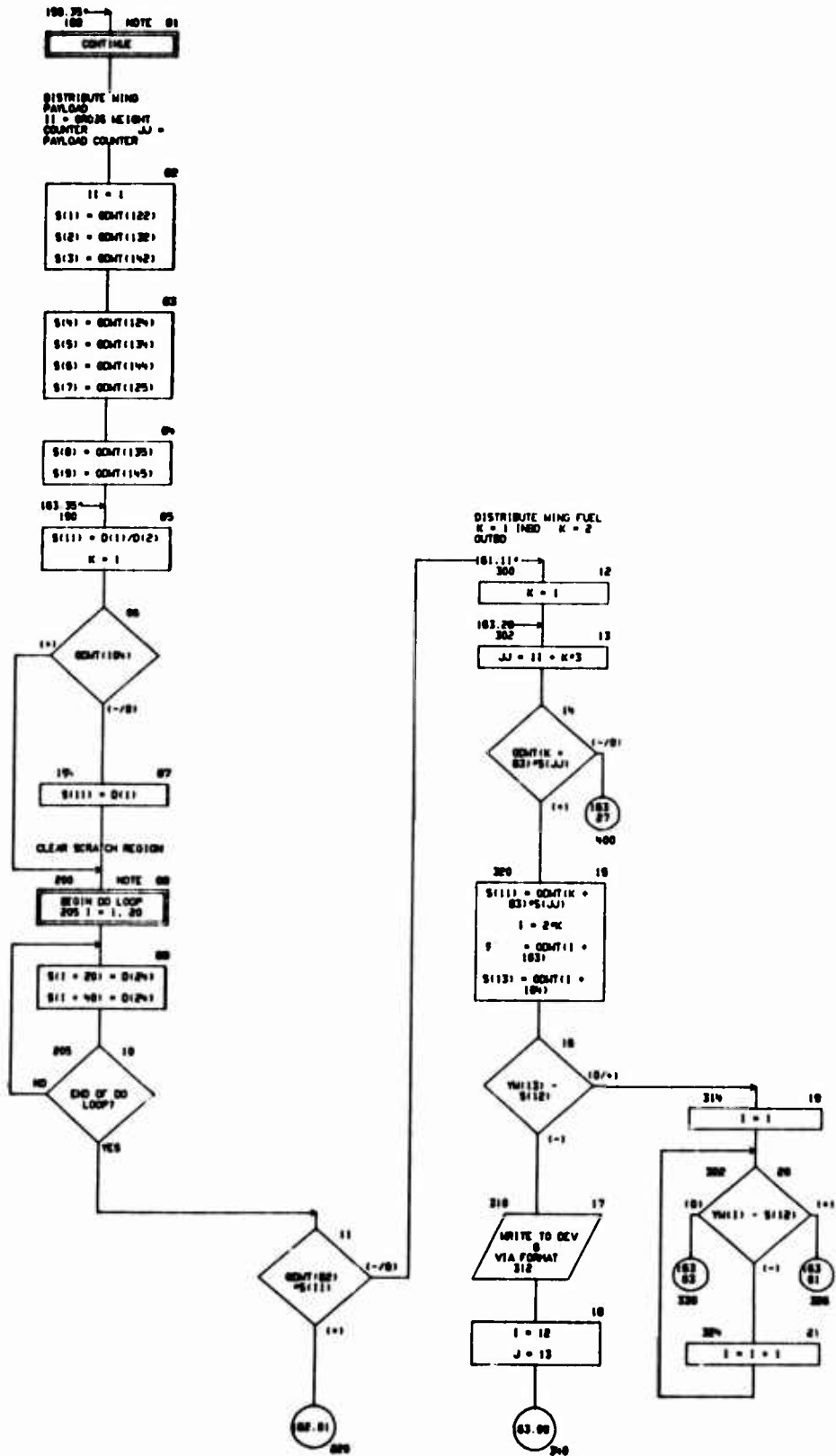


CHART TITLE - SUBROUTINE M0051

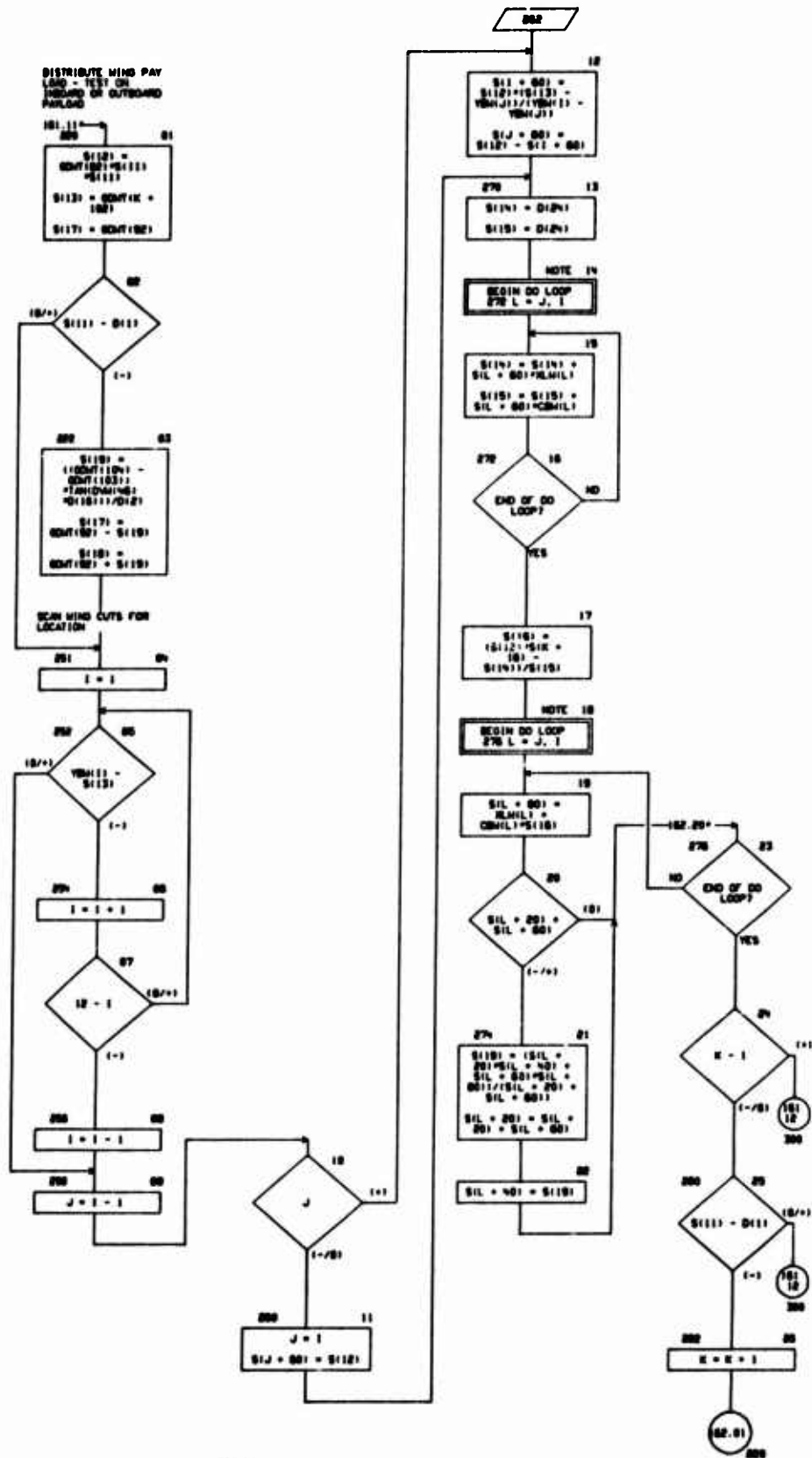


CHART TITLE - SUBROUTINE 100057

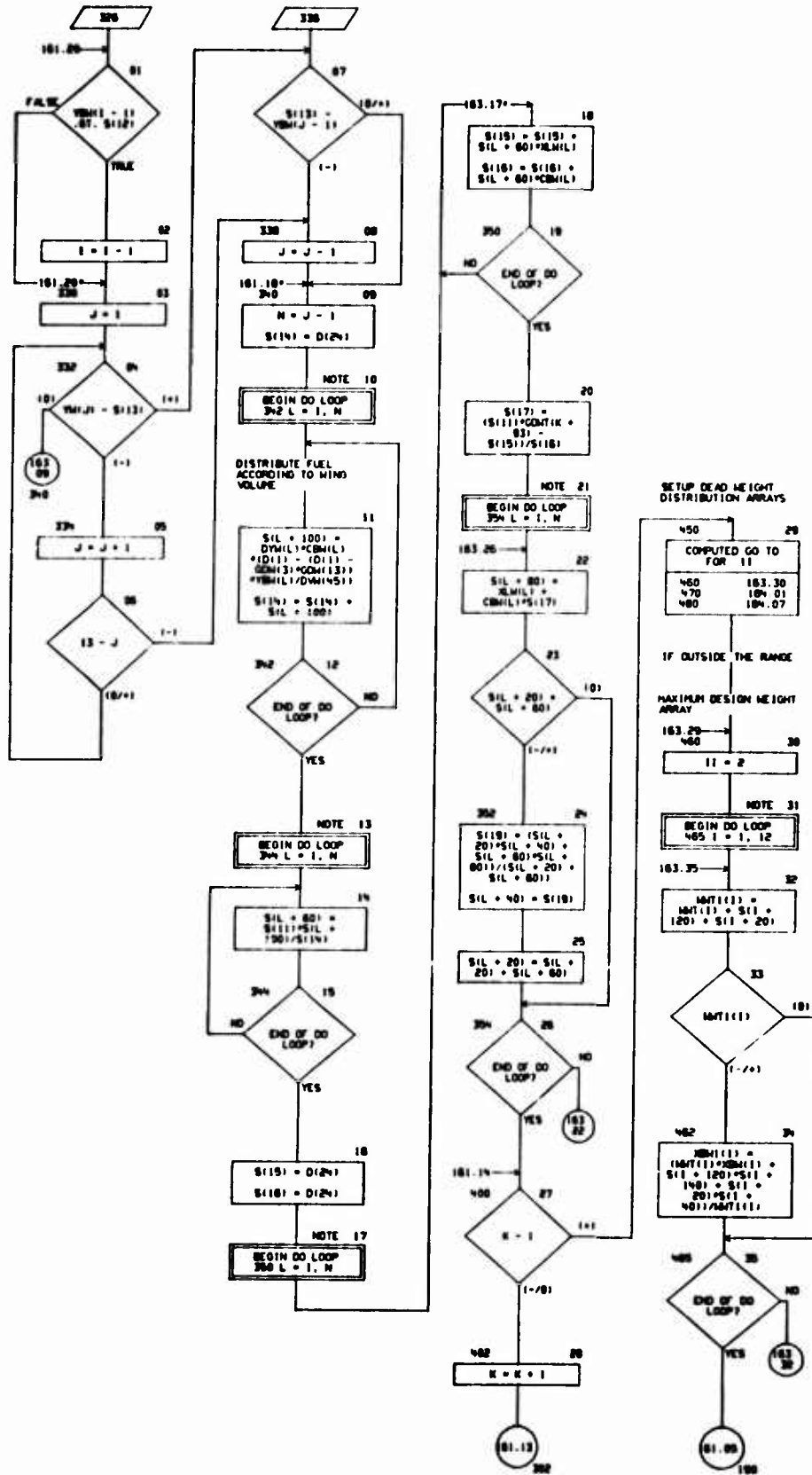


CHART TITLE - SUBROUTINE M40061

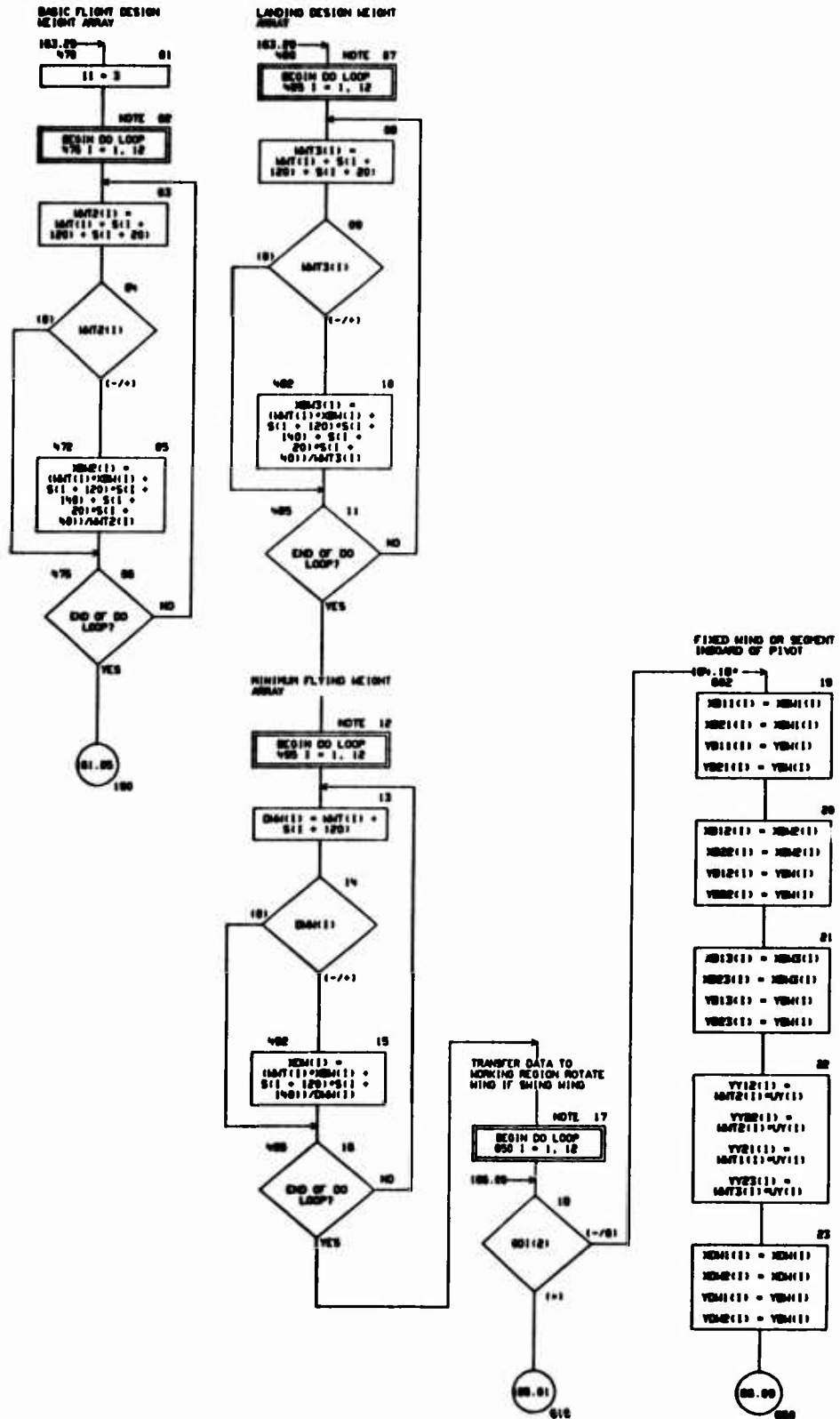


CHART TITLE - SUBROUTINE MNDST

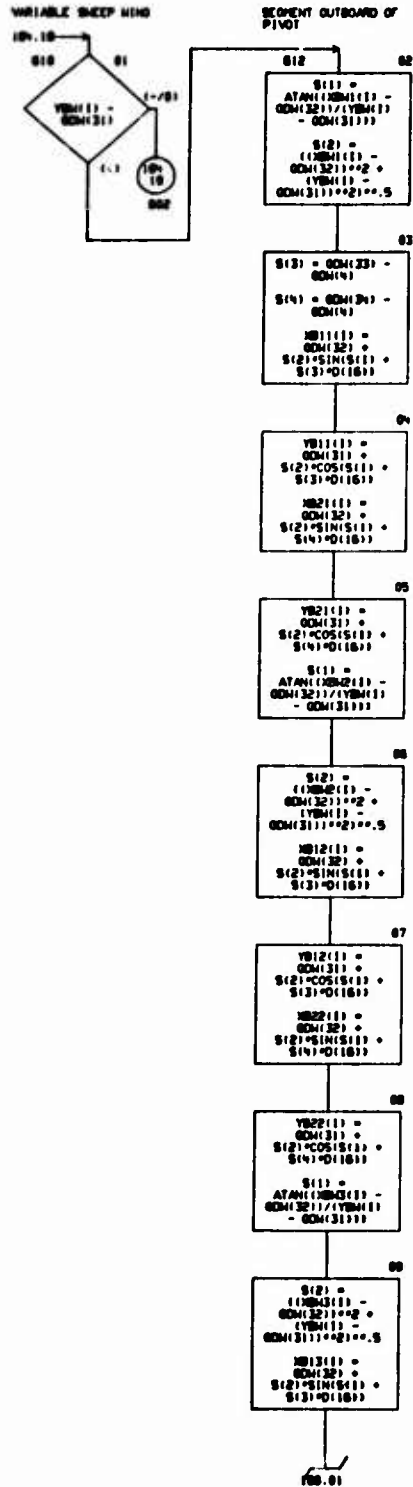


CHART TITLE - SUBROUTINE WINDST

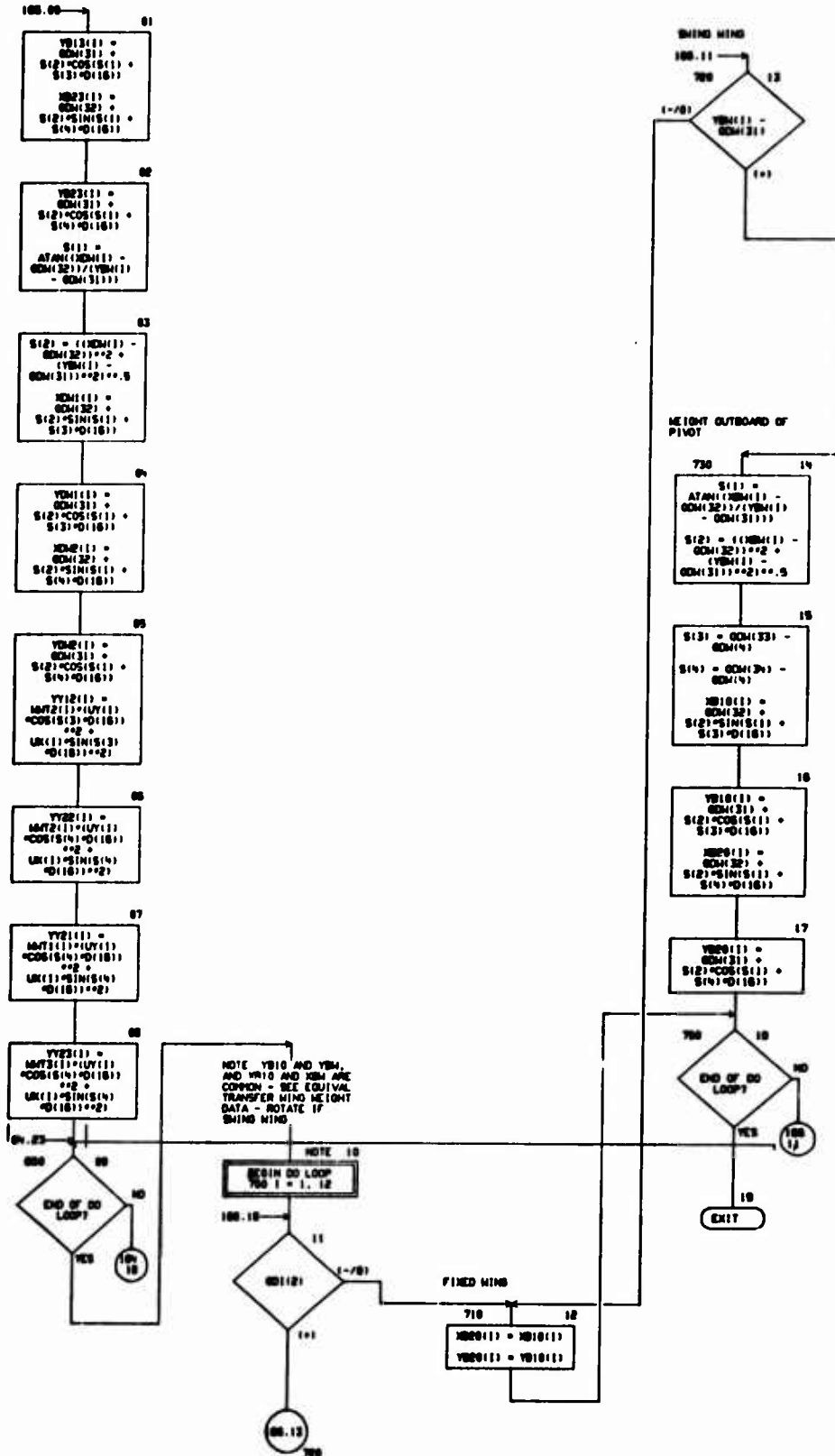


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCOM(4320)
DIMENSION O(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION OD1(20),ODM(100),ODH(50)
DIMENSION DM(50),DWT(1000)
DIMENSION YH(13),YBH(12),DYM(12),CBH(12),UK(12),UY(12),UZ(12)
DIMENSION NLM(12)
DIMENSION XB10(12),YB10(12),XB20(12),YB20(12)
DIMENSION MNT(12),NBM(12),MNT1(12),NBM1(12),MNT2(12),NBM2(12),
MNT3(12),NBM3(12),MNT4(12),NBM4(12),YB11(12),YB21(12),
XB12(12),XB22(12),YB12(12),YB22(12),XB13(12),XB23(12),
YB13(12),YB23(12),YY12(12),YY22(12),YY21(12),YY23(12)
DIMENSION DMH(12),NDH(12),NDH1(12),NDH2(12),YDH(12),YDH2(12)
EQUIVALENCE (O(1),TCOM(1)),(OD(1),TCOM(701)),(DV(1),TCOM(1401)),
(S(1),TCOM(3701)),(ND(1),TCOM(4121))
EQUIVALENCE (DM(1),DV(321)),(DWT(1),DV(1121))
,(OD1(1),OD(1)),(ODM(1),OD(01)),(ODH(1),OD(251))
EQUIVALENCE (YH(1),DWT(301)),(YBH(1),DWT(401)),
(DYM(1),DWT(413)),(CBH(1),DWT(425)),(UK(1),DWT(437)),
(UY(1),DWT(449)),(UZ(1),DWT(461))
EQUIVALENCE (NLM(1),S(101))
EQUIVALENCE (MNT(1),DWT(473)),(NBM(1),DWT(495)),
(MNT1(1),DWT(497)),(NBM1(1),DWT(509)),(MNT2(1),DWT(5211)),
(NBM2(1),DWT(533)),(MNT3(1),DWT(545)),(NBM3(1),DWT(5571)),
(XB1(1),DWT(569)),(XB2(1),DWT(581)),(YB1(1),DWT(593)),
(YB2(1),DWT(605)),(XB12(1),DWT(617)),(XB22(1),DWT(629)),
(YB12(1),DWT(641)),(YB22(1),DWT(653)),(XB13(1),DWT(665)),
(XB23(1),DWT(677)),(YB13(1),DWT(689)),(YB23(1),DWT(701)),
(YY12(1),DWT(713)),(YY22(1),DWT(725)),(YY21(1),DWT(737)),
(YY23(1),DWT(749))
EQUIVALENCE (YB10(1),DWT(401)),(XB20(1),DWT(413)),
(YB20(1),DWT(425)),(XB10(1),DWT(435))
EQUIVALENCE (DMH(1),DWT(872)),(NDH(1),DWT(894))
,(NDH1(1),DWT(896)),(NDH2(1),DWT(908))
,(YDH(1),DWT(920)),(YDH2(1),DWT(932))
EQUIVALENCE (I,ND(101)),(J,ND(102)),(K,ND(103)),(L,ND(104)),
(N,ND(105)),(11,ND(107)),(JJ,ND(108))
312 FORMAT(1H0,20X,35HERROR INSD FUEL RID IS OUTSD OF TIP)

```

FORTRAN MODULE (LIST,AUTOREG)

```

CARD NO      ****      CONTENTS      ****
1            C
2            C (.....)
3            C          PROGRAM DATA
4            C (.....)
5            C
6            C          PROGRAM DATA
7            C
8            C          MAIN CONTROL DATA MANAGEMENT, DEAD WT DIST. AND INERTIA
9            C          WRITTEN 25 MAY 1978
10           C          COMMON /COMMON/
11           C          COMMON /PRINT/ (P(80))
12           C          COMMON /MISC/ MISC(100)
13           C
14           C          DIMENSION D(700),DD(700),DV(2320),S(400),ND(200)
15           C
16           C          DIMENSION GDB(80),DATS(40),DATD(70),DATN(70)
17           C
18           C          DIMENSION BC(200)
19           C
20           C
21           C          EQUIVALENCE (D(1),TCOH(1)),(DD(1),TCOH(70)),(DV(1),TCOH(40)),
22           C          I (S(1),TCOH(370)),(ND(1),TCOH(42))
23           C
24           C          EQUIVALENCE (BC(1),DV(212))
25           C
26           C          EQUIVALENCE (GDB(1),DD(30)),(DATS(1),DD(40)),
27           C          I (DATD(1),DD(50)),(DATN(1),DD(50))
28           C
29           C
30           C          EQUIVALENCE (TP,ND(111)),(NV,ND(112))
31           C          EQUIVALENCE (MC,ND(115)),(MC,ND(116)),(MCD,ND(117)),
32           C          I (MCD,ND(118)),(MCH,ND(119)),(MCH,ND(120))
33           C
34           C          DD 700 N=1,4320
35           C          700 /COMMON/ = 0.0
36           C
37           C          READ GENERAL DATA IN RECORD 11
38           C
39           C          CALL READG(1,D(1),400,11)
40           C
41           C          TP = DATS(1)
42           C          NV = DATS(3)
43           C          MC = GDB(1)
44           C          MCD = GDB(2)
45           C          MCD = DATD(1)
46           C          MCD = DATD(2)
47           C          CALL SPVAL
48           C          CALL SPDFR
49           C          CALL FURBED
50           C          CALL MARGED
51           C          CALL BUCKED
52           C          IF (TP) 32,32,30
53           C
54           C          MCELLE TYPE
55           C          30 MCH = DATN(1)
56           C          MCH = DATN(2)
57           C          CALL MARGED
58           C          32 CONTINUE
59           C
60           C          .....
61           C          CALL MARGED TO SETUP FOREBODY GEOMETRY DATA IN BC ARRAY FOR
62           C          USE IN AIRLOADS MODULE ROUTINE BLCHTL
63           C          BC ARRAY = RECORD 22
64           C
65           C          CALL MARGED
66           C
67           C          .....
68           C
69           C          CALL GUTHE
70           C          CALL HEIGHT
71           C          PRINT OPERATIONAL HEIGHT EMPTY AND USEFUL LOAD PRIOR TO

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CARD NO	****	CONTENTS	****
71	C	FURTHER USAGE	
72		IF(1P(40))5005.5005.5005	
73		5005 CONTINUE	
74		CALL PRTOGE	
75		5005 CONTINUE	
76		CALL MHDSST	
77		CALL FUBDS1	
78		CALL CONDST	
79		CALL FTOTAL	
80	C		
81	C	*****	
82	C	CALL ANDATA TO CALCULATE TOTAL VEHICLE HEIGHT AND INERTIA	
83	C	SUPPLY	
84	C	ANDATA CALLS ANDINR TO SETUP FUSELAGE DEAD WEIGHT DISTRIBUTION	
85	C	DATA IN FUBDHI ARRAY FOR USE IN FUSELAGE MODULE ROUTINE FUBLD	
86	C	FUBDHI ARRAY = RECORD 34	
87	C		
88		CALL ANDATA	
89	C		
90	C	*****	
91	C		
92	C	*****	
93	C	CALL DBLCNT TO SETUP VEHICLE DATA IN BC ARRAY FOR USE IN	
94	C	AIRLOADS MODULE ROUTINE BLCNTL	
95	C	BC ARRAY = RECORD 22	
96	C		
97		CALL DBLCNT	
98	C		
99	C	*****	
100	C		
101	C	*****	
102	C	CALL DBMMSD TO SETUP SPEED-ALTITUDE AND H-TAIL INERTIA DATA	
103	C	IN SPAL ARRAY FOR USE IN FLUTTER AND TEMPERATURE MODULE	
104	C	ROUTINE MMSD	
105	C	SPAL ARRAY = RECORD 30	
106	C		
107		CALL DBMMSD	
108	C		
109	C	*****	
110	C		
111	C	*****	
112	C	CALL DBCCNTL TO SETUP GEOMETRY AND INERTIA DATA IN MD ARRAY	
113	C	FOR USE IN WING AND EMPENNAGE MODULE ROUTINE CCNTL	
114	C	MD ARRAY = RECORD 21	
115	C		
116		CALL DBCCNTL	
117	C		
118	C	*****	
119	C		
120	C	*****	
121	C	CALL DBFATH TO SETUP INERTIA LOADS DATA IN BC ARRAY FOR	
122	C	USE IN AIRLOADS MODULE FATIGUE EVALUATION ROUTINE FATHD	
123	C	BC ARRAY = RECORD 22	
124	C		
125		CALL DBFATH	
126	C		
127	C	*****	
128	C		
129	C	*****	
130	C	CALL DBMFLD TO SETUP INERTIA DATA IN MLD ARRAY FOR USE IN	
131	C	AIRLOADS MODULE SURFACE DESIGN LOAD CALCULATION ROUTINE MFLD	
132	C	MLD ARRAY = RECORD 10	
133	C		
134		CALL DBMFLD	
135	C		
136	C	*****	
137	C		
138		IF(1P(40))5001.5001.5002	
139		5001 CONTINUE	
140	C	BREAKPOINT OUTPUT	
141		WRITE(6,24)	

```

CARD NO          ****          CONTENTS          ****
142          24  FORMAT(1H,2X,4H) TCON AT END OF DATA MANAGEMENT LINK **,
143          1 12X,21H) DATAIN - (P146) ***
144          WRITE(6,60)
145          60  FORMAT(1H,2X,4H) VEHICLE GEOMETRY AND MISC DATA FILE ***
146          60  64  N=1,4100,5
147          IF ( TCON(N)+TCOM(N+1)+TCOM(N+2)+TCOM(N+3)+TCOM(N+4) .EQ. 0.0 )
148          *   GO TO 64
149          WRITE(6,62) N,TCOM(N),TCOM(N+1),TCOM(N+2),TCOM(N+3),TCOM(N+4)
150          62  FORMAT(4X,14,5F16.4)
151          64  CONTINUE
152          60  66  N=1,200,5
153          K=4120+N
154          IF (ND(N)+ND(N+1)+ND(N+2)+ND(N+3)+ND(N+4) .EQ. 0 ) GO TO 66
155          WRITE(6,68) K, ND(N),ND(N+1),ND(N+2),ND(N+3),ND(N+4)
156          68  FORMAT(4X,14,5I16 )
157          66  CONTINUE
158          6062 CONTINUE
159          C
160          C *****
161          C WRITE BV ARRAY IN RECORD 18 FOR USE IN OUTPUT SUMMARY
162          C MODULE ROUTINE OUTPUT
163          C
164          CALL WRITB(1,0V(1),2320,18)
165          C
166          C *****
167          C
168          IF (IP(47)) 5003,5003,5004
169          5003 WRITE(6,4001N,BC(1N),BC(1N+1),BC(1N+2),BC(1N+3),BC(1N+4),N=1,200,5)
170          400  FORMAT(1H,2X,4H) BC ARRAY --- LOADS DATA --- RECORD 22 ***
171          1 10X,21H) DATAIN - (P147) ****
172          * (10X,13,5F16.4)
173          5004 CONTINUE
174          C
175          C *****
176          C WRITE BC ARRAY IN RECORD 22 FOR USE IN AIRLOADS MODULE
177          C
178          CALL WRITB(1,BC(1),195,22)
179          C
180          C *****
181          C
182          C *****
183          C
184          C MISC(24) = PEN IN LANDING GEAR INPUT DATA SET
185          C CALL BLNDOR TO SETUP DESIGN DATA FOR USE IN LANDING GEAR
186          C MODULE ROUTINE LANDOR
187          C B ARRAY = RECORD 25
188          C
189          IF (MISC(24)) 70,70,60
190          C
191          70  CALL BLNDOR
192          C
193          C *****
194          C
195          66  CONTINUE
196          C
197          END
198          C
199          C *****
200          C SUBROUTINE ANDATA
201          C *****
202          C
203          C SUBROUTINE ANDATA
204          C WRITTEN 24 JULY 1972
205          C TO DEVELOP TOTAL VEHICLE HEIGHT, CG, AND INERTIA DATA
206          C
207          COMMON TCOM(4320)
208          COMMON /IPRINT/ IP(100)
209          C
210          DIMENSION B(700),BD(700),DV(2320),S(400),ND(200)
211          C
212          DIMENSION GDH(50),GDH(40),GDV(40)

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01/05/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

213          DIMENSION DATS(48)
214          C
215          DIMENSION DWH(30),DWH(30),DWH(480),DWH(150),DWH(1000)
216          DIMENSION Z0(20),HBAR(20),UI1(20),UI2(20)
217          DIMENSION SFN(10),UIYN(10),UIZN(10),HBN(10)
218          DIMENSION MFUS(20)
219          DIMENSION MFC(120),MFC2(20),MFC3(20)
220          C
221          EQUIVALENCE (D(1),TCOM(1)),(D(1),TCOM(70)),(D(1),TCOM(140)),
222          I (S(1),TCOM(370)),(ND(1),TCOM(121))
223          C
224          EQUIVALENCE (DD(1),DD(25)),(DD(1),DD(30)),(DD(1),DD(34))
225          C
226          EQUIVALENCE (DATS(1),DD(46))
227          C
228          EQUIVALENCE (DWH(1),DV(37)),(DWH(1),DV(40)),(DWH(1),DV(43)),
229          I (DWH(1),DV(87)),(DWH(1),DV(112))
230          C
231          EQUIVALENCE (Z0(1),DWB(1)),(HBA(1),DWB(14)),
232          I (UI1(1),DWB(40)),(UI2(1),DWB(21))
233          C
234          EQUIVALENCE (SFN(1),DWH(7)),(UIYN(1),DWH(13)),
235          I (UIZN(1),DWH(19)),(HBN(1),DWH(11))
236          C
237          EQUIVALENCE (MFUS(1),DWH(34))
238          C
239          EQUIVALENCE (MFC(1),DWH(70)),(MFC2(1),DWH(80)),
240          I (MFC3(1),DWH(82))
241          C
242          EQUIVALENCE (TP,ND(11)),(NC,ND(115)),(NEN,ND(119))
243          C
244          DD 101 1=1,400
245          S(1) = D(24)
246          101 CONTINUE
247          C .....
248          C      SUP HING AND CONTENTS
249          CALL AVDND
250          C .....
251          C      SUP FUELAGE AND CONTENTS
252          J = NC + 1
253          DD 150 1=1,J
254          S(32) = S(32) + MFUS(1) + MFC(1)
255          S(33) = S(33) + MFUS(1)*HBA(1) + MFC(1)*HBA(1)
256          S(34) = S(34) + MFUS(1) + MFC(1)
257          S(35) = S(35) + MFUS(1)*HBA(1) + MFC(1)*HBA(1)
258          S(36) = S(36) + MFUS(1) + MFC(1)
259          S(37) = S(37) + MFUS(1)*HBA(1) + MFC(1)*HBA(1)
260          S(83) = S(83) + MFUS(1)*Z0(1) + MFC(1)*Z0(1)
261          S(84) = S(84) + MFUS(1)*Z0(1) + MFC(1)*Z0(1)
262          S(85) = S(85) + MFUS(1)*Z0(1) + MFC(1)*Z0(1)
263          150 CONTINUE
264          S(38) = S(33)/S(32)
265          S(39) = S(35)/S(34)
266          S(40) = S(37)/S(36)
267          S(86) = S(83)/S(32)
268          S(87) = S(84)/S(34)
269          S(88) = S(85)/S(34)
270          S(41) = DWH(221) + DWH(222)
271          S(42) = DWH(231)
272          C      BASE INERTIA ON EXPOSED GEOMETRY
273          S(101) = DWH(8)*D(8)
274          S(102) = DWH(9) - (D(1) - DWH(8))*DWH(9)/S(101)*DWH(10)
275          S(43) = DWH(10) + (S(101) - DWH(10))/D(3)
276          S(44) = S(41)*S(102)**2/D(3)/D(8)
277          S(45) = S(41)*S(102)**2 + (S(101)-DWH(10))**2/D(3)/D(8)
278          S(46) = DWH(241) + DWH(242)
279          S(47) = DWH(251)
280          S(103) = DWH(8)*D(12)
281          S(104) = DWH(4) - (D(1) - DWH(8))*DWH(4)/S(103)*DWH(8)
282          S(48) = DWH(8) + DWH(8) + (S(101) - DWH(8))/D(3)
283          S(49) = S(48)*S(102)**2 + (S(101) - DWH(8))**2/D(3)/D(8)

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CARD NO      ****      CONTENTS      ****
204          S(80) = S(46)*S(102)**2** (31/010)
205          IF(17P) 200,300,200
206          C      MACELLE MOUNTED - THE WARD MACELLES
207          200 DD 210 I=1,20
208          S(81) = S(81) + DWT(1)*200
209          S(82) = S(82) + DWT(1)*200**DWT(1)*200
210          210 CONTINUE
211          S(83) = S(82)/S(81)
212          S(84) = DATS(14)
213          C      ABSOLUTE HEIGHT TO BE UNIFORMLY DISTRIBUTED ACCORDING TO MACELLE
214          C      NETTED AREA
215          J = NCM - 1
216          DD 220 I=1,J
217          S(85) = S(85) + SFN(1)
218          220 CONTINUE
219          DD 230 I=1,J
220          S(103) = DATS(13) + NCM(1) - S(83)
221          S(104) = S(95) + S(51)*SFN(1)/S(83)**UIYN(1) + S(103)**2
222          S(105) = S(96) + S(51)*SFN(1)/S(83)**UIZN(1) + S(103)**2
223          230 CONTINUE
224          IF(12 - 17P) 240,300,300
225          240 DD 250 I=1,20
226          S(157) = S(157) + DWT(1)*300
227          S(158) = S(158) + DWT(1)*300**DWT(1)*320
228          250 CONTINUE
229          S(159) = S(158)/S(157)
230          S(160) = DATS(17)
231          DD 260 I=1,J
232          S(183) = DATS(16) + NCM(1) - S(159)
233          S(181) = S(81) + S(157)*SFN(1)/S(83)**UIYN(1) + S(183)**2
234          S(182) = S(82) + S(157)*SFN(1)/S(83)**UIZN(1) + S(183)**2
235          260 CONTINUE
236          C      ASSEMBLE TOTAL VEHICLE
237          300 S(104) = S(1) + S(32) + S(4) + S(46) + S(51) + S(57)
238          S(105) = S(2) + S(33) + S(41)*S(42) + S(46)*S(47) + S(52) + S(58)
239          S(106) = S(65) - S(2) + S(3)
240          S(107) = S(85)/S(84)
241          S(108) = S(85)/S(84)
242          S(109) = S(8) + S(34) + S(41) + S(46) + S(51) + S(57)
243          S(170) = S(7) + S(35) + S(41)*S(42) + S(46)*S(47) + S(52) + S(58)
244          S(171) = S(70) - S(7) + S(8)
245          S(172) = S(70)/S(100)
246          S(173) = S(71)/S(100)
247          C      LANDING DESIGN HEIGHT WINDS FORWARD OR FIXED
248          S(180) = S(11) + S(36) + S(41) + S(46) + S(51) + S(57)
249          S(181) = S(13) + S(37) + S(41)*S(42) + S(46)*S(47) + S(52) + S(58)
250          S(182) = S(81)/S(100)
251          S(187) = S(11)*DCM(1) + S(8) + S(41)*DCM(1) + S(46)*S(46) +
252          | S(51)*DATS(15) + S(57)*DATS(18)
253          S(188) = S(187)/S(104)
254          S(189) = S(8)*DCM(1) + S(84) + S(41)*DCM(1) + S(46)*S(46) +
255          | S(51)*DATS(15) + S(57)*DATS(18)
256          S(190) = S(189)/S(100)
257          S(181) = S(11)*DCM(1) + S(85) + S(41)*DCM(1) + S(46)*S(46) +
258          | S(51)*DATS(15) + S(57)*DATS(18)
259          S(182) = S(181)/S(100)
260          C      DEVELOP VEHICLE INERTIA AT FCOM START WITH FUELAGE
261          J = NC + 1
262          DD 310 I=1,J
263          S(174) = S(74) + MFUS(1) + MFC2(1)**UIV(1) +
264          | S(1472) - NCM(1)**2 + (20(1) - S(100))**2
265          S(175) = S(75) + MFUS(1) + MFC2(1)**UIV(1) +
266          | S(1473) - NCM(1)**2 + (20(1) - S(100))**2
267          S(176) = S(76) + MFUS(1) + MFC2(1)**UIZ(1) +
268          | S(1472) - NCM(1)**2
269          S(177) = S(77) + MFUS(1) + MFC2(1)**UIZ(1) +
270          | S(1473) - NCM(1)**2
271          S(185) = S(83) + MFUS(1) + MFC1(1)**UIV(1) +
272          | S(1480) - NCM(1)**2 + (20(1) - S(100))**2
273          S(186) = S(84) + MFUS(1) + MFC3(1)**UIV(1) +
274          | S(1482) - NCM(1)**2 + (20(1) - S(100))**2

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01/08/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

355          S(55) = S(55) + IMFUS(1) * MFC(111)*U12(1) +
356          I (S(55) - NBAR(111)**2)
357          S(55) = S(55) + IMFUS(1) * MFC(111)*U12(1) +
358          I (S(55) - NBAR(111)**2)
359          310 CONTINUE
360          C -----
361          C      ADD OTHER COMPONENTS
362          CALL ANOAC
363          C -----
364          CALL ANOHR
365          DNAT(94) = S(94)
366          DNAT(95) = S(97)
367          DNAT(96) = S(88)
368          DNAT(97) = S(88)
369          DNAT(98) = S(83)
370          DNAT(99) = S(85)
371          DNAT(851) = S(88)
372          DNAT(852) = S(78)
373          DNAT(853) = S(73)
374          DNAT(99) = S(100)
375          DNAT(857) = S(74)
376          DNAT(998) = S(75)
377          DNAT(999) = S(78)
378          DNAT(850) = S(77)
379          DNAT(851) = S(80)
380          DNAT(853) = S(82)
381          DNAT(854) = S(82)
382          DNAT(855) = S(84)
383          DNAT(857) = S(85)
384          DNAT(858) = S(41)
385          DNAT(859) = S(42)
386          DNAT(870) = S(43)
387          DNAT(872) = S(44)
388          DNAT(873) = S(45) + S(41)*S(43)**2
389          DNAT(874) = S(51)
390          DNAT(875) = S(53)
391          DNAT(877) = S(55)
392          DNAT(878) = S(56)
393          DNAT(879) = S(57)
394          DNAT(880) = S(58)
395          DNAT(882) = S(61)
396          DNAT(883) = S(62)
397          C
398          M(IP(401),5001,5001,5002)
399          5001 CONTINUE
400          WRITE (6,4001) (S(1),S(1+1),S(1+2),S(1+3),S(1+4),1=1,105,5)
401          400 FORMAT(10H) S(1) FROM ANDATA,7H,2H** ANDATA - (P(40) **
402          I (110, 9'10 4))
403          5002 CONTINUE
404          C
405          RETURN
406          END
407          C
408          C *****
409          C      SUBROUTINE ANOAC
410          C *****
411          C
412          C      SUBROUTINE ANOAC
413          C
414          C      ADD OTHER COMPONENTS
415          C      SEPARATED FROM ANDATA BECAUSE OF COMPILER TROUBLES
416          C
417          COMMON TCOM(4320)
418          C
419          DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
420          DIMENSION GDH(90),GDH(40),GDV(40)
421          DIMENSION BATS(40)
422          C
423          EQUIVALENCE(D(1),TCOM(1)),(GD(1),TCOM(70)),(DV(1),TCOM(140)),
424          I (S(1),TCOM(370)),IND(1),TCOM(412))
425          C MARKING TEMPORARY FOR SQUARES OF X DISTANCES TO NEW CO.

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CARD NO          ****          CONTENTS          ****
426              EQUIVALENCE (GDH(1),GD(2511),GDH(1),GD(3011),GDV(1),GD(3411)
427              EQUIVALENCE (DATS(1),GD(4011)
428              EQUIVALENCE (XAH,S(110)), (XAH,S(111)), (XAH,S(112)),
429              I (XAH,S(113)), (XAH,S(114))
430              EQUIVALENCE (YAH,S(115)), (YAH,S(116)),
431              I (YAH,S(117)), (YAH,S(118))
432              EQUIVALENCE (ZAH,S(119)), (ZAH,S(120)), (ZAH,S(121)),
433              I (ZAH,S(122)), (ZAH,S(123))
434              EQUIVALENCE (X,S(124)), (Z,S(125)), (H,S(126))
435              C
436              C 10Y SUM OF HORIZONTAL, VERTICAL, MAC ID., MAC OD
437              S(70) = S(144) + S(140) + S(195) + S(101)
438              C 10Z SUM OF H.V.MI,MO
439              S(70) = S(145) + S(150) + S(156) + S(102)
440              YAH = S(143)**2
441              YAV = GDV(7)**2
442              YAH1 = S(141)**2
443              YAH0 = S(100)**2
444              C -----
445              C      BTM WITH WINDS AFT
446              N=1
447              X = S(70)
448              Z = S(100)
449              M = S(24)
450              10 XAH = (X-M)**2
451              XAH = (X-S(142))**2
452              XAV = (X-S(147))**2
453              XAH1 = (X-S(153))**2
454              XAH0 = (X-S(150))**2
455              ZAH = (Z-GDH(1))**2
456              ZAH = (Z-GDH(1))**2
457              ZAV = (Z-S(146))**2
458              ZAH1 = (Z-DATS(15))**2
459              ZAH0 = (Z-DATS(10))**2
460              GO TO (20,30,40,50),N
461              C 11Y
462              20 S(74) = S(74) + S(70) + S(10) + S(6)**(XAH+ZAH) + S(14)**(XAH+ZAH)
463              I   + S(146)**(XAH+ZAV) + S(5)**(XAH1+ZAH1) + S(57)**(XAH0+ZAH0)
464              C 12Z
465              S(70) = S(70) + S(70) + S(10) + S(6)**XAH
466              I   + S(14)**(XAH + YAH) + S(146)**(XAV + YAV)
467              Z   + S(5)**(XAH1 + YAH1) + S(57)**(XAH0 + YAH0)
468              C -----
469              C      BTM WITH WINDS FORWARD
470              N=2
471              X = S(73)
472              M = S(25)
473              GO TO 10
474              C 11Y
475              20 S(75) = S(75) + S(70) + S(17) + S(6)**(XAH+ZAH) + S(14)**(XAH+ZAH)
476              I   + S(146)**(XAH+ZAV) + S(5)**(XAH1+ZAH1) + S(57)**(XAH0+ZAH0)
477              C 12Z
478              S(77) = S(77) + S(70) + S(10) + S(6)**XAH
479              I   + S(14)**(XAH + YAH) + S(146)**(XAV + YAV)
480              Z   + S(5)**(XAH1 + YAH1) + S(57)**(XAH0 + YAH0)
481              C -----
482              C      PARALLEL DESIGN HEIGHT WITH WINDS FORWARD
483              C TAKE OFF CROSS HEIGHT WITH WINDS FWD
484              N=3
485              X = S(100)
486              Z = S(100)
487              M = S(21)
488              GO TO 10
489              C 11Y
490              20 S(100) = S(100) + S(70) + S(100) + S(11)**(XAH+ZAH) + S(14)**(XAH+ZAH)
491              I   + S(146)**(XAH+ZAV) + S(5)**(XAH1+ZAH1) + S(57)**(XAH0+ZAH0)
492              C 12Z
493              S(100) = S(100) + S(70) + S(10) + S(11)**XAH
494              I   + S(14)**(XAH + YAH) + S(146)**(XAV + YAV)
495              Z   + S(5)**(XAH1 + YAH1) + S(57)**(XAH0 + YAH0)
496              C -----

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CARD NO	*****	CONTENTS	*****
000		RT(7) = S(73)	
000		RT(8) = S(80)	
070		RT(10) = S(80)	
071		RT(8) = S(82)	
072		C TOTAL HAS ZERO YCS(11 THRU 19), AND TIX(21 THRU 29)	
073		RT(16) = S(100)	
074		RT(17) = S(100)	
075		RT(18) = S(80)	
076		RT(20) = S(80)	
077		RT(19) = S(102)	
078		RT(26) = S(74)	
079		RT(27) = S(75)	
080		RT(28) = S(83)	
081		RT(30) = S(83)	
082		RT(29) = S(84)	
083		RT(31) = S(78)	
084		RT(32) = S(77)	
085		RT(33) = S(85)	
086		RT(35) = S(85)	
087		RT(34) = S(88)	
088		C	
089		C BASIC MIND STORED IN RM FIRST, COMPONENTS ADDED IF NECESSARY	
090		RM(1) = S(6)	
091		RM(2) = S(6)	
092		RM(3) = S(1)	
093		RM(5) = S(1)	
094		RM(4) = S(11)	
095		RM(6) = S(24)	
096		RM(7) = S(25)	
097		RM(8) = S(21)	
098		RM(10) = S(21)	
099		RM(9) = S(20)	
000		RM(11) = S(26)	
001		RM(12) = S(27)	
002		RM(13) = S(23)	
003		RM(15) = S(23)	
004		RM(14) = S(31)	
005		RM(16) = OCM(11)	
006		RM(17) = OCM(11)	
007		RM(18) = OCM(11)	
008		RM(19) = OCM(11)	
009		RM(20) = OCM(11)	
010		RM(26) = S(16)	
011		RM(27) = S(17)	
012		RM(31) = S(18)	
013		RM(32) = S(18)	
014		RM(29) = S(88)	
015		RM(30) = S(88)	
016		RM(33) = S(81)	
017		RM(35) = S(81)	
018		RM(29) = S(88)	
019		RM(34) = S(82)	
020		C	
021		VYCS = OCM(7)	
022		C HORIZONTAL CONSTANT FOR ALL 9 CONDITIONS	
023		DO 40 N=1,9	
024		RM(N) = S(41)	
025		RM(N-5) = S(42)	
026		RM(N-10) = S(43)	
027		RM(N-15) = OCM(11)	
028		RM(N-20) = S(44)	
029		RM(N-25) = S(45) + S(41)*S(43)*2	
030		40 CONTINUE	
031		C	
032		C VERTICAL - IF ON PUB. PUT IN RV, IF ON MIND MUST ADD IN	
033		IF(OBV(3)) 00,00,00	
034		DO 60 N=1,9	
035		RV(N) = S(46)	
036		RV(N-5) = S(47)	
037		RV(N-10) = VYCS	
038		RV(N-15) = S(48)	

```

CARD NO      ****      CONTENTS      ****
030          RVIN=25) = S(49)
040          RVIN=30) = S(50)
041          05 CONTINUE
042          00 TO 100
043          C VERTICAL ON WIND
044          00 00 05 N=1.5
045          MT = RBIN) + S(46)
046          XCO = (RBIN) + RBIN=5) + S(46)*S(47) / MT
047          YCO = (RBIN) + RBIN=10) + S(46)*VCO) / MT
048          ZCO = (RBIN) + RBIN=15) + S(46)*S(48) / MT
049          RBIN=25) = RBIN=25) + S(49) + RBIN)*(RBIN=5) - XCO)**2 + (RBIN=15)
050          I          -ZCO)**2 + S(46)*((S(47) - XCO)**2 + (S(48) - ZCO)**2)
051          RBIN=30) = RBIN=30) + (.50) + RBIN)*(RBIN=5) - XCO)**2)
052          I          + S(46)*((S(47) - XCO)**2 + VCO)**2)
053          RBIN) = MT
054          RBIN=5) = XCO
055          RBIN=10) = YCO
056          RBIN=15) = ZCO
057          05 CONTINUE
058          C -----
059          C .....
060          C IF AIR INDUCTION SYSTEM ON FUSELAGE (00(17)=-) ON WIND (=0)
061          C TEST FOR MACELLES. DATS(1) = NUMBER OF MACELLES
062          100 IF(DATS(1) 150,150,102
063          C          MACELLE TYPE
064          102 IF(00(17) 104,120,104
065          104 00 110 N=1.5
066          RAIN) = S(51)
067          RAIN=5) = S(53)
068          RAIN=10) = S(54)
069          RAIN=15) = DATS(1)
070          RAIN=25) = S(55)
071          RAIN=30) = S(56) + S(51)*S(59)**2
072          110 CONTINUE
073          00 TO 150
074          C .....
075          C          WIND MOUNTED. TEST NUMBER
076          120 IF(DATS(1) - 0(3)) 122,122,124
077          C          TWO MACELLES
078          122 MT = S(51)
079          XCO = S(53)
080          YCO = S(54)
081          ZCO = DATS(15)
082          S(116) = S(95)
083          S(117) = S(56) + S(51)*S(59)**2
084          00 TO 130
085          C          FOUR MACELLES
086          124 MT = S(51) + S(57)
087          XCO = (S(52) + S(58)) / MT
088          YCO = (S(51)*S(54) + S(57)*S(60)) / MT
089          ZCO = (S(51)*DATS(15) + S(57)*DATS(10)) / MT
090          S(118) = (S(53) - XCO)**2
091          S(119) = (S(54) - XCO)**2
092          S(120) = (DATS(15) - ZCO)**2
093          S(121) = (DATS(10) - ZCO)**2
094          S(116) = S(95) + S(61) + S(51)*S(118) + S(120) +
095          I          S(57)*S(119) + S(121)
096          S(117) = S(56) + S(62) + S(51)*S(118) + S(59)**2 +
097          I          S(57)*S(119) + S(60)**2)
098          130 00 140 N=1.5
099          S(118) = RBIN) + MT
100          S(119) = (RBIN) + RBIN=5) + MT*XCO) / S(118)
101          S(120) = (RBIN) + RBIN=10) + MT*YCO) / S(118)
102          S(121) = (RBIN) + RBIN=15) + MT*ZCO) / S(118)
103          S(124) = (RBIN=5) - S(118)**2
104          S(125) = (XCO - S(118))**2
105          S(126) = (RBIN=15) - S(121)**2
106          S(127) = (ZCO - S(121))**2
107          RBIN=25) = RBIN=25) + S(116) + RBIN)*S(124) + S(126) +
108          I          MT*(S(125) + S(127))
109          RBIN=30) = RBIN=30) + S(117) + RBIN)*S(124) + MT*(S(125)

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01/00/74

INPUT LISTING

AUTOFLOW CHART SET - SHEEP

DATA MANAGEMENT MODULE

CARD NO

CONTENTS

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710      RM(N) = S(110)
711      RM(N+5) = S(110)
712      RM(N+10) = S(120)
713      RM(N+15) = S(121)
714      140 CONTINUE
715      C  SPACE FOR OTHER
716      150 CONTINUE
717      C
718      DO 100 N=1,400
719      100 FURDM(I(N)) = 0.0
720      C
721      DO 170 N=1,42
722      N = 191 + (N-1)*5
723      FURDM(I(N)) = S(N+1)
724      FURDM(I(N+90)) = S(N+1)
725      FURDM(I(N+180)) = S(N+2)
726      FURDM(I(N+270)) = S(N+3)
727      170 FURDM(I(N+360)) = S(N+4)
728      C
729      DO 100 N=51,70
730      I = N - 50
731      FURDM(I(N)) = MFC2(I)
732      FURDM(I(N+90)) = MFC2(I)
733      FURDM(I(N+180)) = MFC2(I)
734      FURDM(I(N+270)) = MFC2(I)
735      100 FURDM(I(N+360)) = MFC2(I)
736      C
737      DO 100 N=71,90
738      I = N - 70
739      FURDM(I(N)) = MFUS(I)
740      FURDM(I(N+90)) = MFUS(I)
741      FURDM(I(N+180)) = MFUS(I)
742      FURDM(I(N+270)) = MFUS(I)
743      100 FURDM(I(N+360)) = MFUS(I)
744      C
745      DO 200 N=1,10
746      FURDM(I(N+450)) = ALT(N)
747      FURDM(I(N+60)) = VL(N)
748      200 FURDM(I(N+470)) = GL(N)
749      C
750      C CHECK PRINT
751      C
752      IF (IP(45)) 5001,5001,5002
753      5001 CONTINUE
754      WRITE (6,300) RT,RY,RX,RV,RA,RO
755      300 FORMAT(1MI,2BCHECK PRINT FOR ANDIR,6X,21M** ANDIR - (P145) **,
756      1 //SHORT, SE10.0/0(3X,SE10.0/)
757      1 /SHORT, SE10.0 / 0(3X,SE10.0/) /SHORT, SE10.0 /0(3X,SE10.0 /)
758      2 /SHORT, SE10.0 / 0(3X,SE10.0/) /SHORT, SE10.0 /0(3X,SE10.0 /)
759      3 /SHORT, SE10.0 / 0(3X,SE10.0/) )
760      5002 CONTINUE
761      C
762      C
763      C
764      CALL WRITB(1,FURDM(1),400,34)
765      C
766      C
767      C
768      RETURN
769      END
770      C
771      C
772      C
773      C
774      C
775      C
776      C
777      C
778      C
779      C
780      C

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CARD NO      ****      CONTENTS      ****
701          DIMENSION      UZ(12),MWT(12),MWT2(12),MWT3(12),
702          1 XB1(12),XB2(12),YB1(12),YB2(12),XB2(12),XB2(12),
703          2 YB12(12),YB22(12),XB13(12),XB23(12),YB13(12),YB23(12),
704          3 YY12(12),YY22(12),YY21(12),YY23(12)
705          C
706          EQUIVALENCE (D(1),TCOH(1)),(D(1),TCOH(70)),(D(1),TCOH(140)),
707          1 (S(1),TCOH(372)),(IND(1),TCOH(412))
708          EQUIVALENCE (DWT(1),DV(12))
709          EQUIVALENCE (UZ(1),DWT(46)),
710          1 (MWT(1),DWT(487)),(MWT2(1),DWT(521)),(MWT3(1),DWT(545)),
711          2 (XB1(1),DWT(569)),(XB2(1),DWT(581)),(YB1(1),DWT(593)),
712          3 (YB12(1),DWT(605)),(XB12(1),DWT(617)),(XB22(1),DWT(629)),
713          4 (YB12(1),DWT(641)),(YB22(1),DWT(653)),(XB13(1),DWT(665)),
714          5 (XB23(1),DWT(677)),(YB13(1),DWT(689)),(YB23(1),DWT(701)),
715          6 (YY12(1),DWT(713)),(YY22(1),DWT(725)),(YY21(1),DWT(737)),
716          7 (YY23(1),DWT(749))
717          C
718          C SUMMING AND CONTENTS
719          DO 105 I=1,12
800          S(1) = S(1) + MWT(1)
801          S(2) = S(2) + MWT(1)*XB1(1)
802          S(3) = S(3) + MWT(1)*XB2(1)
803          S(4) = S(4) + MWT(1)*YB1(1)
804          S(5) = S(5) + MWT(1)*YB2(1)
805          S(6) = S(6) + MWT2(1)
806          S(7) = S(7) + MWT2(1)*XB12(1)
807          S(8) = S(8) + MWT2(1)*XB22(1)
808          S(9) = S(9) + MWT2(1)*XB12(1)
809          S(10) = S(10) + MWT2(1)*YB22(1)
810          S(11) = S(11) + MWT3(1)
811          S(12) = S(12) + MWT3(1)*XB13(1)
812          S(13) = S(13) + MWT3(1)*XB23(1)
813          S(14) = S(14) + MWT3(1)*YB13(1)
814          S(15) = S(15) + MWT3(1)*YB23(1)
815          S(16) = S(16) + YY12(1)
816          S(17) = S(17) + YY22(1)
817          S(18) = S(18) + MWT2(1)*UZ(1)
818          S(00) = S(00) + YY21(1)
819          S(00) = S(00) + YY23(1)
820          S(01) = S(01) + MWT(1)*UZ(1)
821          S(02) = S(02) + MWT3(1)*UZ(1)
822          105 CONTINUE
823          S(18) = S(18)
824          S(20) = S(2)/S(1)
825          S(21) = S(3)/S(1)
826          S(22) = S(4)/S(1)
827          S(23) = S(5)/S(1)
828          S(24) = S(7)/S(6)
829          S(25) = S(8)/S(6)
830          S(26) = S(9)/S(6)
831          S(27) = S(10)/S(6)
832          S(28) = S(12)/S(11)
833          S(29) = S(13)/S(11)
834          S(30) = S(14)/S(11)
835          S(31) = S(15)/S(11)
836          DO 110 I=1,12
837          S(18) = S(18) + MWT2(1)*S(24) - XB12(1)**2
838          S(17) = S(17) + MWT2(1)*S(25) - XB22(1)**2
839          S(18) = S(18) + MWT2(1)*S(24) - XB12(1)**2 + YB12(1)**2
840          S(18) = S(18) + MWT2(1)*S(25) - XB22(1)**2 + YB22(1)**2
841          S(00) = S(00) + MWT(1)*S(21) - XB1(1)**2
842          S(00) = S(00) + MWT3(1)*S(29) - XB23(1)**2
843          S(01) = S(01) + MWT(1)*S(21) - XB2(1)**2 + YB2(1)**2
844          S(02) = S(02) + MWT3(1)*S(29) - XB23(1)**2 + YB23(1)**2
845          110 CONTINUE
846          RETURN
847          END
848          C
849          C
850          C SUBROUTINE CONDST
851          C

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CARD NO      ****                CONTENTS                ****
002          C
003          SUBROUTINE CONDST
004          C      WRITTEN 7 JULY 1978
005          C      TO DISTRIBUTE FUELSAGE CONTENTS
006          COMMON TCON(4320)
007          DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
008          DIMENSION EQU(200)
009          DIMENSION GD(120),GDAT(100),GD(100),DATS(40),DATD(70)
010          DIMENSION DWH(50),DWH(30),DWH(30),DWT(500)
011          EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(70)),(DV(1),TCON(140)),
012          I (S(1),TCON(170)),(ND(1),TCON(412))
013          EQUIVALENCE (EQU(1),D(0))
014          EQUIVALENCE (GD(1),GD(1)),(GDAT(1),GD(0)),(GD(1),GD(30)),
015          I (DATS(1),GD(40)),(DATD(1),GD(50))
016          EQUIVALEND * (DWH(1),DV(32)),(DWH(1),DV(37)),(DV(1),DV(40)),
017          I (DWT(1),DV(112))
018          EQUIVALENCE      (J,ND(102)),(K,ND(103)),(L,ND(104))
019          EQUIVALENCE (M,ND(117))
020          10 FORMAT(2B40** WARNING FROM CONDST ** /
021          I 20X,3B40** PREVIOUS FORE AND AFT LIMITS HERE, 2F10.2/
022          23X,F12.7,17H LBS AT FUS. STA.,F8.2,10X,2)NDISTRIBUTED BY DSTNR)
023          C      STORE OPERATIONAL WEIGHT EMPTY DISTRIBUTION IN DWT(351-380)
024          C      MAIN GEAR
025          IF(DWT(102)) 110,110,101
026          101 S(1) = DWT(102)
027          S(2) = DWT(112)
028          CALL DSTNR
029          DO 103 I=J,K
030          DWT(1+350) = DWT(1+350) + S(1+20)
031          103 CONTINUE
032          C      HOSE GEAR
033          110 S(1) = DWT(103)
034          S(2) = DWT(113)
035          CALL DSTNR
036          DO 115 I=J,K
037          DWT(1+350) = DWT(1+350) + S(1+20)
038          115 CONTINUE
039          C      SURFACE CONTROLS
040          IF(DWT(104)) 127,127,117
041          117 S(1) = DWT(104)
042          S(2) = DWT(114)
043          CALL DSTNR
044          DO 120 I=J,K
045          DWT(1+350) = DWT(1+350) + S(1+20)
046          120 CONTINUE
047          C      DISTRIBUTE SURFACE CONTROLS USING A TRAPEZOIDAL DISTRIBUTION
048          S(1) = DWT(105)
049          S(2) = DWT(115)
050          S(3) = DWT(114)
051          S(4) = AMAX(DWH(43),DWH(24),DWH(24))
052          S(5) = (S(4)-S(3))/D(3)
053          IF (S(2)-S(3)) - S(5) ) 123,121,121
054          121 IF (S(4)-S(2)) - S(5) ) 123,122,122
055          122 CALL DSTNR
056          GO TO 125
057          123 CALL DSTNR
058          WRITE(6, 10) S(3),S(4),S(1),S(2)
059          WRITE(6,124)
060          124 FORMAT(1H*,10X,1B)SURFACE CONTROLS)
061          125 DO 126 I=J,K
062          DWT(1+350) = DWT(1+350) + S(1+20)
063          126 CONTINUE
064          C      OTHER STRUCTURE
065          127 IF(DWT(106)) 130,130,120
066          120 S(1) = DWT(106)
067          S(2) = DWT(116)
068          CALL DSTNR
069          DO 129 I=J,K
070          DWT(1+350) = DWT(1+350) + S(1+20)
071          129 CONTINUE
072          C      FUEL SYSTEM

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CARD NO      ****          CONTENTS          ****
003          130 IF(DWMT(107)) 130,130,131
004          C              WHEN DWMT(107)=0.0 THERE IS NO FUEL IN FUSELAGE
005          131 S(1) = DWMT(107)
006              S(2) = DWMT(147)
007              S(4) = MAX(DWMT(110),DWMT(112),DWMT(114),DWMT(116),DWMT(118))
008              S(3) = S(4)
009              DO 132 I=1,0,2
010              F(DWMT(1+100),EQ,012+100 TO 132
011              IF(S(3).GT.DWMT(1+100)+S(3)-DWMT(1+100)
012          132 CONTINUE
013              S(5) = (S(4)-S(3))/D(3)
014              IF( (S(2)-S(3)) - S(5) ) 135,133,133
015          133 IF( (S(4)-S(2)) - S(5) ) 135,134,134
016          134 CALL DSTTRP
017              GO TO 137
018          135 CALL DSTHOR
019              WRITE(6, 10) S(3),S(4),S(1),S(2)
020              WRITE(6,130)
021          136 FORMAT(1H*,2X,11HFUEL SYSTEM)
022          137 DO 138 I=J,K
023              DWMT(1+350) = DWMT(1+350) + S(1+20)
024          138 CONTINUE
025          C      ENGINE CONTROLS
026          139 IF(DWMT(100)) 140,140,140
027          140 S(1) = DWMT(100)
028              S(2) = DWMT(140)
029              S(3) = DWMT(144)
030              S(4) = DWMT(60)
031              IF(DATS(1)) 146,146,142
032          142 IF(DO(17)) 144,144,146
033          144 S(4) = DW(43)
034          146 S(5) = (S(4)-S(3))/D(3)
035              IF( (S(2)-S(3)) - S(5) ) 1463,1461,1461
036          1461 IF( (S(4)-S(2)) - S(5) ) 1463,1462,1462
037          1462 CALL DSTTRP
038              GO TO 1465
039          1463 CALL DSTHOR
040              WRITE(6, 10) S(3),S(4),S(1),S(2)
041              WRITE(6,140)
042          1464 FORMAT(1H*,2X,15HENGINE CONTROLS)
043          1465 DO 146 I=J,K
044              DWMT(1+350) = DWMT(1+350) + S(1+20)
045          146 CONTINUE
046          C      AUXILIARY POWER UNIT
047          149 IF(DWMT(109)) 150,150,150
048          150 S(1) = DWMT(109)
049              S(2) = DWMT(149)
050          CALL DSTHOR
051              GO 152 I=J,K
052          152 DWMT(1+350) = DWMT(1+350) + S(1+20)
053          152 CONTINUE
054          C      INSTRUMENTS - BREAK INTO DISTRIBUTED AND CONCENTRATED HEIGHTS
055          160 IF(DWMT(110)) 160,160,161
056          161 S(1) = EQ(130)*DWMT(21)
057              S(2) = DWMT(144)
058          CALL DSTHOR
059              GO 162 I=J,K
060          162 DWMT(1+350) = DWMT(1+350) + S(1+20)
061          162 CONTINUE
062              S(3) = DWMT(110) - S(1)
063              S(4) = (DWMT(110)*DWMT(150) - S(1)*S(2))/S(3)
064              S(1) = S(3)
065              S(3) = S(2)
066              S(2) = S(4)
067              S(4) = MAX(DW(43),DW(24),DW(24))
068              S(5) = (S(4)-S(3))/D(3)
069              IF( (S(2)-S(3)) - S(5) ) 1623,1621,1621
070          1621 IF( (S(4)-S(2)) - S(5) ) 1623,1622,1622
071          1622 CALL DSTTRP
072              GO TO 163
073          1623 CALL DSTHOR

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CARD NO      ****                                CONTENTS                                ****
004          WRITE(6, 10) S(3),S(4),S(11),S(2)
005          WRITE(6,1024)
006          1024 FORMAT(1H,2X,11INSTRUMENTS)
007          103 DD 104 I=J,K
008          DWT(1+300) = DWT(1+300) + S(1+20)
009          104 CONTINUE
1000         C      HYDRAULICS
1001         105 IF(DWT(111)) 171,171,107
1002         107 S(1) = DWT(111)
1003         S(2) = DWT(151)
1004         S(3) = DWT(144)
1005         S(4) = MAX( DWT(43),DWT(24),DWT(24) )
1006         S(5) = (S(4)-S(3))/D(13)
1007         IF (S(2)-S(3)) - S(5) 1 1003,1001,1001
1008         1001 IF (S(4)-S(2)) - S(5) 1 1003,1002,1002
1009         1002 CALL GETTRP
1010         GO TO 100
1011         1003 CALL GETTRP
1012         WRITE(6, 10) S(3),S(4),S(11),S(2)
1013         WRITE(6,1024)
1014         1024 FORMAT(1H,2X,10HYDRAULICS)
1015         100 DD 170 I=J,K
1016         DWT(1+300) = DWT(1+300) + S(1+20)
1017         170 CONTINUE
1018         C      ELECTRICAL
1019         171 IF(DWT(112)) 175,175,172
1020         172 S(1) = DWT(112)
1021         S(2) = DWT(152)
1022         S(3) = DWT(144)
1023         S(4) = MAX( DWT(43),DWT(24),DWT(24) )
1024         S(5) = (S(4)-S(3))/D(13)
1025         IF (S(2)-S(3)) - S(5) 1 1733,1731,1731
1026         1731 IF (S(4)-S(2)) - S(5) 1 1733,1732,1732
1027         1732 CALL GETTRP
1028         GO TO 1735
1029         1733 CALL GETTRP
1030         WRITE(6, 10) S(3),S(4),S(11),S(2)
1031         WRITE(6,1734)
1032         1734 FORMAT(1H,2X,10ELECTRICAL)
1033         1735 DD 174 I=J,K
1034         DWT(1+300) = DWT(1+300) + S(1+20)
1035         174 CONTINUE
1036         C      ELECTRONICS
1037         175 IF(DWT(113)) 200,200,176
1038         176 IF(DWT(153)) 100,100,100
1039         C      TWO COMPARTMENTS
1040         100 IF(DWT(151)+DWT(152)) 101,101,102
1041         101 S(1)=DWT(113)
1042         S(2)=DWT(153)
1043         GO TO 105
1044         102 S(1) = DWT(113)*(DWT(153) - DWT(151))/(DWT(152) - DWT(151))
1045         S(2) = DWT(152)
1046         CALL GETTRP
1047         DD 104 I=J,K
1048         DWT(1+300) = DWT(1+300) + S(1+20)
1049         104 CONTINUE
1050         S(1) = DWT(113)*(DWT(152) - DWT(151))/(DWT(152) - DWT(151))
1051         S(2) = DWT(151)
1052         105 CALL GETTRP
1053         DD 105 I=J,K
1054         DWT(1+300) = DWT(1+300) + S(1+20)
1055         105 CONTINUE
1056         GO TO 200
1057         C      THREE COMPARTMENTS
1058         100 S(1) = DWT(113)*EQ(142)
1059         S(2) = DWT(152)
1060         CALL GETTRP
1061         DD 102 I=J,K
1062         DWT(1+300) = DWT(1+300) + S(1+20)
1063         102 CONTINUE
1064         S(1) = DWT(113)*D(11) - EQ(142)

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CARD NO      ****      CONTENTS      ****
1000          S(6) = (DWT(113)*DWT(153) - DWT(113)*EQU(142)*DWT(152))/S(5)
1005          S(1) = S(5)*S(6) - DWT(151)/(DWT(153) - DWT(151))
1007          S(2) = DWT(153)
1008          CALL DSTNDR
1009          GO 104 I=J,K
1070          DWT(1+350) = DWT(1+350) + S(1+20)
1071          104 CONTINUE
1072          S(1) = S(5)*(DWT(153) - S(6))/(DWT(153) - DWT(151))
1073          S(2) = DWT(151)
1074          CALL DSTNDR
1075          GO 106 I=J,K
1076          DWT(1+350) = DWT(1+350) + S(1+20)
1077          106 CONTINUE
1078          C      APPARMENT
1079          200 IF(DWT(114)) 300,300,202
1080          202 S(1) = DWT(114)
1081          S(2) = DWT(154)
1082          IF(DWT(124)) 220,220,204
1083          204 IF(EQU(135)*DWT(114) - EQU(143)) 205,205,206
1084          205 S(1) = EQU(135)*DWT(114)
1085          GO TO 207
1086          206 S(1) = EQU(143)
1087          207 S(2) = DWT(93)
1088          CALL DSTNDR
1089          GO 209 I=J,K
1090          DWT(1+350) = DWT(1+350) + S(1+20)
1091          209 CONTINUE
1092          S(5) = DWT(114) - S(1)
1093          S(2) = (DWT(114)*DWT(154) - S(1) * DWT(93))/S(5)
1094          S(1) = S(5)
1095          209 S(3) = DWT(114)
1096          S(4) = D(2)*S(2) - S(3)
1097          S(9) = (S(4)-S(3))/D(3)
1098          IF( (S(2)-S(3)) - S(5) ) 2213,2211,2211
1099          2211 IF( (S(4)-S(2)) - S(5) ) 2213,2212,2212
1100          2212 CALL DSTTRP
1101          GO TO 2215
1102          2213 CALL DSTNDR
1103          WRITE(6, 10) S(3),S(4),S(1),S(2)
1104          WRITE(6,2214)
1105          2214 FORMAT(1H,27X,APPARMENT)
1106          2215 DC 222 I=J,K
1107          DWT(1+350) = DWT(1+350) + S(1+20)
1108          222 CONTINUE
1109          C      FURNISHINGS
1110          300 IF(DWT(115)) 311,311,301
1111          301 S(1) = DWT(115)
1112          S(2) = DWT(115)
1113          S(3) = DWT(114)
1114          S(4) = D(2)*S(2) - S(3)
1115          IF(D(1) - D(3)*D(10)) 303,302,302
1116          C      TRANSPORT
1117          302 S(4) = DWT(102)
1118          303 S(5) = (S(4)-S(3))/D(3)
1119          IF( (S(2)-S(3)) - S(5) ) 306,304,304
1120          304 IF( (S(4)-S(2)) - S(5) ) 306,305,305
1121          306 CALL DSTTRP
1122          GO TO 309
1123          308 CALL DSTNDR
1124          WRITE(6, 10) S(3),S(4),S(1),S(2)
1125          WRITE(6,307)
1126          307 FORMAT(1H,24X,11NFURNISHINGS)
1127          309 DO 310 I=J,K
1128          DWT(1+350) = DWT(1+350) + S(1+20)
1129          310 CONTINUE
1130          C      AIR CONDITIONING
1131          311 IF(DWT(116)) 315,315,312
1132          312 S(1) = DWT(116)
1133          S(2) = DWT(116)
1134          S(3) = DWT(114)
1135          S(4) = AWT(1DWT(153),DWT(151),DWT(151),DWT(153))

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CARD NO          *****          CONTENTS          *****
1126             S(5) = (S(4)-S(3))/D(3)
1127             IF (S(2)-S(3)) - S(5) I 3123,3121,3121
1128             3121 IF (S(4)-S(2)) - S(5) I 3123,3122,3122
1129             3122 CALL D51TRP
1130             GO TO 313
1131             3123 CALL D5TRH
1132             WRITE(6, 10) S(3),S(4),S(1),S(2)
1133             WRITE(6,3124)
1134             3124 FORMAT(1H- 10X,10A1R CONDITIONING)
1135             313 DO 314 I=J,K
1136             DWT(1+350) = DWT(1+350) + S(1+20)
1137             314 CONTINUE
1138             315 CONTINUE
1139             DO 419 I=1,10
1140             C          PHOTOGRAPHIC
1141             C          AUXILIARY GEAR
1142             C          OTHER EQUIPMENT
1143             C          CREW
1144             C          TRAPPED FUEL
1145             C          LIQUID NITROGEN
1146             C          MISC
1147             C          BLS
1148             C          PYLONS
1149             C          EXTERNAL TANKS
1150             IF (DWT(1+118)) 419,419,402
1151             402 S(1) = DWT(1+118)
1152             S(2) = DWT(1+156)
1153             IF (111 EQ 5) GO TO 404
1154             CALL D5TRH
1155             GO TO 417
1156             404 S(4) = AMAX(GDWT(110),GDWT(112),GDWT(114),GDWT(116),GDWT(118))
1157             S(3) = S(4)
1158             DO 405 I=1,9,2
1159             IF (GDWT(1+100) EQ 0) 2) GO TO 405
1160             IF (S(3) GT GDWT(1+100)) S(3)=GDWT(1+100)
1161             405 CONTINUE
1162             S(5) = (S(4)-S(3))/D(3)
1163             IF (S(2)-S(3)) - S(5) I 408,408,408
1164             408 IF (S(4)-S(2)) - S(5) I 408,407,407
1165             407 CALL D51TRP
1166             GO TO 417
1167             408 CALL D5TRH
1168             WRITE(6, 10) S(3),S(4),S(1),S(2)
1169             WRITE(6,409)
1170             409 FORMAT(1H- 23X,12HTRAPPED FUEL)
1171             417 DO 418 I=J,K
1172             DWT(1+380) = DWT(1+380) + S(1+20)
1173             418 CONTINUE
1174             419 CONTINUE
1175             C          TEST FOR NACELLE OR BURIED ENGINE
1176             IF (DATS(11) 420,420,500
1177             C          ENGINE SECTION
1178             420 S(1) = DWT(201)
1179             S(2) = DWT(201)
1180             CALL D5TRH
1181             DO 422 I=J,K
1182             DWT(1+350) = DWT(1+350) + S(1+20)
1183             422 CONTINUE
1184             C          ENGINE AND EXHAUST SYSTEM
1185             S(1) = DWT(252) + DWT(255)
1186             S(2) = (DWT(252)+DWT(252) + DWT(255)+DWT(255))/S(1)
1187             CALL D5TRH
1188             DO 424 I=J,K
1189             DWT(1+380) = DWT(1+380) + S(1+20)
1190             424 CONTINUE
1191             IF (DWT(253)) 427,427,429
1192             C          ACCESSORIES AND GEAR BOXES
1193             425 S(1) = DWT(283)
1194             S(2) = DWT(283)
1195             CALL D5TRH
1196             DO 426 I=J,K

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CARD NO      ****      CONTENTS      ****

1207          DWMT(1+360) = DWMT(1+360) + S(1+20)
1208          426 CONTINUE
1209          C          A I S STRUCTURE
1210          427 S(1) = DWMT(204)
1211          S(2) = DWMT(204)
1212          S(3) = DATS(13)
1213          S(4) = DATS(13) + DATDINC*10
1214          S(5) = (S(4)-S(3))/D(3)
1215          IF (S(2)-S(3)) - S(5) ) 428,428,428
1216          428 IF (S(4)-S(2)) - S(5) ) 428,428,428
1217          4282 CALL DSTTRP
1218          GO TO 429
1219          4283 CALL DSTNDR
1220          WRITE(6, 10) S(3),S(4),S(1),S(2)
1221          WRITE(6,4284)
1222          4284 FORMAT(1H+,20X,15M A I S STRUCTURE)
1223          429 DO 430 I=J,K
1224          DWMT(1+360) = DWMT(1+360) + S(1+20)
1225          430 CONTINUE
1226          C          A I S ACTUATORS AND MECHANISMS
1227          IF (DWMT(265)) 435,435,435
1228          431 S(1) = DWMT(265)
1229          S(2) = DWMT(265)
1230          CALL DSTNDR
1231          DO 434 I=J,K
1232          DWMT(1+360) = DWMT(1+360) + S(1+20)
1233          434 CONTINUE
1234          435 DO 450 I=1,9
235          C          COUPLING AND DRAINS
236          C          LUBRICATION SYSTEMS
237          C          STARTING SYSTEM
238          C          A P U
239          C          INSTRUMENTS
240          C          HYDRAULICS
241          C          ELECTRICAL
242          C          AIR CONDITIONING
243          C          OIL
244          IF (DWMT(1+266)) 450,450,450
245          448 S(1) = DWMT(1+266)
246          S(2) = DWMT(1+266)
247          CALL DSTNDR
248          DO 444 I=J,K
249          DWMT(1+360) = DWMT(1+360) + S(1+20)
250          444 CONTINUE
251          450 CONTINUE
252          500 CONTINUE
253          RETURN
254          END
255          C
256          C
257          C          SUBROUTINE DLCHT
258          C
259          C
260          C          SUBROUTINE DLCHT
261          C
262          C          THIS ROUTINE SETS UP VEHICLE DATA IN BC ARRAY FOR USE
263          C          IN AIRLDA05 MODULE ROUTINE DLCHT.
264          C
265          C          COMMON TCON(4320)
266          C
267          C          DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
268          C
269          C          DIMENSION BC(200)
270          C
271          C          DIMENSION OD(120),ODD(30),DATH(40),ODM(60)
272          C          DIMENSION DW(160),DWH(30),DWW(30),DWMT(1000),ALT(10),WH(10),
273          C          * VL(10)
274          C
275          C          EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(701)),(DV(1),TCON(1401))
276          C          * , (S(1),TCON(371)),(ND(1),TCON(121))
277          C

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01/05/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
1070		GEOMETRY (GD(1),GD(2),GD(3),GD(4),GD(5),GD(6),GD(7),GD(8))	
1070		*, (GD(1),GD(2))	
1080	C		
1081		GEOMETRY (DWH(1),DWH(2),DWH(3),DWH(4),DWH(5),DWH(6))	
1082		*, (DWH(1),DWH(2)), (ALT(1),DWH(3)), (WH(1),DWH(4))	
1083		*, (VL(1),DWH(5))	
1084	C		
1085		GEOMETRY (BC(1),DWH(2))	
1086	C		
1087	C	SETUP BC ARRAY DATA	
1088		BC(1) = DWH(2)	
1089		BC(2) = DWH(3)	
1090		BC(3) = DWH(4)	
1091		BC(4) = DWH(5)	
1092		BC(5) = DWH(6)	
1093		BC(6) = DWH(7)	
1094		BC(7) = DWH(8)/D(17)/D(20)	
1095		BC(8) = DWH(9)/D(17)/D(20)	
1096		BC(9) = DWH(10)/D(17)/D(20)	
1097		BC(10) = DWH(11)/D(17)/D(20)	
1098		BC(11) = DWH(12)	
1099		BC(12) = DWH(13)	
1100	C		
1101		DD 410 I=11,15	
1102		BC(1+2) = GD(1)	
1103		410 CONTINUE	
1104	C		
1105	C	DD SPEED PROFILE	
1106		J = 5	
1107		K = 7	
1108		IF(GD(10)) 414,414,412	
1109		412 J = GD(11)*D(2) - D(1)	
1110		414 IF(GD(20)) 416,416,415	
1111		416 K = GD(21)*D(2) - D(1)	
1112		418 BC(10) = ALT(J)	
1113		BC(20) = ALT(K)	
1114		BC(21) = ALT(K)	
1115		BC(22) = WH(J)	
1116		BC(23) = WH(K)	
1117		BC(24) = WH(K)	
1118		BC(100) = VL(J)	
1119		BC(107) = VL(K)	
1120		BC(108) = VL(K)	
1121		DD 420 I=1,6	
1122		BC(1+24) = DWH(1+2)	
1123		420 CONTINUE	
1124		BC(31) = GD(17)	
1125		BC(32) = GD(18)	
1126	C		
1127	C	TRANSFER CARRY-OVER LIFT REDUCTION FACTORS	
1128		BC(103) = GD(10)	
1129		BC(104) = GD(17)	
1130		BC(105) = GD(10)	
1131	C		
1132	C	TRANSFER WING GEOMETRY DATA	
1133		DD 430 I=1,21	
1134		BC(1+25) = DWH(1)	
1135		430 CONTINUE	
1136	C		
1137	C	DD FORWARD WING POSITION	
1138		DD 440 I=22,41	
1139		BC(1+47) = DWH(1)	
1140		440 CONTINUE	
1141		BC(100) = GD(37)	
1142		BC(101) = GD(38)	
1143		BC(102) = GD(38)	
1144		BC(103) = GD(40)	
1145	C		
1146	C	TRANSFER HORIZONTAL TAIL DATA	
1147		DD 450 I=1,02	
1148		BC(1+103) = DWH(1)	

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01/08/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

1349      400 CONTINUE
1350      C
1351      C      TRANSFER VERTICAL TAIL DATA
1352      DO 400 I=1,21
1353      BC(I+120) = DWV(I)
1354      400 CONTINUE
1355      BC(120) = DWV(25)
1356      C
1357      RETURN
1358      END
1359      C
1360      C *****
1361      C      SUBROUTINE DCCTRL
1362      C *****
1363      C
1364      C      SUBROUTINE DCCTRL
1365      C
1366      C      THIS ROUTINE SETS UP GEOMETRY AND INERTIA DATA IN MD ARRAY
1367      C      FOR USE IN WING AND EMPENNAGE MODULE ROUTINE CCNTL
1368      C
1369      C      COMMON TCON(4320)
1370      C      COMMON /MISC/ MISC(100)
1371      C      COMMON /PRINT/ IP(80)
1372      C
1373      C      DIMENSION D(700),OD(700),DV(2320),S(400),MD(200)
1374      C
1375      C      DIMENSION OD(120)
1376      C      DIMENSION OGD(30),OGMT(180),OGH(50),OGH(40),ODV(40),DATS(40)
1377      C
1378      C      DIMENSION DWH(50),DWH(30),DWH(30),DWH(1000)
1379      C      DIMENSION DS(110)
1380      C
1381      C      DIMENSION MD(200)
1382      C
1383      C      EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(70)),(DV(1),TCON(140))
1384      C      , (S(1),TCON(170)),(MD(1),TCON(121))
1385      C
1386      C      EQUIVALENCE (OD(1),OD(1))
1387      C      EQUIVALENCE (OGD(1),OD(2)),(OGMT(1),OD(9)),(OGH(1),OD(25))
1388      C      , (OGH(1),OD(30)),(ODV(1),OD(34)),(DATS(1),OD(46))
1389      C
1390      C      EQUIVALENCE (DWH(1),DV(32)),(DWH(1),DV(37)),(DWH(1),DV(40))
1391      C      , (DWH(1),DV(121))
1392      C      EQUIVALENCE (DS(1),DV(31))
1393      C
1394      C      EQUIVALENCE (MD(1),S(1))
1395      C
1396      C
1397      C*****
1398      C      CLEAR TRANSFER REGION
1399      C
1400      DO 100 I=1,200
1401      MD(I) = D(0)
1402      100 CONTINUE
1403      C
1404      C*****
1405      C
1406      C
1407      C*****
1408      C
1409      C      **SUM TOTAL FUEL AND DELTA FUEL TO DESIGN**
1410      DO 1000 I=1,7
1411      MD(103) = MD(103) + OGMT(1+03)*OGMT(1+123)
1412      MD(104) = MD(104) + OGMT(1+03)*OGMT(1+133)
1413      1000 CONTINUE
1414      MD(104) = MD(103) - MD(104)
1415      C
1416      C      **TEMP CALC FOR DELTA USEFUL LOAD TO DESIGN--LB/AV**
1417      MD(106) = (OGMT(121) - OGMT(131))*OGMT(01) + (OGMT(122) - OGMT(132)
1418      )*(OGH(02) + OGMT(123) - OGMT(133))*OGMT(03)
1419      C

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01/00/74

INPUT LISTING

AUTOFLOW CHART SET - SHEEP

DATA MANAGEMENT MODULE

CARD NO

CONTENTS

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1400 C*****
1401 C
1402 C   TRANSFER DATA FOR USE IN SURFACE GEOMETRY INPUT DATA
1403 MD(2) = DWT(04)
1404 MD(3) = DWT(05)
1405 MD(4) = GDD(11)
1406 C
1407 C*****
1408 C
1409 MD(5) = GDD(13)
1410 C
1411 C*****
1412 C
1413 MD(6) = DWT(15)
1414 MD(7) = GDD(16)
1415 MD(8) = GDD(15)
1416 MD(9) = DWT(18)/D(2)/D(3)
1417 IF(GDD(2)) 1003,1003,1002
1418 C
1419 C   VARIABLE SHEEP MING - TRANSFER PIVOT DATA AND SHEEP ANGLES
1420 1002 MD(10) = GDD(31)
1421 MD(11) = GDD(32) - DWT(47) - GDD(31)*TAN(DMW(48)+D(16))
1422 MD(12) = GDD(34)
1423 MD(13) = GDD(33)
1424 1003 MD(14) = DWT(47)
1425 MD(15) = GDD(11)
1426 MD(16) = GDD(12)
1427 MD(17) = GDD(14)
1428 MD(18) = GDD(13)
1429 MD(19) = GDD(7)+D(2)
1430 IF(GDD(10)) 1010,1010,1005
1431 1005 MD(20) = (DWT(10)+ DWT(105))/(GDD(10) + GDD(105))
1432 1010 MD(21) = DWT(103)/D(2)
1433 MD(22) = (DWT(105) + DWT(105))/D(2)
1434 MD(23) = D(1)
1435 MD(24) = D(2)
1436 DD 1000 1=,11
1437 MD(1+24) = DWT(1+000)
1438 1020 CONTINUE
1439 MD(35) = GDD(10)/D(2)
1440 MD(27) = DWT(44)/D(2)
1441 MD(30) = GDD(04)
1442 MD(30) = GDD(105)
1443 MD(40) = GDD(105)
1444 MD(41) = GDD(05)/D(2)
1445 MD(42) = DWT(45)/D(2)
1446 MD(43) = GDD(05)
1447 MD(44) = GDD(107)
1448 MD(45) = GDD(105)
1449 C
1450 C*****
1451 C
1452 C   ***ADDITIONAL MING DATA***
1453 C
1454 MD(100) = GDD(10)
1455 MD(100) = GDD(11)
1456 MD(101) = GDD(12)
1457 MD(102) = GDD(13)
1458 C
1459 C   ***FUEL SENSITIVITY--LB/IN**3***
1460 MD(102) = GDD(30)
1461 C   ***MAX POSITIVE LOAD FACTOR***
1462 MD(105) = GDD(11)
1463 C
1464 IF (MD(105) - GDD(12)) 1021,1002,1002
1465 1021 MD(100) = GDD(12)
1466 1002 IF (MD(105) - GDD(14)) 1023,1024,1024
1467 1023 MD(100) = GDD(14)
1468 1024 CONTINUE
1469 C
1470 C*****

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CARD NO	****	CONTENTS	****
1401	C		
1402		IF(DM(17)) 1030,1030,1040	
1403	1030	IF(DM(18)) 1040,1040,1032	
1404	1032	MD(14) = DM(18)/D(2)	
1405		MD(17) = DATS(14)	
1406		MD(18) = DM(18)	
1407		MD(19) = DATS(15) - GM(11)	
1408		MD(50) = D(1)	
1409		MD(51) = DM(177)/D(2)	
1500	C	NO DATA FOR 10x AT PRESENT	
1501		MD(53) = DM(178)/D(2)	
1502		IF(DM(179)) 1040,1040,1035	
1503	1035	MD(54) = DM(179)/D(2)	
1504		MD(55) = DATS(17)	
1505		MD(56) = DM(180)	
1506		MD(57) = DATS(18) - GM(11)	
1507		MD(58) = D(1)	
1508		MD(59) = DM(182)/D(2)	
1509	C	NO DATA FOR 10x AT PRESENT	
1510		MD(61) = DM(183)/D(2)	
1511	1040	IF(DM(182)) 1050,1050,1045	
1512	1045	MD(62) = DM(182)/D(2)	
1513		MD(63) = GM(29)	
1514		MD(84) = DM(202)	
1515	C		
1516	C	TEST ON PAYLOAD	
1517	1050	IF(GM(182)) 1070,1070,1052	
1518	1052	IF(GM(110)) 1054,1054,1060	
1519	C	INBOARD PAYLOAD ONLY	
1520	1054	MD(70) = GM(182)/D(2)	
1521		MD(71) = GM(103)	
1522		MD(72) = GM(182)	
1523		IF(GM(137)) 1070,1070,1056	
1524	1056	MD(85) = GM(137)/D(2)	
1525		MD(87) = GM(103)	
1526		MD(88) = GM(177)	
1527		GO TO 1070	
1528	C	INBOARD AND OUTBOARD PAYLOAD	
1529	1060	MD(70) = GM(182)/D(4)	
1530		MD(71) = GM(103)	
1531		S(201) = (GM(110) - GM(103))*TAN(DM(146)+D(16))/D(2)	
1532		MD(72) = GM(182) - S(201)	
1533		MD(78) = GM(182)/D(4)	
1534		MD(79) = GM(110)	
1535		MD(80) = GM(182) + S(201)	
1536		IF(GM(137)) 1070,1070,1062	
1537	1062	MD(86) = GM(137)/D(4)	
1538		MD(87) = GM(103)	
1539		MD(88) = GM(177) - S(201)	
1540		MD(84) = GM(137)/D(4)	
1541		MD(95) = GM(110)	
1542		MD(96) = GM(177) + S(201)	
1543	C		
1544	C	HORIZONTAL TAIL DATA	
1545	1070	MD(111) = DM(22)	
1546		MD(112) = D(24)	
1547		MD(113) = DM(221)/D(2)+D(3)	
1548		MD(114) = DM(4)	
1549		MD(115) = DM(8)	
1550		MD(116) = DM(7)	
1551		MD(117) = DM(2)	
1552		MD(118) = DM(6)	
1553		MD(119) = DM(10) + 2.0	
1554		MD(120) = DM(222)/D(2)	
1555		MD(122) = D(2)	
1556		DO 1075 1=1,11	
1557		MD(1+122) = DM(1+10)	
1558		1075 CONTINUE	
1559	C		
1560	C*****		
1561	C		

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01/00/74      INPUT LISTING      AUTOFLW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

1002      C      ***ADDITIONAL HORI DATA***
1003      MD(103) = ODV(10)
1004      MD(104) = ODV(11)
1005      MD(105) = ODV(12)
1006      MD(106) = ODV(13)
1007      C
1008      C*****
1009      C
1010      C      VERTICAL TAIL DATA
1011      MD(134) = ODV(16)
1012      MD(135) = ODV(15)
1013      MD(136) = DWT(241)/DWT(23)/MD(13)
1014      MD(137) = DW(13) + DW(10)*TAN(DW(11)*D(16))
1015      MD(138) = ODV(11)*D(2)
1016      MD(139) = ODV(2)*D(2)
1017      MD(140) = ODV(4)
1018      MD(141) = ODV(3)
1019      MD(142) = D(24)
1020      MD(143) = DWT(242)/DWT(23)
1021      MD(145) = D(2)
1022      DO 1005 I=1,11
1023      MD(1+145) = DW(1+9) - DW(9)
1024      1005 CONTINUE
1025      C
1026      C*****
1027      C
1028      C      ***ADDITIONAL VERT DATA***
1029      C      ***NO OF VERT PALS***
1030      MD(150) = 1.0
1031      IF (ODV(7)) 1077,1077,1078
1032      1078 MD(150) = 2.0
1033      C      ***TYPE OF TAILS--0=CONV., 1=T-TAIL***
1034      1077 MD(157) = 0.0
1035      IF (SHISC(53)) 1079,1079,1078
1036      1078 MD(157) = 1.0
1037      1078 MD(167) = ODV(10)
1038      MD(168) = ODV(11)
1039      MD(169) = ODV(12)
1040      MD(170) = ODV(13)
1041      C
1042      C*****
1043      C
1044      IF (IP(47)) 5001,5001,5002
1045      5001 CONTINUE
1046      WRITE(6,5001) (1,MD(1),MD(1+1),MD(1+2),MD(1+3),MD(1+4),I=1,200,5)
1047      500 FORMAT(10H1 MD(1) FROM DCNTL,70H,21H** DCNTL - IP(47) **
1048      I (110, 5F10.4))
1049      5002 CONTINUE
1050      C
1051      C
1052      C      *****
1053      C
1054      CALL WRITE(1,MD(1),200,21)
1055      C
1056      C      *****
1057      C
1058      RETURN
1059      END
1060      C
1061      C *****
1062      C      SUBROUTINE OFATHO
1063      C *****
1064      C
1065      C      SUBROUTINE OFATHO
1066      C
1067      C      THIS ROUTINE SETS UP INERTIAL LOADS DATA IN DC ARRAY FOR
1068      C      USE IN AIRLOADS MODALE FATIGUE EVALUATION ROUTINE FATHO
1069      C
1070      C      COMMON TOCN(4200)
1071      C      COMMON /HISC/ SHISC(100)
1072      C
1073      C      DIMENSION D(700),OD(700),DV(2320),S(400),MD(200)

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CARD NO      ****      CONTENTS      ****
1033          * , DWT(1000)
1034          * , GO(120) , DATS(40) , DWH(50) , BC(200) , WMT(112) , WMT2(12)
1035          * , WMT3(12) , XB1(112) , XB2(112) , YB1(112) , YB2(112) , XB12(12)
1036          * , XB22(12) , YB12(12) , YB22(12) , XB13(12) , XB23(12) , YB13(12)
1037          * , YB23(12) , ODD(30)
1038          C
1039          DIMENSION DWH(12) , XDH(112) , XDH2(12) , YDH(112) , YDH2(12)
1040          C
1041          EQUIVALENCE (TCOH(1) , D(1)) , (TCOH(70) , ODD(1)) , (TCOH(140) , DV(1))
1042          * , (TCOH(372) , S(1)) , (TCOH(12) , NO(1))
1043          * , (DV(32) , DWH(1)) , (DV(112) , DWT(1)) , (DV(212) , BC(1))
1044          * , (OD(1) , GO(1)) , (OD(2) , ODD(1)) , (GO(40) , DATS(1))
1045          * , (YE(1) , DWT(394)) , (XE(1) , DWT(395))
1046          * , (YE(2) , DWT(396)) , (XE(2) , DWT(397))
1047          * , YSF , DWH(1)
1048          EQUIVALENCE      (WMT(1) , DWT(497)) , (WMT(2) , DWT(521))
1049          * , (WMT(3) , DWT(545)) , (XB1(1) , DWT(569)) , (XB2(1) , DWT(581))
1050          * , (YB1(1) , DWT(603)) , (YB2(1) , DWT(605)) , (XB12(1) , DWT(617))
1051          * , (XB22(1) , DWT(629)) , (YB12(1) , DWT(641)) , (YB22(1) , DWT(653))
1052          * , (XB13(1) , DWT(665)) , (XB23(1) , DWT(677)) , (YB13(1) , DWT(689))
1053          * , (YB23(1) , DWT(701))
1054          C
1055          EQUIVALENCE (DWH(1) , DWT(872))
1056          * , (XDH(1) , DWT(900)) , (XDH2(1) , DWT(908))
1057          * , (YDH(1) , DWT(920)) , (YDH2(1) , DWT(932))
1058          C
1059          C
1060          C IF HAVE WING MOUNTED MACELLS SET-UP SO THEY CAN BE ADDED IN TO MOM.
1061          DO 70 N=1,25
1062          S(N*100) = D(24)
1063          70 CONTINUE
1064          IF(OD(17) .NE. D(24)) GO TO 80
1065          C SO KNOW HAVE INBOARD PAIR AT LEAST - SUM WTS AND MOMENTS OF MACELLE
1066          C                                AND CONTENTS
1067          S(116) = DWT(974)
1068          S(117) = DWT(975)
1069          S(118) = DATS(14)
1070          C TEST IF HAVE MORE THAN 2, IF SO DO OUTBOARD PAIR
1071          IF(DATS(1) - D(2)) 80,80,70
1072          70 S(119) = DWT(979)
1073          S(120) = DWT(980)
1074          S(121) = DATS(17)
1075          80 CONTINUE
1076          C
1077          C
1078          C ALWAYS HAVE 3 WEIGHTS AND 2 CUTS,   FIXED WING AND AFT SHEEP IN SAME
1079          C LOCATIONS   IF SHEPT, ALSO DO FWD SHEEP.
1080          C
1081          C SIDE OF FUSELAGE (FIXED OR AFT)
1082          DO 135 N = 2,12
1083          S(1) = YB1(N) - YSF
1084          IF(S(1)) 115,115,110
1085          110 S(104) = S(104) + WMT1(N)*S(1)
1086          115 S(1) = YB12(N) - YSF
1087          IF(S(1)) 125,125,120
1088          120 S(105) = S(105) + WMT2(N)*S(1)
1089          125 S(1) = YB13(N) - YSF
1090          IF(S(1)) 132,132,130
1091          130 S(106) = S(106) + WMT3(N)*S(1)
1092          132 S(1) = YDH(N) - YSF
1093          IF(S(1)) 135,135,134
1094          134 S(122) = S(122) + DWH(N)*S(1)
1095          C
1096          135 CONTINUE
1097          C HAVE TO CHECK FOR INBOARD AND/OR OUTBOARD MACELLES
1098          IF(OD(17) .NE. D(24)) GO TO 150
1099          S(2) = D(24)
1100          S(1) = S(118) - YSF
1101          IF(S(1)) 141,141,140
1102          140 S(2) = S(118)*S(1)
1103          141 S(1) = S(121) - YSF
    
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01/00/74	INPUT LISTING	AUTOFLW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
1704		IF(S(1)) 140,140,140	
1705	140	S(2) = S(2) + S(110)*S(1)	
1706	140	S(104) = S(104) + S(2)	
1707		S(105) = S(105) + S(2)	
1708		S(116) = S(105) + S(2)	
1709		S(120) = S(120) + S(2)	
1710		C	
1711		C WIND OUTBOARD STATION (FIXED OR AFT POSITION)	
1712		C SINE, COSINE AND TANGENT OF SHEEP OF THE ELASTIC AXIS IN AFT POSIT	
1713	150	S(1) = SIN(S(1))	
1714		S(2) = SIN(S(1))	
1715		S(3) = COS(S(1))	
1716		S(4) = S(2)/S(7)	
1717		DO 175 N = 2,12	
1718		S(1) = YB(1(N)) - YEA	
1719		IF(S(1)) 155,155,153	
1720	153	S(107) = S(107) + MAT(1(N))*((XB(1(N))-XEA) - S(1)*S(4))*S(2) +	
1721		0	S(1)/S(3))
1722	155	S(1) = YB(2(N)) - YEA	
1723		IF(S(1)) 155,155,150	
1724	155	S(108) = S(108) + MAT(2(N))*((XB(2(N))-XEA) - S(1)*S(4))*S(2) +	
1725		0	S(1)/S(3))
1726	155	S(1) = YB(3(N)) - YEA	
1727		IF(S(1)) 172,172,170	
1728	170	S(109) = S(109) + MAT(3(N))*((XB(3(N))-XEA) - S(1)*S(4))*S(2) +	
1729		0	S(1)/S(3))
1730	170	S(1) = YB(4(N)) - YEA	
1731		IF(S(1)) 175,175,174	
1732	174	S(123) = S(123) + DM(1(N))*((XB(1(N))-XEA) - S(1)*S(4))*S(2) +	
1733		0	S(1)/S(3))
1734		175 CONTINUE	
1735		C	
1736		IF(DD(17).NE.D(24)) GO TO 200	
1737		S(5) = D(24)	
1738		S(1) = S(110) - YEA	
1739		IF(S(1)) 165,165,160	
1740	160	S(5) = ((S(117) - XEA) - S(1)*S(4))*S(2) + S(1)/S(3) * S(110)	
1741	165	S(1) = S(121) - YEA	
1742		IF(S(1)) 165,165,160	
1743	160	S(5) = S(5) + ((S(120) - XEA) - S(1)*S(4))*S(2) + S(1)/S(3) * S(110)	
1744	165	S(107) = S(107) + S(5)	
1745		S(108) = S(108) + S(5)	
1746		S(109) = S(109) + S(5)	
1747		S(123) = S(123) + S(5)	
1748		C	
1749		C TEST IF CALCULATE FOR FORWARD SHEEP POSITION	
1750	200	IF(DD(12)) 200,200,202	
1751		C	
1752		FWD. SHEEP SIDE OF FURLEACE.	
1753	202	DO 225 N=2,12	
1754		S(1) = YB(1(N)) - YF	
1755		IF(S(1)) 215,215,210	
1756	210	S(110) = S(110) + MAT(1(N))*S(1)	
1757	215	S(1) = YB(2(N)) - YF	
1758		IF(S(1)) 225,225,220	
1759	220	S(111) = S(111) + MAT(2(N))*S(1)	
1760	225	S(1) = YB(3(N)) - YF	
1761		IF(S(1)) 232,232,230	
1762	230	S(112) = S(112) + MAT(3(N))*S(1)	
1763	232	S(1) = YB(4(N)) - YF	
1764		IF(S(1)) 235,235,234	
1765	234	S(124) = S(124) + DM(1(N))*S(1)	
1766		235 CONTINUE	
1767		C	
1768		IF(DD(17).NE.D(24)) GO TO 240	
1769		C AT PRESENT FACELLE LOCATION IS CONSIDERED TO BE FIXED EVEN IF SHEEP	
1770		S(110) = S(110) + S(2)	
1771		S(111) = S(111) + S(2)	
1772		S(112) = S(112) + S(2)	
1773		S(124) = S(124) + S(2)	
1774		C	
1775		C WIND OUTBOARD STATION (FORWARD SHEEP)	

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01/00/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

1775      C      SINE, COSINE AND TANGENT OF SHEEP OF ELASTIC AXIS
1776      240      S(1) = DM(23)*D(10)
1777      S(2) = SIN(S(1))
1778      S(3) = COS(S(1))
1779      S(4) = S(2)/S(3)
1780      DO 275 N=2,12
1791      S(1) = YB2(1N)-YEAR
1782      IF(S(1)) 255,255,250
1783      250      S(113) = S(113) + M(11N)*(( X(22(1N))-HEAR-S(11)*S(4))*S(2) +
1784      *      S(11)/S(3) )
1785      255      S(1) = YB2(1N)-YEAR
1786      IF(S(1)) 265,265,260
1787      260      S(114) = S(114) + M(12(1N))*(( X(22(1N))-HEAR-S(11)*S(4))*S(2) +
1788      *      S(11)/S(3) )
1789      265      S(1) = YB2(1N)-YEAR
1790      IF(S(1)) 272,272,270
1791      270      S(115) = S(115) + M(13(1N))*(( X(23(1N))-HEAR-S(11)*S(4))*S(2) +
1792      *      S(11)/S(3) )
1793      272      S(1) = YB2(1N) - YEAR
1794      IF(S(1)) 275,275,274
1795      274      S(125) = S(125) + DM(1N)*(( X(24(1N))-HEAR-S(11)*S(4))*S(2) +
1796      *      S(11)/S(3) )
1797      275      CONTINUE
1798      C
1799      IF(00(17).NE.D(24)) GO TO 300
1800      S(5) = D(24)
1801      S(1) = S(10)-YEAR
1802      IF(S(1))205,205,200
1803      200      S(5) = (S(117)-HEAR-S(11)*S(4))*S(2) + S(11)/S(3) *S(110)
1804      205      S(1) = S(121)-YEAR
1805      IF(S(1)) 295,295,290
1806      290      S(5) = S(5) + (S(120)-HEAR-S(11)*S(4))*S(2) + S(11)/S(3) * S(119)
1807      295      S(113) = S(113) + S(5)
1808      S(114) = S(114) + S(5)
1809      S(115) = S(115) + S(5)
1810      S(125) = S(125)+S(5)
1811      C
1812      C .....
1813      C CHANGE SIGNS OF MOMENTS... DOWN BENDING IS SUPPOSED TO BE POSITIVE.
1814      C AND ARE TO BE FOR ONE SIDE INSTEAD OF BOTH AS ARE NOW.
1815      C
1816      DO 300 N=1,12
1817      SIN(103) = -SIN(103)/D(2)
1818      300 CONTINUE
1819      DO 302 N=1,4
1820      SIN(121) = - S(N*121)/D(2)
1821      302 CONTINUE
1822      C
1823      C .....
1824      C
1825      C MOMENTS THAT ARE CALCULATED FOR BASIC FLIGHT DESIGN MT SAVED IN ---
1826      C ----- FOR USE IN CALC. MAX STATIC BENDING MOM. FACTORS -----
1827      MISC(43) = S(105)
1828      MISC(44) = S(100)
1829      IF(00(12)) 340,340,342
1830      340 DO 341 N=1,8
1831      MISC(N*41) = SIN(103)
1832      341 CONTINUE
1833      GO TO 344
1834      342 DO 343 N=1,8
1835      MISC(N*41) = SIN(100)
1836      343 CONTINUE
1837      344 CONTINUE
1838      C
1839      BC(100) SERVICE LIFE
1840      BC(100) = 00(17)
1841      MISC(34) = 00(17)
1842      C
1843      BC(170) NO. OF LANDINGS IN LIFE
1844      BC(170) = 00(10)
1845      BC(171) = YEAR
1846      C
1847      BC(107) FATIGUE TAKE-OFF MT.
1848      C
1849      TEST FOR FATIGUE TAKE-OFF HEIGHT DIFFERENT FROM MDW
1850      IF(00(8)) 352,352,354

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01/08/74

INPUT LISTING

AUTOFLIGHT CHART SET - SHEEP

DATA MANAGEMENT MODULE

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CARD NO      ****      CONTENTS      ****
1046      302 BC(107) = BC(11)
1047      GO TO 300
1048      304 BC(107) = GOO(10)
1049      C      BC(100) FATIGUE LANDING WT.
1050      C      TEST FOR FATIGUE LANDING WEIGHT DIFFERENT FROM LDM
1051      300 IF(GOO(10)) 350,300,300
1052      300 BC(100) = BC(111)
1053      GO TO 302
1054      300 BC(100) = GOO(10)
1055      302 BC(170) = BC(111)/BC(107)
1056      BC(170) = BC(111)/BC(107)
1057      C      CALCULATE MINIMUM FLYING HEIGHT
1058      S(1) = D(24)
1059      DO 300 N=1,40
1060      S(1) = S(1) + DWHT(N)
1061      300 CONTINUE
1062      BC(170) = S(1)/BC(107)
1063      BC(170) = S(104)
1064      BC(170) = S(100)
1065      BC(177) = S(120)
1066      BC(170) = S(107)
1067      BC(170) = S(109)
1068      BC(100) = S(120)
1069      BC(101) = S(110)
1070      BC(102) = S(112)
1071      BC(103) = S(114)
1072      BC(104) = S(113)
1073      BC(105) = S(115)
1074      BC(106) = S(112)
1075      RETURN
1076      END
1077      C
1078      C (*****
1079      C      SUBROUTINE BLNDOR
1080      C (*****
1081      C
1082      SUBROUTINE BLNDOR
1083      C
1084      C      THIS ROUTINE SETS UP DESIGN DATA FOR USE IN LANDING GEAR
1085      C      MODULE ROUTINE LANDOR
1086      C
1087      COPPER (TCOH(4320))
1088      C
1089      DIMENSION D(1700),GD(700),DV(2320),S(400),ND(200)
1090      C
1091      DIMENSION GOO(30),DWHT(1000)
1092      C
1093      EQUIVALENCE (D(1),TCOH(1)),(GD(1),TCOH(70)),(DV(1),TCOH(400))
1094      , (S(1),TCOH(370)),(ND(1),TCOH(412))
1095      C
1096      EQUIVALENCE (GOO(1),GD(2)),(DWHT(1),DV(112))
1097      C
1098      C      TRANSFER DATA TO LANDING GEAR IF 1015C(24) = TCOH - - OR 0
1099      C      NOTE, FIRST 110 CELLS IN TCOH NOW WILL HAVE LANDING GEAR DATA
1100      C
1101      CALL READGE(1,D(1),110,25)
1102      C
1103      D(40) = DWHT(04)
1104      D(47) = DWHT(001)
1105      D(48) = 0.0
1106      D(49) = DWHT(040)
1107      D(50) = DWHT(003)
1108      D(51) = DWHT(047) - GOO(20)
1109      D(52) = GOO(20)
1110      D(53) = GOO(27)
1111      D(54) = GOO(20)*2.0
1112      D(70) = GOO(23)
1113      D(71) = GOO(21)
1114      D(01) = GOO(24)
1115      D(02) = GOO(02)
1116      D(00) = GOO(10)

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CARD NO      ****      CONTENTS      ****
1917          01001 = 0001201
1918          C          1. ENVL CONVERTED TO FT/SEC
1919          01002 = 000101*1.2*1.0070
1920          01003 = 01002*(01401/01471)**.5
1921          C
1922          C          *****
1923          C
1924          CALL MRITM(1,0(1),110,PS)
1925          C
1926          C          *****
1927          C
1928          RETURN
1929          END
1930          C
1931          C          (*****
1932          C          SUBROUTINE DPAILD
1933          C          (*****
1934          C
1935          SUBROUTINE DPAILD
1936          C
1937          C          THIS ROUTINE SETS UP INERTIA DATA IN MLD ARRAY FOR USE IN
1938          C          AIRLOADS MODULE SURFACE DESIGN LOAD CALCULATION ROUTINE MARD5
1939          C
1940          COMMON TCON(14320)
1941          COMMON /PRINT/ (P100)
1942          C
1943          DIMENSION D(1700),OD(1700),DV(2320),S(1400),ND(200)
1944          C
1945          DIMENSION OD(120),OOD(30),DAYS(40)
1946          DIMENSION DWA(50),DWA(30),DVA(30),DWT(1000)
1947          C
1948          DIMENSION YB(10(12)),XB(10(12)),YB2(10(12)),XB2(10(12)),WAT(12)
1949          DIMENSION WAT(12),WAT2(12),WAT3(12),WB(10(12)),WB2(10(12)),YB1(10(12))
1950          * , YB2(10(12)),WB2(10(12)),YB12(12),YB22(12),WB13(12)
1951          * , WB23(12),YB13(12),YB23(12)
1952          C
1953          DIMENSION WAT(12),YB(12),WB(12),WAT(12),ZDV(12),WBV(12)
1954          DIMENSION YEAN(13),HEAN(13),ZEAN(13),HEAV(13)
1955          * , CBH(12),MLH(12),CBV(12),MLV(12)
1956          C
1957          DIMENSION MLD(300)
1958          C
1959          DIMENSION VEG(11),BPE(11),T2G(11),W(11),BPH(11),TH(11)
1960          * , W2(11),BPH2(11),TH2(11),V2(11),BPE2(11),T2(11)
1961          * , V2(11),BPH2(11),T2(11),V22(11),BPE2(11),T22(11)
1962          * , V23(11),BPH2(11),T23(11),W(11),BPH(11),TH(11)
1963          * , W(11),BPH(11),TV(11)
1964          C
1965          EQUIVALENCE (0(1),TCON(11),(00(1),TCON(1701)),(DWA(1),TCON(1401))
1966          * , (S(1),TCON(1371)),(ND(1),TCON(1412)))
1967          C
1968          EQUIVALENCE (OD(1),OD(1)),(OOD(1),OD(21)),(DAYS(1),OD(46))
1969          EQUIVALENCE (DWA(1),DV(32)),(DWA(13),DV(37)),(DVA(1),DV(40))
1970          * , (DWT(1),DV(112))
1971          C
1972          EQUIVALENCE (YB(10(1)),DWT(401)),(XB2(1),DWT(413))
1973          * , (YB2(1),DWT(425)),(WAT(1),DWT(473)),(WB(10(1)),DWT(485))
1974          C
1975          EQUIVALENCE (WAT(1),DWT(497)),(WAT2(1),DWT(521))
1976          * , (WAT3(1),DWT(545)),(WB1(1),DWT(580)),(WB2(1),DWT(591))
1977          * , (YB1(1),DWT(593)),(YB2(1),DWT(605)),(WB12(1),DWT(617))
1978          * , (WB2(1),DWT(629)),(YB12(1),DWT(641)),(YB22(1),DWT(653))
1979          * , (WB13(1),DWT(665)),(WB23(1),DWT(677)),(YB13(1),DWT(689))
1980          * , (YB23(1),DWT(701))
1981          C
1982          EQUIVALENCE (WAT(1),DWT(678)),(YB(1),DWT(684))
1983          * , (WB(1),DWT(688)),(WAT(1),DWT(690)),(ZDV(1),DWT(693))
1984          * , (WBV(1),DWT(692))
1985          EQUIVALENCE (YEAN(1),S(1401)),(HEAN(1),S(621)),(ZEAN(1),S(173))
1986          * , (HEAV(1),S(68))
1987          C
    
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CARD NO      ****                                CONTENTS                                ****
1000
1000          EQUIVALENCE (MLD(1),S1(0))
1000          C
1000          EQUIVALENCE (V00(1),MLD(14)),(V00(1),MLD(15)),(T20(1),MLD(20))
1001          , (VM(1),MLD(37)),(V01(1),MLD(40)),(VM(1),MLD(50))
1002          , (V02(1),MLD(70)),(V02(1),MLD(81)),(VM(1),MLD(92))
1003          , (V01(1),MLD(103)),(V02(1),MLD(114)),(T21(1),MLD(125))
1004          , (V12(1),MLD(136)),(V02(1),MLD(147)),(T12(1),MLD(158))
1005          , (V02(1),MLD(169)),(V02(1),MLD(180)),(T22(1),MLD(191))
1006          , (V03(1),MLD(202)),(V03(1),MLD(213)),(T23(1),MLD(224))
1007          , (VM(1),MLD(235)),(V01(1),MLD(246)),(VM(1),MLD(257))
1008          , (VM(1),MLD(268)),(V01(1),MLD(279)),(TV(1),MLD(290))
1000          C
2000          EQUIVALENCE (CBH(1),MLD(11)),(LHM(1),MLD(13))
2001          , (CBH(1),MLD(25)),(LHM(1),MLD(37))
2000          C
2002          DATA WY/INT /, WZ/INT/
2004          C
2005          C          SETUP HORIZONTAL TAIL DATA
2006          S(7) = DWH(1)*D(8)
2007          YEAN(1) = D(24)
2008          YEAN(1) = DWH(4) + DWH(5)*DWH(22)
2000          C
2010          DO 400 I=1,11
2011          YEAN(I+1) = DWH(1)+10)
2012          YEAN(I+1) = YEAN(1) + YEAN(I+1)*TAN(DWH(3)*D(16))
2013          YBH(1) = (YEAN(1+1) + YEAN(1))/D(2)
2014          CBH(1) = DWH(5) - DWH(5)*D(1) - DWH(6)*YBH(1)/S(7)
2015          LHM(1) = DWH(4) + YBH(1)*TAN(DWH(2)*D(16))
2016          400 CONTINUE
2017          C
2018          YEAN(13) = S(7)
2019          YEAN(13) = YEAN(1) + YEAN(13)*TAN(DWH(3)*D(16))
2020          YBH(12) = (YEAN(13) + YEAN(12))/D(2)
2021          CBH(12) = DWH(5) - DWH(5)*D(1) - DWH(6)*YBH(12)/S(7)
2022          LHM(12) = DWH(4) + YBH(12)*TAN(DWH(2)*D(16))
2023          C
2024          C          DISTRIBUTE HORIZONTAL TAIL AND CONTENTS BASED ON PARABOLIC DIST.
2025          S(1) = DWT(22) + DWT(22)
2026          S(2) = DWT(22)*DWT(23) + DWT(22)*DWT(23)
2027          S(5) = S(1)/(S(7)*D(20))
2028          S(8) = S(1)
2029          S(3) = D(24)
2030          S(4) = D(24)
2031          C
2032          DO 420 I=1,12
2033          S(8) = S(8)
2034          IF(S(7) - YEAN(I+1)) 412,412,414
2035          412 S(8) = D(24)
2036          GO TO 416
2037          414 S(8) = S(8)/(S(7) - YEAN(I+1))*D(20)
2038          416 HMT(1) = S(8) - S(8)
2039          S(3) = S(3) + HMT(1)*LHM(1)
2040          S(4) = S(4) + HMT(1)*CBH(1)
2041          420 CONTINUE
2042          C
2043          S(8) = (S(2) - S(3))/S(4)
2044          C
2045          DO 430 I=1,12
2046          LHM(I) = LHM(1) + S(8)*CBH(1)
2047          430 CONTINUE
2048          C
2049          C          SETUP VERTICAL TAIL DATA
2050          S(7) = DWH(8)*D(12) - DWH(8)
2051          YEAN(1) = D(24)
2052          YEAN(1) = DWH(3) + DWH(4)*DWH(21) + DWH(5)*TAN(DWH(2)*D(16))
2053          C
2054          DO 450 I=1,11
2055          YEAN(I+1) = DWH(1)+10)
2056          YEAN(I+1) = YEAN(1) + YEAN(I+1)*TAN(DWH(2)*D(16))
2057          ZWH(1) = (YEAN(1+1) + YEAN(1))/D(2)
2058          CBH(1) = DWH(4) - DWH(4)*D(1) - DWH(5)*ZWH(1) + DWH(6)

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CARD NO      CONTENTS
2000          I (S17) + DNV10)
2000          ILV11) = DNV13) + (ZDV11) + DNV10)*TAN(DW11)*D116)
2001          *90 CONTINUE
2002          C
2003          ZEAM13) = S17)
2004          ZEAM13) = ZEAM11) + ZEAM13)*TAN(DW12)*D116)
2005          ZDV12) = (ZEAM13) + ZEAM12)/D12)
2006          CBV12) = DNV14) - DNV14)*D11) - DNV13)*(ZDV12) + DNV13)/
2007          I (S17) + DNV10)
2008          ILV12) = DNV13) + (ZDV12) + DNV10)*TAN(DW11)*D116)
2009          C
2010          C      DISTRIBUTE VERTICAL TAIL AND CONTENTS BASED ON PARABOLIC DIST
2011          S11) = DWT12N1) + DWT12N2)
2012          S12) = DWT12N1)*DWT12S1) + DWT12N2)*DWT12S2)
2013          C
2014          C      TEST FOR TWO VERTICALS
2015          IF(D11) - DNV123) *42,424,424
2016          *42 S11) = S11)/D12)
2017          S12) = S12)/D12)
2018          *44 S13) = S11)/(C17)*D120)
2019          S14) = S11)
2020          S13) = D124)
2021          S14) = D124)
2022          C
2023          DO 470 I=1,12
2024          S10) = S10)
2025          IF(S17) - ZEAM111) *42,422,424
2026          *42 S10) = D124)
2027          GO TO 465
2028          *44 S10) = S15)*S17) - ZEAM111)*D120)
2029          *45 WT11) = S10) - S10)
2030          S13) = S13) + WT11)*ILV11)
2031          S14) = S14) + WT11)*CBV11)
2032          *470 CONTINUE
2033          C
2034          S10) = (S12) - S13)/S14)
2035          C
2036          DO 480 I=1,12
2037          HNV11) = ILV11) + S10)*CBV11)
2038          *480 CONTINUE
2039          C
2100          C      CLEAR LOADS DATA REGION
2101          C
2102          DO 500 I=1,300
2103          MLD11) = D124)
2104          *500 CONTINUE
2105          C
2106          C      CALCULATE DEAD HEIGHT LOADS - HORIZONTAL TAIL TO NET
2107          S11) = DNV13)*D116)
2108          S12) = SIN(S111)
2109          S13) = COS(S111)
2110          S14) = S12)/S13)
2111          C
2112          DO 520 I=1,11
2113          K = I + 1
2114          DO 510 J=K,12
2115          S15) = VNH1J) - YEAM11+1)
2116          S16) = VNH1J) - ZEAM11+1)
2117          VNH11) = VNH11) - HNT1J)/D12)
2118          HNV11) = HNV11) - HNT1J)*(S16) - S15)*S14)*S12) + S15)/S13)/
2119          I D12)
2120          TH11) = TH11) + HNT1J)*S16) - S15)*S14)*S13)/D12)
2121          *510 CONTINUE
2122          *520 CONTINUE
2123          C
2124          C      CALCULATE DEAD HEIGHT LOADS - VERTICAL TAIL TO NET
2125          S11) = DNV12)*D116)
2126          S12) = SIN(S111)
2127          S13) = COS(S111)
2128          S14) = S12)/S13)
2129          C

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CARD NO      ****      CONTENTS      ****
2130      DO 570 I=1,11
2131      K = I + 1
2132      DO 580 J=K,12
2133      S(5) = ZDV(I,J) - ZEAV(I+1)
2134      S(6) = XDV(I,J) - XEAV(I+1)
2135      W(1) = W(1) - WT(I,J)
2136      DW(1) = DW(1) - WT(I,J)*(S(5) - S(5)*S(4))*S(2) + S(5)*S(3)
2137      TV(1) = TV(1) + WT(I,J)*S(6) - S(5)*S(4)*S(3)
2138      580 CONTINUE
2139      570 CONTINUE
2140      C
2141      MLD(1) = DMV(0*0)
2142      MLD(2) = 0.0D+11
2143      MLD(3) = 0.0D+13
2144      C
2145      C      CALCULATE LOADS DUE TO WIND HEIGHT
2146      S(1) = DM(2)*D(16)
2147      S(2) = SIN(S(1))
2148      S(3) = COS(S(1))
2149      S(4) = S(2)/S(3)
2150      IF(DD(12)) 025,045,010
2151      025 S(1) = S(1)
2152      S(2) = S(2)
2153      S(3) = S(3)
2154      S(4) = S(4)
2155      GO TO 020
2156      010 S(1) = DM(23)*D(16)
2157      S(2) = SIN(S(1))
2158      S(3) = COS(S(1))
2159      S(4) = S(2)/S(3)
2160      C
2161      C
2162      020 DO 050 I=1,11
2163      S(6) = DM(4) + DM(5)*DM(2) + DM(1+0)*S(4)
2164      S(7) = DM(1+0)
2165      IF(DD(12)) 025,025,030
2166      C
2167      025 S(17) = S(7)
2168      S(18) = S(8)
2169      GO TO 032
2170      030 S(17) = DM(1+20)
2171      S(18) = DM(2) + DM(25)*DM(4) + DM(1+20)*S(14)
2172      032 K = 1
2173      034 IF(YB(16)(K) - S(7)) 036,0*0,0*0
2174      036 K = K + 1
2175      IF(K - 12) 034,034,700
2176      C
2177      0*0 DO 0*0 J=K,12
2178      S(9) = YB(16)(J) - S(7)
2179      S(10) = XB(16)(J) - S(8)
2180      S(15) = YB(20)(J) - S(17)
2181      S(16) = XB(20)(J) - S(18)
2182      W(1) = W(1) - WT(I,J)/D(2)
2183      DW(1) = DW(1) - WT(I,J)*(S(9) - S(9)*S(4))*S(2) +
2184      | S(9)*S(3)/D(2)
2185      TV(1) = TV(1) + WT(I,J)*S(10) - S(9)*S(4)*S(3)/D(2)
2186      W(2) = W(2) - WT(I,J)/D(2)
2187      DW(2) = DW(2) - WT(I,J)*(S(9) - S(9)*S(4))*S(12) +
2188      | S(9)*S(3)/D(2)
2189      TV(2) = TV(2) + WT(I,J)*S(10) - S(9)*S(4)*S(13)/D(2)
2190      0*0 CONTINUE
2191      C
2192      000 CONTINUE
2193      C
2194      C
2195      C      CALCULATE LOADS DUE TO WIND AND CONTENT INERTIA
2196      700 DO 000 I=1,11
2197      S(7) = DM(1+0)
2198      S(8) = DM(4) + DM(5)*DM(2) + DM(1+0)*S(4)
2199      IF(DD(12)) 700,700,710
2200      700 S(17) = S(7)

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01/08/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE
CARD NO      ***      CONTENTS      ***
2001          S(10) = S(0)
2002          GO TO 712
2003          710 S(17) = DWT(1*20)
2004          S(10) = DWT(20) + DWT(20)*DWT(41) + DWT(1*20)*S(14)
2005          712 K = 1
2006          714 IF(V02(1) - S(7)) 710,710,710
2007          716 K = K + 1
2008          IF(K - 12) 714,714,750
2009          C
2010          710 GO 730 J=K,12
2011          S(0) = V02(1) - S(7)
2012          S(0) = M02(1) - S(0)
2013          V02(1) = V02(1) - M02(1)/D(2)
2014          M02(1) = M02(1) - M02(1)*(S(0) - S(0)*S(4))*S(2) +
2015          I S(0)/S(13)/D(2)
2016          T02(1) = T02(1) - M02(1)*(S(0) - S(0)*S(4))*S(3)/D(2)
2017          S(15) = V02(1) - S(17)
2018          S(10) = M02(1) - S(10)
2019          V02(1) = V02(1) - M02(1)/D(2)
2020          M02(1) = M02(1) - M02(1)*(S(0) - S(0)*S(4))*S(12) +
2021          I S(0)/S(13)/D(2)
2022          T02(1) = T02(1) - M02(1)*(S(0) - S(0)*S(4))*S(13)/D(2)
2023          S(15) = V02(1) - S(17)
2024          S(10) = M02(1) - S(10)
2025          V02(1) = V02(1) - M02(1)/D(2)
2026          M02(1) = M02(1) - M02(1)*(S(0) - S(0)*S(4))*S(12) +
2027          I S(0)/S(13)/D(2)
2028          T02(1) = T02(1) - M02(1)*(S(0) - S(0)*S(4))*S(13)/D(2)
2029          S(10) = V02(1) - S(17)
2030          S(10) = M02(1) - S(10)
2031          V03(1) = V03(1) - M03(1)/D(2)
2032          M03(1) = M03(1) - M03(1)*(S(0) - S(0)*S(4))*S(12) +
2033          I S(0)/S(13)/D(2)
2034          T03(1) = T03(1) - M03(1)*(S(0) - S(0)*S(4))*S(13)/D(2)
2035          730 CONTINUE
2036          C
2037          C      TEST ON MACELLE
2038          750 IF(00(17) .NE. 0(24)) GO TO 800
2039          II = 1
2040          S(0) = DATS(14) - S(7)
2041          IF(S(0)) 770,770,752
2042          752 S(0) = DWT(075) - S(0)
2043          S(15) = DATS(14) - S(17)
2044          S(10) = DWT(075) - S(10)
2045          S(0) = DWT(075)*(S(0) - S(0)*S(4))*S(2) + S(0)/S(13)/D(2)
2046          S(10) = DWT(075)*(S(0) - S(0)*S(4))*S(3)/D(2)
2047          S(10) = DWT(075)*(S(0) - S(0)*S(4))*S(12) + S(0)/S(13)/D(2)
2048          S(20) = DWT(075)*(S(0) - S(0)*S(4))*S(13)/D(2)
2049          S(21) = DWT(075)/D(2)
2050          760 V02(1) = V02(1) - S(21)
2051          M02(1) = M02(1) - S(0)
2052          T02(1) = T02(1) + S(10)
2053          V02(1) = V02(1) - S(21)
2054          M02(1) = M02(1) - S(10)
2055          T02(1) = T02(1) + S(20)
2056          V02(1) = V02(1) - S(21)
2057          M02(1) = M02(1) - S(10)
2058          T02(1) = T02(1) + S(20)
2059          V03(1) = V03(1) - S(21)
2060          M03(1) = M03(1) - S(10)
2061          T03(1) = T03(1) + S(20)
2062          IF(II - 1) 770,770,800
2063          770 II = 2
2064          S(0) = DATS(17) - S(7)
2065          IF(S(0)) 800,800,770
2066          770 S(0) = DWT(080) - S(0)
2067          S(15) = DATS(17) - S(17)
2068          S(10) = DWT(080) - S(10)
2069          S(0) = DWT(070)*(S(0) - S(0)*S(4))*S(2) + S(0)/S(13)/D(2)
2070          S(10) = DWT(070)*(S(0) - S(0)*S(4))*S(3)/D(2)
2071          S(10) = DWT(070)*(S(0) - S(0)*S(4))*S(12) + S(0)/S(13)/D(2)

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CARD NO          ****          CONTENTS          ****

2272             S(20) = DWMT(970)*S(18) - S(15)*S(14)*S(13)/D(2)
2273             S(21) = DWMT(970)/D(2)
2274             GO TO 760
2275             800 CONTINUE
2276             C
2277             C      GO TAKE LOADS - 20
2278             C
2279             DO B10 I=1,11
2280             VEG(I) = VE(11)*D(2)
2281             BVEG(I) = BVE(11)*D(2)
2282             T20(I) = T2(11)*D(2)
2283             B10 CONTINUE
2284             C
2285             IF(GD(13)) 900,900,820
2286             C
2287             C      LANDING GEAR ON MIND
2288             B20 S(21) = DWMT(944)*DWMT(946) - GD(27)/(GD(26) - GD(27))
2289             C
2290             DO B30 I=1,11
2291             IF(GD(12)) B12,B12,B14
2292             B12 S(17) = DW(1)*B
2293             S(18) = DW(4) + DW(5)*DW(21) + DW(1)*B*S(14)
2294             GO TO B16
2295             B14 S(17) = DW(1)*20
2296             S(18) = DW(24) + DW(25)*DW(41) + DW(1)*20*S(14)
2297             B16 S(15) = GD(20) - S(17)
2298             IF(S(15)) 900,900,B18
2299             B18 S(16) = GD(26) - S(17)
2300             S(19) = S(21)*S(18) - S(15)*S(14)*S(12) + S(15)/S(13)
2301             S(20) = S(21)*S(18) - S(15)*S(14)*S(13)
2302             VEG(I) = VEG(I) + S(21)
2303             BVEG(I) = BVEG(I) + S(19)
2304             T20(I) = T20(I) - S(20)
2305             B30 CONTINUE
2306             C
2307             900 CONTINUE
2308             C
2309             IF(IP(47)) 9501,9501,9502
2310             9501 CONTINUE
2311             C      FOR MIND FORWARD STATIONS TEST BC(70) IF 0 USE AFT STATIONS
2312             IF(GD(12)) B10,B10,B15
2313             B10 DO B11 I=1,11
2314             B11 S(I) = DW(1)*B
2315             GO TO B20
2316             B15 DO B16 I=1,11
2317             B16 S(I) = DW(1)*20
2318             C
2319             B20 WRITE(6,B21)
2320             B21 FORMAT(1H1,40X,2#SHEAR, MOMENT AND TORQUE,2#X,
2321             1 21#* DW(40) - IP(47) **, // 18X,15#MIND ONLY AT
2322             *10, 33X, 23#MIND AND CONTENTS AT 10// 20X, 18#AFT POSITION, 33X,
2323             * 27#AFT POSITION GROSS HEIGHT 2 1
2324             WRITE(6,B23)
2325             B23 FORMAT(4#0 1, 5X,3#SHEAR,6X,6#MOMENT,6X,6#TORQUE,6X,10#AFT PLANE
2326             *11X,3#SHEAR,6X,6#MOMENT,6X,6#TORQUE, 6X,1H1 //)
2327             WRITE(6,B25) (1,WM(I),BWM(I),TM(I),DW(1)*B,V12(I),B12(I),
2328             *T12(I), 1, I=1,11 )
2329             B25 FORMAT(114,3F12.0,6X,1F6.1,6X,3F12.0,6X,113 )
2330             C
2331             WRITE(6,B31)
2332             B31 FORMAT(1H0, 18X,15#MIND ONLY AT 10,33X,23#MIND AND CONTENTS AT 10
2333             **//18X,18#FORWARD POSITION, 20X, 3#FORWARD POSITION AT GROSS HEIGHT
2334             *T 1 )
2335             WRITE(6,B25)
2336             WRITE(6,B25) (1,WM(I),BWM(I),TM(I),S(I),VEG(I),BVEG(I),
2337             * T2(I), 1, I=1,11 )
2338             C
2339             WRITE(6,B38)
2340             B38 FORMAT(1H1,6X,21#* DW(40) - IP(47) **/
2341             1 18X, 23#MIND AND CONTENTS AT 10, 20X, 23#MIND AND CONTE
2342             *NTS AT 10 // 6X, 3#FORWARD POSITION AT GROSS HEIGHT 2, 18X,

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CARD NO      ****      CONTENTS      ****
2743          * 3-D FORWARD POSITION AT GROSS HEIGHT 3 1
2744          WRITE(0,025)
2745          WRITE(0,025) (1,VE2(1),0202(1),T22(1),S(1),VE3(1),0203(1),
2746          * T23(1),J, I=1,11 )
2747          WRITE(0,027)
2748          027 FORMAT(1H0,N0X, 3-D NET WIND LOADS AT 20 TALL// 3SX, 3-D FORWARD PO
2749          *SITION AT GROSS HEIGHT 1 // 20X, 1M1,SK,SHSHEAR,SK,0202MENT, SK,
2750          * 0203OROLE, SK,10-OUTT PLANE / )
2751          WRITE(0,030) (1,VE0(1),0200(1),T20(1),S(1),I=1,11)
2752          030 FORMAT(20X, 119, 3F10.0, SK, 170.1 )
2753          C
2754          WRITE(0,040)
2755          040 FORMAT(1M1, 30X, 2-D HORIZONTAL TAIL AND CONTENTS ,
2756          I 20X,21M** 04AULD - (P147) ****/)
2757          WRITE(0,041) M1,MV
2758          041 FORMAT(7X,10-COORD. OF E. A., SK, DIRECTION, SK, 11-COORDINATES /
2759          * 11X, 1A1, SK, 1M1, SK, SHSHEAR, SK, 0202MENT, SK, 0203OROLE, 14X,
2760          * 0204MENT, SK, 1A1, 4M BAR, SK, 5M BAR /)
2761          WRITE(0,043) YEAV(1), HEAV(1)
2762          043 FORMAT( 4X, 2F10.2)
2763          WRITE(0,045) (M1(1),YB(1),NB(1),YEAV(1),HEAV(1),W1(1),
2764          * 0204(1),T1(1), I=1,11 )
2765          045 FORMAT(70X,1F14.2,2F10.2/ 4X, 2F10.2, 3F14.0 )
2766          WRITE(0,045) M1(12),YB(12),NB(12),YEAV(13),HEAV(13)
2767          C
2768          WRITE(0,051)
2769          051 FORMAT(1M1,30X, 2-D VERTICAL TAIL AND CONTENTS ,
2770          I 23X,21M** 05AULD - (P147) ****/)
2771          WRITE(0,041) M2,MZ
2772          WRITE(0,043) ZEAV(1), HEAV(1)
2773          WRITE(0,045) (M1(1),ZBV(1),NBV(1),ZEAV(1),HEAV(1),W1(1),
2774          * 0204(1),T1(1), I=1,11 )
2775          WRITE(0,045) M1(12),ZBV(12),NBV(12),ZEAV(13),HEAV(13)
2776          05A2 CONTINUE
2777          C
2778          C
2779          C
2780          CALL WRITE(1,M,D(1),300,10)
2781          C
2782          C
2783          C
2784          RETURN
2785          END
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CARD NO      ****      CONTENTS      ****
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2415         2 (PTL11,OV1711),(PBL11,OV1811),(RIN11,OV1911),
2416         3 (RIL11,OV2111),(RBN11,OV2211),(RBL11,OV2311),
2417         4 (RBN11,OV2411),(RBL11,OV2511),(PTH11,OV2611),
2418         5 (RBN11,OV2711),(PTH11,OV2811),(PBL11,OV2911),
2419         6 (PST11,OV3011),(RIL11,OV3111)
2420         EQUIVALENCE (OBP11,OV3111)
2421         EQUIVALENCE (IND101),1,(IND102),J)
2422         EQUIVALENCE (IND112),140)
2423         C
2424         GO TOO 1-1.0
2425         RIN11 = EQU132) - EQU131)*V111)
2426         RIL11 = EQU132) - EQU131)*V111)
2427         C      SETUP CONSTANTS FOR ENGINE FACE HAPERSHOCK PRESSURE RATIO
2428         S11) = TEPL11/EQU134)
2429         S12) = EQU134)/TEPL11)
2430         S13) = TEPL11/EQU134)
2431         S14) = EQU134)/TEPL11)
2432         C      GO TO PROPER CURVE FIT
2433         IF (EGTP) 10,10,20
2434         C      FANLEET
2435         10 RBN11 = EQU135) - EQU135)*S11) + EQU137)*S12) - EQU135)*S12)**2
2436         RBL11 = EQU135) - EQU135)*S13) + EQU137)*S14) - EQU135)*S14)**2
2437         GO TO 50
2438         C      FANLEET
2439         20 IF (EGTP - EQU135)) 22,22,30
2440         C      FANLEET BY PASS RATIO LESS THAN OR EQUAL TO 1.5
2441         22 RBN11 = -EQU140) + EQU141)*S11) + EQU142)*S12) - EQU143)*S12)**2
2442         RBL11 = -EQU140) + EQU141)*S13) + EQU142)*S14) - EQU143)*S14)**2
2443         C      CHECK FOR APPLICABILITY OF CURVE
2444         IF (TEPL11) - EQU144)) 50,50,24
2445         24 WRITE(6,00) EGTP,TEPL11),EQU144)
2446         00 FORMAT(1M),20X,23H*** WARNING MESSAGE ***10X,
2447         14INMAN TEMPERATURE EXCEEDED FOR FANLEET SPR =,FS 1/10X,
2448         210MAN TEMP =,FS 2,74,INIT =,FS 2)
2449         GO TO 50
2450         30 IF (EGTP - EQU145)) 32,32,40
2451         C      FANLEET SPR G.T. 1.5 BUT L.T. GRE.T. 2.5
2452         32 RBN11 = -EQU146) + EQU147)*S11) + EQU148)*S12) - EQU149)*S12)**2
2453         RBL11 = -EQU146) + EQU147)*S13) + EQU148)*S14) - EQU149)*S14)**2
2454         IF (TEPL11) - EQU150)) 50,50,34
2455         34 WRITE(6,00) EGTP,TEPL11),EQU150)
2456         GO TO 50
2457         C      FANLEET BY PASS RATIO GREATER THAN 2.5 BOTH FACE AND THROAT
2458         40 RBN11 = EQU151) - EQU152)*S11) + EQU153)*S12) - EQU154)*S12)**2
2459         RBL11 = EQU151) - EQU152)*S13) + EQU153)*S14) - EQU154)*S14)**2
2460         RBN11) = RBN11)
2461         RBL11) = RBL11)
2462         IF (TEPL11) - EQU155)) 200,200,42
2463         42 WRITE(6,00) EGTP,TEPL11),EQU155)
2464         GO TO 200
2465         C      GO THROAT HAPERSHOCK PRESSURE RATIOS
2466         50 IF (140 - 2) 50,50,60
2467         C      FIXED GEOMETRY INLET      140=1 OR 2
2468         50 IF (V111) - EQU161)) 60,60,50
2469         50 WRITE(6,61) EGTP,140,V111),EQU161)
2470         61 FORMAT(1M),20X,23H*** WARNING MESSAGE ***10X,
2471         14INMSPEED EXCEEDED FOR ENGINE INLET COMBINATION/20X,
2472         20MSPR =,FS 1,3X,18MINLET TYPE =,13,3X,3MSPEED =,FS 2,3X,
2473         3134,INIT SPEED =,FS 2)
2474         GO CONTINUE
2475         C
2476         FOR BY PASS RATIO LESS THAN OR EQUAL TO 2.5
2477         C      RATIO ENGIN FACE FOR THROAT      (4-21-70)
2478         RBN11) = (EQU162) - EQU163)*V111) - EQU164)*V111)**2) + RBN11)
2479         RBL11) = (EQU162) - EQU163)*V111) - EQU164)*V111)**2) + RBL11)
2480         C
2481         C      FANLEET BYPASS RATIO GREATER THAN 2.5 THROAT PRESSURE RATIO
2482         C      SAME AS ENGINE FACE - - - - SET-UP THERE.
2483         C
2484         200 CONTINUE
2485         C

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CARD NO      ****      CONTENTS      ****
2405      DO 210 1=1.0
2406      PTHN(1) = PTH(1)+RDN(1)
2407      PTHN(2) = PTH(1)+RDN(2)
2408      PTHL(1) = PTL(1)+RDL(1)
2409      PTHL(2) = PTL(1)+RDL(2)
2410      PST(1) = PTL(1)/RATL(1)+RLL(1)
2411      210 CONTINUE
2412      C      TEST FOR MAXIMUM VALUE OF QL
2413      QDP(1) = QL(1)
2414      J=1
2415      DO 300 1=2.0
2416      IF(QDP(1) - QL(1)) 301,300,300
2417      301 QDP(1) = QL(1)
2418      J = 1
2419      300 CONTINUE
2420      QDP(1) = ALT(J)
2421      QDP(2) = VHL(J)
2422      QDP(3) = VLL(J)
2423      QDP(4) = QHL(J)
2424      C      TEST FOR MAXIMUM DUCT PRESSURES
2425      QDP(6) = PTHN(1)
2426      DO 304 1=2.0
2427      IF(QDP(6) - PTHN(1)) 302,304,304
2428      302 QDP(6) = PTHN(1)
2429      304 CONTINUE
2430      QDP(7) = PTHL(1)
2431      DO 308 1=2.0
2432      IF(QDP(7) - PTHL(1)) 306,308,308
2433      306 QDP(7) = PTHL(1)
2434      308 CONTINUE
2435      C      TEST FOR MAXIMUM STATIC PRESSURE
2436      S(5) = PST(1) - PO(1)/D(17)
2437      QDP(8) = S(5)
2438      DO 310 1=2.0
2439      S(5) = PST(1) - PO(1)/D(17)
2440      IF(QDP(8) - S(5)) 309,310,310
2441      309 QDP(8) = S(5)
2442      310 CONTINUE
2443      C      TEST FOR MAPPERSHOCK AT WH
2444      S(9) = PTHN(1) - PO(1)/D(17)
2445      QDP(9) = S(9)
2446      DO 312 1=2.0
2447      S(9) = PTHN(1) - PO(1)/D(17)
2448      IF(QDP(9) - S(9)) 311,312,312
2449      311 QDP(9) = S(9)
2450      312 CONTINUE
2451      C      TEST FOR MAPPERSHOCK AT VL
2452      S(9) = PTHL(1) - PO(1)/D(17)
2453      QDP(10) = S(9)
2454      DO 316 1=2.0
2455      S(9) = PTHL(1) - PO(1)/D(17)
2456      IF(QDP(10) - S(9)) 315,316,316
2457      315 QDP(10) = S(9)
2458      316 CONTINUE
2459      C
2460      IF(IP(4))5011,5011,5012
2461      5011 CONTINUE
2462      WRITE(6,217)(TITLE(IN),N=1,10)
2463      217 FORMAT(1H,20X,21H** DSONPR - IP(4) **//10X,8A10/10X,8A10)
2464      WRITE(6,218)      EQTP, IV0
2465      218 FORMAT(1H0, 30X, 30H=SPEED PROFILE DESIGN CONSTANTS
2466      * / 1H0, 30X, 14H=BYPASS RATIO *, 17F8.2, 20X, 8H=V0 =, 11Z /
2467      0 1H0, 4X, 7H=TEMP(1), 5X, 8H=STATIC(1), 12X, 15H=MAPPERSHOCK (H) /
2468      3 10X, 3H=LT, 12X, 3H=, 5X, 11H=DEO RANKINE, 5X, 11H=PRE. RATIO,
2469      4 5X, 4H=FACE, 11X, 8H=THROAT )
2470      WRITE(6,221)(ALT(1), VHL(1),VLL(1),RHL(1),RDL(1),1=1,0)
2471      221 FORMAT( 5X, 1F10.3, 1F10.2, 1F17.3, 2F10.4 )
2472      WRITE(6,222)
2473      222 FORMAT(1H0,4X,7H=TEMP(1),5X,8H=STATIC(1),12X,15H=MAPPERSHOCK (L) /
2474      1 10X, 3H=LT, 12X, 3H=, 5X, 11H=DEO RANKINE, 5X, 11H=PRE. RATIO,
2475      0 5X, 4H=FACE, 11X, 8H=THROAT )

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01/08/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE
CARD NO      ****      CONTENTS      ****
2027      END
2028      C
2029      C
2030      C      SUBROUTINE DSTRI
2031      C
2032      C
2033      SUBROUTINE DSTRI
2034      C      WRITTEN 5 JULY 1972
2035      C      TO DISTRIBUTE HEIGHT ACCORDING TO A TRIANGULAR DISTRIBUTION
2036      C      COUNTERS I = APEX CUT, K = LAST CUT, L = FIRST CUT
2037      C      S(201) = FRONT END OF TRIANGLE
2038      C      S(202) = FORWARD PART OF BASE
2039      C      S(203) = TOTAL LENGTH OF BASE
2040      C      S(214) = C.O. OF HEIGHT TO BE DISTRIBUTED
2041      C      S(215) = INPUT HEIGHT
2042      COMMON TCOM(1420)
2043      DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
2044      DIMENSION XD(20),XBAR(20),DELX(20)
2045      DIMENSION GOB(80),DVR(440)
2046      EQUIVALENCE (D(1),TCOM(1)),(GD(1),TCOM(70)),(DV(1),TCOM(140)),
2047      I (S(1),TCOM(372)),(ND(1),TCOM(412))
2048      EQUIVALENCE (GOB(1),GD(38)),(DVR(1),DV(43))
2049      EQUIVALENCE (XD(1),GOB(56)),(XBAR(1),DVR(14)),(DELX(1),DVR(16))
2050      EQUIVALENCE (I,ND(101)),(J,ND(102)),(K,ND(103)),(L,ND(104))
2051      DO 4 J=1,20
2052      S(J+220) = D(24)
2053      4 CONTINUE
2054      S(204) = D(24)
2055      S(205) = D(24)
2056      S(206) = D(24)
2057      S(207) = D(24)
2058      DO 20 J=L,1
2059      S(J+240) = (XBAR(J) - S(201))/S(202)*DELX(J)
2060      S(204) = S(204) + S(J+240)
2061      S(205) = S(205) + S(J+240)*XBAR(J)
2062      20 CONTINUE
2063      I = I + 1
2064      C      AFT PART OF BASE
2065      S(218) = S(203) - S(202)
2066      C      AFT END OF BASE
2067      S(217) = S(201) + S(203)
2068      DO 30 J=1,K
2069      S(J+240) = (S(217) - XBAR(J))/S(218)*DELX(J)
2070      S(204) = S(204) + S(J+240)
2071      S(205) = S(205) + S(J+240)*XBAR(J)
2072      30 CONTINUE
2073      S(208) = S(205)/S(204)
2074      IF(S(208) - S(214)) 40,70,50
2075      40 DO 41 J=L,K
2076      S(J+260) = (XBAR(J) - S(201))/S(203)*DELX(J)
2077      S(206) = S(206) + S(J+260)
2078      S(207) = S(207) + S(J+260)*XBAR(J)
2079      41 CONTINUE
2080      GO TO 71
2081      50 DO 51 J=L,K
2082      S(J+260) = (S(217) - XBAR(J))/S(203)*DELX(J)
2083      S(206) = S(206) + S(J+260)
2084      S(207) = S(207) + S(J+260)*XBAR(J)
2085      51 CONTINUE
2086      GO TO 71
2087      70 S(213) = D(24)
2088      S(211) = S(215)
2089      GO TO 80
2090      71 S(209) = S(207)/S(208)
2091      S(210) = S(215)*(S(214) - S(208))/(S(209) - S(208))
2092      S(211) = S(215) - S(210)
2093      S(213) = S(210)/S(208)
2094      S(212) = S(211)/S(204)
2095      DO 81 J=L,K
2096      S(J+220) = S(J+240)*S(212) + S(J+260)*S(213)
2097      81 CONTINUE

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CARD NO	****	CONTENTS	****
2700		RETURN	
2700		END	
2700		C	
2701		C
2702		C	SUBROUTINE DSTRP
2703		C
2704		C	
2705		C	SUBROUTINE DSTRP
2706		C	TRAPEZOIDAL DISTRIBUTION OF WT. JULY 1972
2707		C	-----NOTE, INCREASING POINT VALUE --- NO(I),XBAR(I+1),XO(I+1) ETC
2708		C	AND DELX(I+1) IS DIST BTH NO(I) AND XO(I+1)
2709		C	S(1) = HEIGHT
2710		C	S(2) = C.O.
2711		C	S(3) = FORWARD EXTENT OF DISTRIBUTION
2712		C	S(4) = AFT EXTENT OF DISTRIBUTION
2713		C	OUTPUT J INDEX FOR FWD XBAR AT WHICH LOAD IS PLACED.
2714		C	K INDEX FOR AFT XBAR AT WHICH LOAD IS PLACED.
2715		C	S(1-20) THRU S(1+20) HEIGHTS FOR ABOVE XBAR LOCATIONS.
2716		C	
2717		C	COMMON TCON(4320)
2718		C	DIMENSION O(700),OO(700),DV(2320),S(400),NO(200)
2719		C	, OOB(80), DVB(440), XO(20), XBAR(20), DELX(20)
2720		C	EQUIVALENCE (TCON(1),O(1)), (TCON(701),OO(1)), (TCON(1401),DV(1))
2721		C	, (TCON(3721),S(1)), (TCON(421),NO(1))
2722		C	, (OO(301),OOB(1)), (OOB(56),XO(1))
2723		C	, (DV(431),DVB(1)), (DVB(14),XBAR(1)), (DVB(161),DELX(1))
2724		C	, (NO(102),J), (NO(103),K), (NO(115),NC)
2725		C	NCL = NC+1
2726		C	IF(S(3) -XO(1)) 10,10,15
2727		C	FORWARD OF XO(1) SET EQUAL TO FIRST
2728		C	10 J=1
2729		C	GO TO 60
2730		C	15 N=2
2731		C	20 IF(S(3) -XO(N)) 25,30,40
2732		C	25 IF((NO(N)-S(3)) - (S(3) -XO(N))) 30,35
2733		C	30 J = N
2734		C	GO TO 60
2735		C	35 J = N - 1
2736		C	GO TO 60
2737		C	40 N=N+1
2738		C	IF(N.LE.NCL) GO TO 20
2739		C	J=NCL
2740		C	K=NCL
2741		C	C ERROR PRINT
2742		C	50 WRITE(6,95) S(1), S(2), S(3), S(4), J, K
2743		C	95 FORMAT('///10,45H***** IN DSTRP, HEIGHT CANNOT BE DISTRIBUTED /
2744		C	= 10X, 24HT=,1F14,2X, 24CO=,1F9.2, 2X, 44FMD=, 1F9.2, 44HFT=,
2745		C	= 1F9.2,12HRETURN J,K =, 113, 1H,,113)
2746		C	GO TO 102
2747		C	AFT OF LAST STATION SET TO LAST
2748		C	60 IF(S(4)-XO(NCL)) 70,85,85
2749		C	65 K=NCL
2750		C	GO TO 100
2751		C	70 N=NC
2752		C	75 IF(S(4)-XO(N)) 80,85,75
2753		C	75 IF((NO(N)-S(4)) - (S(4)-XO(N))) 80,80,85
2754		C	80 K=N+1
2755		C	GO TO 100
2756		C	85 K=N
2757		C	GO TO 100
2758		C	90 N=N+1
2759		C	IF(N.GE.1) GO TO 70
2760		C	K=1
2761		C	J=1
2762		C	GO TO 60
2763		C	100 IF(K-J) (.LT. 1) GO TO 60
2764		C	
2765		C	IF(K - J - 1) 102,102,104
2766		C	102 CALL DSTHOR
2767		C	GO TO 600
2768		C	104 GO 100 N=5,6

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CARD NO      CONTENTS
-----
2768      105 S(1) = D(24)
2770      S(8) = MD(K)-ND(J-1)
2771      S(10) = S(8)/D(2)
2772      S(11) = ND(J-1)+S(10)
2773      DO 110 N=J,K
2774      S(N+60) = (S(11) - XBAR(N))/S(10)*DELX(N)
2775      S(5) = S(5) + S(N+60)
2776      S(6) = S(6) + S(N+60)*XBAR(N)
2777      S(N+80) = DELX(N)/S(5)
2778      S(7) = S(7) + S(N+80)
2779      S(8) = S(8) + S(N+80)*XBAR(N)
2780      110 CONTINUE
2781      S(12) = S(8)/S(7)
2782      S(13) = (S(11)*S(12)-S(11)*S(21))/(S(5)*S(12)-S(8))
2783      S(14) = (S(11)-S(13)*S(5))/S(7)
2784      DO 140 N=J,K
2785      S(N+20) = S(N+60)*S(13) + S(N+80)*S(14)
2786      140 CONTINUE
2787      999 RETURN
2788      END

C
2789      C
2790      C
2791      C          SUBROUTINE DUCDEO
2792      C
2793      C
2794      C          SUBROUTINE DUC(4,0)
2795      C          WRITTEN 23 MARCH 1972
2796      C          TO DEVELOP DUCT GEOMETRY
2797      C
2798      C          COMMON TCOM(4,320)
2799      C
2800      C          DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
2801      C          DIMENSION EQU(200)
2802      C          DIMENSION DATD(70)
2803      C          DIMENSION DND(100)
2804      C          DIMENSION MDD(10),ROD(10),DOD(10),BUD(10),BLD(10),BSD(10),
2805      C          I DLND(10),SFD(10),XBD(10)
2806      C
2807      C          EQUIVALENCE (D(1),TCOM(1)),(OD(1),TCOM(70)),(DV(1),TCOM(140)),
2808      C          I (S(1),TCOM(132)),(ND(1),TCOM(121))
2809      C          EQUIVALENCE (EQU(1),D(8))
2810      C          EQUIVALENCE (DATD(1),OD(50))
2811      C          EQUIVALENCE (DND(1),DV(87))
2812      C          EQUIVALENCE (MDD(1),DND(1)),(ROD(1),DND(11)),(DOD(1),DND(21)),
2813      C          I (BUD(1),DND(31)),(BLD(1),DND(41)),(BSD(1),DND(51))
2814      C          I (DLND(1),DND(61)),(SFD(1),DND(71)),(XBD(1),DND(81))
2815      C          EQUIVALENCE (ND(10),I),(ND(102),J)
2816      C          EQUIVALENCE (ND(114),I0),(ND(117),NCD),(ND(118),KCD)
2817      C
2818      C          SETUP INDICATORS AND COUNTERS
2819      C          IF(1 - KCD) 10,20,20
2820      C          SHAPE CODE IS 2 DEVELOP PERIMETER
2821      C          10 DO 15 I=1,NCD
2822      C          IF(DATD(I+60)) 15,15,12
2823      C          12 DATD(I+60) = DATD(I+60)*(DATD(I+40) + DATD(I+50))*D(15)/D(2)
2824      C          15 CONTINUE
2825      C          FIT SHAPES
2826      C          20 DO 200 I=1,NCD
2827      C          IF(DATD(I+60)) 30,30,100
2828      C          PERIMETER IS ZERO CHECK ON OUTDE
2829      C          30 IF(DATD(I+40)) 34,34,32
2830      C          VERTICAL LIP (INBD MEDGE)
2831      C          32 I00 = 1
2832      C          DATD(I+60) = DATD(I+40)
2833      C          GO TO 200
2834      C          34 IF(DATD(I+50)) 38,38,38
2835      C          38 WRITE(8,60)
2836      C          60 FORMAT(30#)DARNING FROM DUCDEO IN DATA MANAGEMENT /39#,23#DUCT LIP
2837      C          I GEOMETRY ERROR I
2838      C          HORIZONTAL LIP (UPPER L.E.)
2839      C          38 I00 = 2
    
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01/08/74 INPUT LISTING AUTOFLW CHRT SET - SKEP DATA MANAGEMENT MODULE
CARD NO ***** COMMENTS *****
2040 DATD(1+60) = DATD(1+50)
2041 GO TO 200
2042 100 S(1) = D(1)
2043 S(2) = (D(2)*(DATD(1+40) + DATD(1+50)) - DATD(1+60))/
2044 (D(1) - D(2)*D(15))
2045 IF(S(2)) 101,101,102
2046 101 S(1) = DATD(1+60)/(D(2)*DATD(1+40) + D(2)*DATD(1+50))
2047 S(2) = D(2)
2048 IF(S(1) .GT. EQU(145) .AND. S(1) .LT. EQU(146)) GO TO 110
2049
2050 C
2051 C ERROR MESSAGE
2052 WRITE(6,95) J,S(1)
2053 95 FORMAT(30HWARNING FROM DUCED IN DATA MANAGEMENT / CH SECTION,
2054 1 113, 41H IS RECT. OR ROUNDED RECT., CORRECTION IS, 1F7.4)
2055 GO TO 110
2056
2057 C
2058 102 S(4) = AMAX(1,DATD(1+40),DATD(1+50))
2059 S(5) = AMIN(1,DATD(1+40),DATD(1+50))
2060 IF(S(5) - D(2)*S(2)) 109,110,110
2061 109 S(2) = S(5)/D(2)
2062 S(1) = DATD(1+60)/(D(2)*(D(15)*S(2) + S(4) - D(2)*S(2)))
2063 IF(S(1) .GT. EQU(145) .AND. S(1) .LT. EQU(146)) GO TO 110
2064
2065 C
2066 C ERROR MESSAGE
2067 WRITE(6,95) 1,S(1)
2068 110 S(6) = (DATD(1+50) - D(2)*S(2))*S(1)/D(2)
2069 S(3) = (DATD(1+40) - D(2)*S(2))*S(1)/D(2)
2070 IF(S(6)) 111,112,112
2071 111 S(6) = D(2)
2072 112 IF(S(3)) 114,115,115
2073 114 S(3) = D(2)
2074 115 MOD(1) = S(6)
2075 MOD(1) = S(3)
2076 BUD(1) = D(2)*MOD(1) + D(15)/D(2)*MOD(1)
2077 BLD(1) = BUD(1)
2078 BBD(1) = D(2)*MOD(1) + D(15)/D(2)*MOD(1)
2079
2080 200 CONTINUE
2081 J = 2
2082 IF(100) 250,250,205
2083
2084 C CALCULATE LEADING EDGE SURFACE
2085 250 J = 3
2086 DLND(1) = DATD(12) - DATD(11)
2087 HND(1) = DATD(11) + D(2)/D(3)*DLND(1)
2088 IF(100-1) 208,208,220
2089 208 IF(DATD(22)) 210,210,208 00120900
2090 C SECOND CUT IS OFFSET THEREFORE THERE ARE TWO INLETS PER MACELLE 00120905
2091 209 IF(DATD(21)) 207,207,209 00120907
2092 C FOR VERTICAL LIP CALCULATE LIP, TWO TRIANGLES PLUS VERTICAL MEMBER 00120910
2093 207 SFD(1) = DLND(1)*(DATD(6)) + BSD(2)/D(2) + BUD(2) + BLD(2) 00120920
2094 GO TO 250 00120930
2095 C SPLIT INLET AS PER FUSELAGE MOUNTED 00120932
2096 209 SFD(1) = DLND(1)*(DATD(6)) + BSD(2) + BUD(2) + BLD(2) 00120934
2097 GO TO 250 00120936
2098 C THERE IS A SINGLE INLET PER MACELLE 00120938
2099 210 SFD(1) = DLND(1)/D(2)*(DATD(6)) + BUD(2) + BSD(2) + BLD(2)
2100 GO TO 250
2101 C HORIZONTAL LIP 00120940
2102 220 IF(DATD(22)) 224,224,222 00120942
2103 C TWO INLETS PER MACELLE 00120944
2104 222 SFD(1) = DLND(1)*(DATD(6)) + BUD(2) + BSD(2)*D(3)/D(2) 00120944
2105 GO TO 250 00120946
2106 C ONE INLET PER MACELLE 00120947
2107 224 SFD(1) = DLND(1)/D(2)*(DATD(6)) + BUD(2) + D(2)*BSD(2) 00120948
2108 C CALCULATE SUBSEQUENT SECTIONS OR NOSE IF NO L.E.
2109 250 GO 300 I=J,NCD
2110 DLND(I-1) = DATD(I+10) - DATD(I+9)
2111 HND(I-1) = DATD(I+9) + DLND(I-1)/D(2)
2112 S(1) = D(2)
2113 IF(DATD(1+20)) 208,208,202 00121010
2114 208 IF(DATD(1+10)) 209,209,200

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CARD NO      ****      CONTENTS      ****
0002      C      *****
0003      C      WRITE RECORD 30 FOR FLUTTER MODULE, COMPRESSIBLE
0004      C      DYNAMIC PRESSURE
0005      C      300 CALL WRITE(1,DPAL(1),50,30)
0006      C
0007      C      *****
0008      C
0009      C      RETURN
0010      C      END
0011      C
0012      C      *****
0013      C      SUBROUTINE FTOTAL
0014      C      *****
0015      C
0016      C      SUBROUTINE FTOTAL
0017      C
0018      C      SUBROUTINE FTOTAL
0019      C      WRITTEN 24 JULY 1978
0020      C      TO SETUP FUSELAGE USEFUL LOAD DISTRIBUTION AND CONTENTS FOR
0021      C      THREE GROSS WEIGHTS.
0022      C      COMMON TCON(4320)
0023      C      DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
0024      C      DIMENSION ODM(160)
0025      C      DIMENSION DWT(1000),MFC(120),MFC2(20),MFC3(20)
0026      C      EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(70)),(DV(1),TCON(140)),
0027      C      1 (S(1),TCON(170)),(ND(1),TCON(421))
0028      C      EQUIVALENCE (ODM(1),ODM(1))
0029      C      EQUIVALENCE (DWT(1),DV(1)),(MFC(1),DWT(70)),
0030      C      1 (MFC2(1),DWT(80)),(MFC3(1),DWT(82))
0031      C      EQUIVALENCE (1,ND(10)),(2,ND(102)),(3,ND(103)),(4,ND(104)),
0032      C      1 (5,ND(105)),(6,ND(107)),(7,ND(108)),(8,ND(110))
0033      C      EQUIVALENCE (9,ND(115))
0034      C      SETUP COUNTERS 11 = GROSS WEIGHT PASS COUNTER
0035      C      11 = 1
0036      C      100 GO 101 1=1,20
0037      C      S(1+20) = D(24)
0038      C      S(1+40) = D(24)
0039      C      101 CONTINUE
0040      C      TEST ON FUSELAGE PAYLOAD
0041      C      JJ = 11*10 + 111
0042      C      S(1) = ODM(101)*ODM(1,JJ)
0043      C      IF(S(1)) 105,105,103
0044      C      103 S(2) = ODM(101)
0045      C      S(3) = ODM(101)
0046      C      S(4) = ODM(102)
0047      C      S(5) = (S(4)-S(3))/D(3)
0048      C      IF(S(2)-S(3)) - S(5) ) 110,104,104
0049      C      104 IF(S(4)-S(2)) - S(5) ) 110,105,105
0050      C      105 CALL DSTTRP
0051      C      GO TO 120
0052      C      110 CALL DSTHOR
0053      C      WRITE(6,110) S(3),S(4),S(1),S(2)
0054      C      115 FORMAT(20A40) WARNING FROM FTOTAL *** /
0055      C      1 20X,23=PREVIOUS FORE AND AFT LIMITS WERE, 2F10.2/
0056      C      23X,F12.2,17H LBS AT FUS. STA.,FB 2,10X,21HDISTRIBUTED BY DSTHOR)
0057      C      WRITE(6,110)
0058      C      110 FORMAT(10X,10H FUSELAGE PAYLOAD )
0059      C      120 GO 125 1=J,K
0060      C      S(1+40) = S(1+40) + S(1+20)
0061      C      125 CONTINUE
0062      C      TEST ON APPLICATION
0063      C      130 S(1) = ODM(101)*ODM(1,JJ+2)
0064      C      IF(S(1)) 200,200,152
0065      C      152 S(2) = ODM(101)
0066      C      CALL DSTHOR
0067      C      GO 150 1=J,K
0068      C      S(1+40) = S(1+40) + S(1+20)
0069      C      150 CONTINUE
0070      C      TEST ON FUSELAGE FUEL, FIVE TANKS
0071      C      200 GO 200 L=1,5
0072      C      N = JJ + L + 4
0073      C      S(1) = ODM(L+95)*ODM(1,N)
0074      C      IF(S(1)) 200,200,202

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CARD NO      ****      CONTENTS      ****
3053      202 S(2) = QDM(TL*95)
3054      LL = L*2
3055      S(3) = QDM(TL*107)
3056      S(4) = QDM(TL*108)
3057      S(5) = (S(4)-S(3))/D(3)
3058      IF( (S(2)-S(3)) - S(5) ) 210,204,204
3059      204 IF( (S(4)-S(2)) - S(5) ) 210,205,205
3060      205 CALL DSTRP
3061      GO TO 220
3062      210 CALL DSTNR
3063      WRITE(6,115) S(3),S(4),S(5),S(2)
3064      WRITE(6,215)
3065      215 FORMAT(1H,22F,13H)FUSELAGE FUEL I
3066      220 DO 225 I=J,K
3067      S(1+40) = S(1+40) + S(I+20)
3068      225 CONTINUE
3069      300 CONTINUE
3070      L = NC + 1
3071      GO TO (310,320,330),L
3072      310 II = 2
3073      DO 312 I=1,L
3074      MFC(1) = DWT(I)*360) + S(1+40)
3075      312 CONTINUE
3076      GO TO 100
3077      320 II = 3
3078      DO 322 I=1,L
3079      MFC(2) = DWT(I)*360) + S(1+40)
3080      322 CONTINUE
3081      GO TO 100
3082      330 DO 332 I=1,L
3083      MFC(3) = DWT(I)*360) + S(1+40)
3084      332 CONTINUE
3085      RETURN
3086      END
3087      C
3088      C
3089      C      SUBROUTINE FUSOST
3090      C
3091      C
3092      C      SUBROUTINE FUSOST
3093      C      WRITTEN 5 JULY 1972
3094      C      TO DISTRIBUTE FUSELAGE WEIGHT FOR LOADS AND INERTIA CALCULATION
3095      C      COMMON TCOPI(4*20)
3096      DIMENSION D(700),DO(700),DV(2*20),S(400),ND(200)
3097      DIMENSION DWT(500),MFUS(20)
3098      DIMENSION GR(80),DVB(40)
3099      DIMENSION X(110),XO(20),XBAR(20),SF(20),TOT(20)
3100      EQUIVALENCE (D(1),TCOPI(1),DO(1),TCOPI(3)),(DV(1),TCOPI(4)),
3101      I(5),TCOPI(37),ND(1),TCOPI(42))
3102      EQUIVALENCE (DWT(1),DV(12)),(MFUS(1),DWT(34))
3103      EQUIVALENCE (DOB(1),DO(36)),(DVB(1),DV(31))
3104      EQUIVALENCE (X(1),DOB(8),ND(1),DOB(56),XBAR(1),DVB(14)),
3105      I(SF(1),DVB(18)),(TOT(1),DVB(35))
3106      EQUIVALENCE (I,ND(10)),(J,ND(102)),(K,ND(103)),(L,ND(104))
3107      EQUIVALENCE (NF,ND(115))
3108      C      DETERMINE FACTOR
3109      S(1) = DWT(101)/TOT(1)/D(2)
3110      J = NC + 1
3111      S(2) = D(24)
3112      S(3) = D(24)
3113      DO 100 I=1,J
3114      MFUS(I) = S(1)*MFC(I)
3115      S(2) = S(2) + MFUS(I)*XBAR(1)
3116      S(3) = S(3) + MFUS(I)
3117      100 CONTINUE
3118      S(4) = DWT(101) - S(3)
3119      S(5) = (DWT(101)*DWT(41) - S(2))/S(4)
3120      C      DISTRIBUTE HALF OF FUSELAGE WEIGHT ACCORDING TO TRIANGULAR DIST.
3121      S(201) = X(1)
3122      S(202) = S(5) - S(201)
3123      S(203) = X(10) - X(1)

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CARD NO      ****      CONTENTS      ****
3124          S(214) = S(5)
3125          S(215) = S(4)
3126          I = 1
3127          IF(IND(1) - S(214)) 104,104,100
3128          104 I = NC
3129          WRITE(6,66) DMT(101),DMT(141)
3130          66 FORMAT(21H** FUSGE1 WARNING ** /10X,20CHECK MT AND CG DATA,
3131          * /10X,30FUSBLADE MT DIST IS NOT REALISTIC,/10X,MMT =,F10.2,
3132          * 3X,MCS =,F8.2)
3133          GO TO 100
3134          100 IF(30(1) - S(214)) 107,100,100
3135          107 I = I + 1
3136          GO TO 100
3137          100 K = NC + 1
3138          L = 1
3139          CALL DS1TR)
3140          DO 110 I=1,K
3141          MFUS(I) = MFUS(I) + S(1+220)
3142          110 CONTINUE
3143          RETURN
3144          END
3145          C
3146          C ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
3147          C          SUBROUTINE FUSGEO
3148          C ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
3149          C
3150          C          SUBROUTINE FUSGEO
3151          C          INITIAL ROUTINE FOR EXTERNAL SHELL GEOMETRY          70020020
3152          C          FAMILY OF ROUNDED RECTANGLES          70020030
3153          C          70020050
3154          C          COMMON TCOM(4320)
3155          C          70020060
3156          C          DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
3157          C          DIMENSION EDU(200)
3158          C          DIMENSION GDB(80),DNB(440)
3159          C          DIMENSION XI(10),Z(10),DI(10),MI(10),PI(10),ND(20)
3160          C          DIMENSION ZD(20),RCU(20),RCL(20),RCS(20),BU(20),BL(20),
3161          C          1 BS(20),HBAR(20),DELX(20),WF(20),VOL(20),ODD(20),MD(20),RO(20),
3162          C          2 PER(20)
3163          C          DIMENSION S1(20),S2(20),S3(20),TOT(20)
3164          C          DIMENSION UIX(20),UIY(20),UIZ(20)
3165          C          70020070
3166          C          EQUIVALENCE (D(1),TCOM(1)),(GD(1),TCOM(701)),(DV(1),TCOM(1401)),
3167          C          1 (S(1),TCOM(3721)),(ND(1),TCOM(4121))
3168          C          EQUIVALENCE (EDU(1),D(81))
3169          C          EQUIVALENCE (GDB(1),GD(301)),(DNB(1),DV(311))
3170          C          EQUIVALENCE (XI(1),GDB(61)),(Z(1),GDB(101)),(DI(1),GDB(126)),
3171          C          1 (MI(1),GDB(136)),(PI(1),GDB(146)),(ND(1),GDB(156))
3172          C          EQUIVALENCE (ZD(1),DNB(11)),(RCU(1),DNB(21)),(RCL(1),DNB(41)),
3173          C          1 (RCS(1),DNB(61)),(BU(1),DNB(81)),(BL(1),DNB(101)),
3174          C          2 (BS(1),DNB(121)),(HBAR(1),DNB(141)),(DELX(1),DNB(161)),
3175          C          3 (WF(1),DNB(181)),(VOL(1),DNB(201)),(ODD(1),DNB(221)),
3176          C          4 (MD(1),DNB(241)),(RO(1),DNB(261)),(PER(1),DNB(281))
3177          C          EQUIVALENCE (S1(1),DNB(301)),(S2(1),DNB(321)),(S3(1),DNB(341)),
3178          C          1 (TOT(1),DNB(361))
3179          C          EQUIVALENCE (UIX(1),DNB(381)),(UIY(1),DNB(401)),(UIZ(1),DNB(421))
3180          C          EQUIVALENCE (TOT(1),STOT),TOT(2),VOLT)
3181          C          EQUIVALENCE (ND(115),NC), (ND(116),KC)
3182          C          EQUIVALENCE SCRATCH COUNTERS          70020210
3183          C          EQUIVALENCE (ND(101),I), (ND(102),J)
3184          C          70020300
3185          C          ZD = FUSBLADE WATER PLANE FOR EVALUATION          70020370
3186          C          MD = FLAT HORIZONTAL          ODD = FLAT VERTICAL          70020380
3187          C          DESCRIPTION OF OUTPUT ARRAYS          70020390
3188          C          HBAR = CENTROID OF SEGMENT          DELX = SEGMENT LENGTH          70020400
3189          C          BU = UPPER PANEL CIRCUM          BL = LOWER PANEL CIRCUM          70020410
3190          C          BS = SIDE PANEL CIRCUM          RCU = RADIUS OF CURVATURE UPPER          70020420
3191          C          RCL = RADIUS OF CURVATURE LOWER          RCS = RADIUS OF CURVATURE SIDE          70020430
3192          C          PER = PERIMETER          RO = CORNER RADIUS          70020440
3193          C          WF = SURFACE AREA SEGMENT          VOL = VOLUME OF SEGMENT          70020450
3194          C          70020460
    
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CARD NO.	INPUT LISTING	AUTOFLSH CHART SET - SHEEP	DATA MANAGEMENT MODULE
3105	C	DESCRIPTION OF INPUT ARRAYS	70020470
3106	C	Z1 = FUEL/LABE WATER PLANE FOR GEOMETRY	70020480
3107	C	X1 = FUS STATION FOR GEOMETRY D1 = FUS DEPTH	70020490
3108	C	M1 = FUS WIDTH P1 = PERIMETER - KC = 1	70020500
3109	C	P1 = PERIMETER CORRECTION - KC=2 MD = FUS STATION FOR EVALUATION	70020510
3200	C	I = INPUT GEOMETRY COUNTER	70020520
3201	C	J = OUTPUT GEOMETRY COUNTER	70020530
3202	C		70020540
3203	C	SCRATCH ARRAYS	70020550
3204	C	S1 = DEPTH S2 = WIDTH	70020560
3205	C	S3 = AREA CROSS-SECTION	70020570
3206		IF(I-KC)10,10,15	70020580
3207	C		70020590
3208	C	CONVERT PERIMETER CORRECTION TO PERIMETER AND SUBSTITUTE	70020600
3209		10 DO 12 1=1,10	70020610
3210		P1(I) = P1(I)+(D1(I) + M1(I))*D1(I)/D1(2)	70020620
3211		12 CONTINUE	70020630
3212		15 I = 2	70020640
3213		J = 1	70020650
3214		STOT = D1(2)	70020660
3215		MULT = D1(2)	70020670
3216	C		70020680
3217	C	STRAIGHT LINE INTERPOLATION	70020690
3218		TOT(10) = D1(I)	70020700
3219		TOT(20) = M1(I)	70020710
3220		20 IF(XD(J)-X1(I))21,21,22	70020720
3221		Z1 S1(I) = (XD(J) - X1(I)-1)/(X1(I)-X1(I)-1)	70020730
3222		S1(J) = D1(I)-S1 + S1(I)*D1(I)-D1(I)-1	70020740
3223		S2(J) = M1(I)-S1 + S1(I)*M1(I)-M1(I)-1	70020750
3224		PER(J) = P1(I)-S1 + S1(I)*P1(I)-P1(I)-1	70020760
3225		ZD(J) = Z1(I)-S1 + S1(I)*Z1(I)-Z1(I)-1	70020770
3226		IF(TOT(10) - S1(J)) 31,32,32	70020780
3227		31 TOT(10) = S1(J)	70020790
3228		32 IF(TOT(20) - S2(J)) 33,34,34	70020800
3229		33 TOT(20) = S2(J)	70020810
3230		34 CONTINUE	70020820
3231		J = J+1	70020830
3232		IF(J-KC)20,20,100	70020840
3233		22 I = I+1	70020850
3234		GO TO 20	70020860
3235	C		70020870
3236	C	SHAPE FIT	70020880
3237		100 DO 200 J=1,KC	70020890
3238		S1(I) = D1(I)	70020900
3239		S1(2) = (D1(2)*S1(J) + D1(2)*S2(J) - PER(J))/(D1(I) - D1(2)*D1(I))	70020910
3240		IF(S1(2))101,101,102	70020920
3241		101 S1(I) = PER(J)/(D1(2)*S1(J) + D1(2)*S2(J))	70020930
3242		S1(2) = D1(2)	70020940
3243		IF(S1(I) .GT. EQU(145) .AND. S1(I) .LT. EQU(146)) GO TO 110	70020950
3244	C		70020960
3245	C	ERROR MESSAGE	70020970
3246		WRITE(6,61)	70020980
3247		61 FORMAT(30#BARBARING FROM FUSED IN DATA MANAGEMENT)	70020990
3248		WRITE(6,60) J,S1(I)	70021000
3249		60 FORMAT(04 SECTION, 113,3H IS RECTANGULAR, CORR. FACTOR IS,FB,3)	70021010
3250		GO TO 110	70021020
3251		102 S1(4) = MAX1(S1(J),S2(J))	70021030
3252		S1(5) = MIN1(S1(J),S2(J))	70021040
3253		IF(S1(5) - D1(2)*S1(2)) 100,110,110	70021050
3254		100 S1(2) = S1(5)/D1(2)	70021060
3255		S1(I) = PER(J)/(D1(2)*D1(I)*S1(2) + S1(4) - D1(2)*S1(2))	70021070
3256		IF(S1(I) .GT. EQU(145) .AND. S1(I) .LT. EQU(146)) GO TO 110	70021080
3257	C		70021090
3258	C	ERROR MESSAGE	70021100
3259		WRITE(6,61)	70021110
3260		WRITE(6,60) J,S1(I)	70021120
3261		60 FORMAT(04 SECTION, 113,3H IS ROUNDED RECT., CORR. FACTOR IS,FB,3)	70021130
3262		110 S1(6) = (S2(J) - D1(2)*S1(2))*S1(I)/D1(2)	70021140
3263		S1(3) = (S1(J) - D1(2)*S1(2))*S1(I)/D1(2)	70021150
3264		IF(S1(6))111,112,112	70021160
3265		111 S1(6) = D1(2)	70021170

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
3066	112 IF(S(3)≠114,115,115		70021000
3067	114 S(3) = D(2)		70021100
3068	115 MD(J) = S(6)		70021110
3069	MD(J) = S(2)*S(1)		70021120
3070	DD(J) = S(3)		70021130
3071	S(1) = D(15)*DD(J)**2 + D(14)*DD(J)*MD(J)*DD(J) +		70021140
3072	D(14)*MD(J)*DD(J)		70021150
3073	BU(J) = D(2)*MD(J) + D(15)/D(2)*DD(J)		70021160
3074	BL(J) = BU(J)		70021170
3075	BS(J) = D(2)*DD(J) + D(15)/D(2)*DD(J)		70021180
3076	IF(D(2)-DD(J)≠110,110,200		70021190
3077	110 S(1) = DD(J)*D(1) - D(25)/D(2)		70021200
3078	S(2) = DD(J)*D(25)/D(2) + DD(J)		70021210
3079	S(3) = DD(J)*D(25)/D(2) + MD(J)		70021220
3080	DD(J) = S(1)**2 + S(3)**2 / D(2)/S(1)		70021230
3081	DD(J) = DD(J)		70021240
3082	DCS(J) = S(1)**2 + S(2)**2 / D(2)/S(1)		70021250
3083	C IF R(2,0) ABSOLUTE RADIUS OF CURVATURE IS INFINITY IE FLAT PANEL		70021260
3084	300 CONTINUE		70021270
3085	C		70021280
3086	C NOSE CONE GEOMETRY		70021290
3087	S(1) = P(1)/D(2)/D(15)		70021300
3088	S(2) = PER(1)/D(2)/D(15)		70021310
3089	DELX(1) = MD(1) - X(1)		70021320
3090	SF(1) = D(15)*S(1)+S(2)**2*(DELX(1)**2 + (S(2)-S(1))**2)**.5		70021330
3091	MBAR(1) = MD(1) - DELX(1)/D(3)*D(2)*S(1) + S(2)/(S(1)+S(2))		70021340
3092	VOL(1) = D(15)*DELX(1)/D(3)*S(2)**2 + S(2)*S(1) + S(1)**2		70021350
3093	DO 300 J=2,NC		70021360
3094	MBAR(J) = MD(J) + MD(J-1)/D(2)		70021370
3095	DELX(J) = MD(J) - MD(J-1)		70021380
3096	IF(DELX(J)-D(2)≠301,301,302		70021390
3097	C		70021400
3098	C SHARP DISCONTINUITY IN GEOMETRY		70021410
3099	301 SF(J) = PER(J)*DELX(J)		70021420
3100	VOL(J) = DELX(J)*S(1)		70021430
3101	GO TO 300		70021440
3102	C		70021450
3103	C NORMAL GEOMETRIC TRANSITION		70021460
3104	302 S(1) = PER(J-1)/D(2)/D(15)		70021470
3105	S(2) = PER(J)/D(2)/D(15)		70021480
3106	SF(J) = D(15)*S(1)+S(2)**2*(DELX(J)**2 + (S(2)-S(1))**2)**.5		70021490
3107	VOL(J) = DELX(J)/D(3)*S(1)+S(1)*S(2) + (S(1)*S(2)-S(1))**2		70021500
3108	300 CONTINUE		70021510
3109	C		70021520
3110	C TAIL CONE GEOMETRY		70021530
3111	J = NC		70021540
3112	S(1) = PER(J)/D(2)/D(15)		70021550
3113	S(2) = P(10)/D(2)/D(15)		70021560
3114	MD(J) = X(10)		70021570
3115	ZD(J) = Z(10)		
3116	DELX(J) = X(10) - MD(J)		70021580
3117	MBAR(J) = MD(J) + DELX(J)/D(3)*D(2)*S(2) + S(1)/(S(2)+S(1))		70021590
3118	SF(J) = D(15)*S(1)+S(2)**2*(DELX(J)**2+(S(1)-S(2))**2)**.5		70021600
3119	VOL(J) = D(15)*DELX(J)/D(3)*S(1)**2 + S(1)*S(2) + S(2)**2		70021610
3120	I = NC-1		70021620
3121	DO 400 J=1,I		70021630
3122	STOT = STOT + SF(J)		70021640
3123	VOLT = VOLT + VOL(J)		70021650
3124	400 CONTINUE		70021660
3125	C DESCRIPTION OF OUTPUT ARRAYS		70030370
3126	C U1X = UNIT ROLL INERTIA U1Y = UNIT PITCH INERTIA		70030380
3127	C U1Z = UNIT YAW INERTIA		70030390
3128	C		70030400
3129	C NOSE CONE		70030410
3130	S(1) = P(1)/D(2)/D(15)		70030420
3131	S(2) = PER(1)/D(2)/D(15)		70030430
3132	S(3) = MD(1) - MBAR(1)		70030440
3133	U1X(1) = D(15)/D(10)*S(1)**4 + S(1)**3*S(2) + S(1)**2*S(2)**2 +		70030450
3134	S(1)*S(2)**2 + S(2)**4/(S(1)**2 + S(1)*S(2) + S(2)**2)		70030461
3135	U1Y(1) = U1X(1)/D(2) + D(3)*D(10)/D(10)*D(10)*S(3)**2		70030460
3136	U1Z(1) = U1Y(1)		70030470

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
3337	GO 500 J=2,NC		
3338	IF (DELX(J) - D(2)) 501,501,502		
3339	C		70030500
3340	C SHARP DISCONTINUITY IN GEOMETRY		70030510
3341	501 S(4) = D(4)*D(J)**(D(0)(J)*RO(J)) + D(4)*RO(J)*D(0)(J) +		
3342	D(15)*RO(J)**2		70030530
3343	S(5) = D(4)/D(3)*D(J)**(D(0)(J)*RO(J)) + D(4)/D(3)*RO(J)*		70030540
3344	D(0)(J)**3 + D(15)/D(4)*RO(J)**4 + D(15)*RO(J)**2*D(0)(J)**2		70030550
3345	S(6) = D(4)/D(3)*D(0)(J)**(D(0)(J)*RO(J)) + D(4)/D(3)*RO(J)*		70030560
3346	D(0)(J)**3 + D(15)/D(4)*RO(J)**4 + D(15)*RO(J)**2*D(0)(J)**2		70030570
3347	503 U(X(J) = S(5) + S(6)/S(4)		
3348	U(Y(J) = S(5)/S(4) + DELX(J)**2/D(12)		70030590
3349	U(Z(J) = S(6)/S(4) + DELX(J)**2/D(12)		70030600
3350	GO TO 500		
3351	C		70030620
3352	C NORMAL GEOMETRY TRANSITION		70030630
3353	C USE NORMAL SEGMENT SHAPE		70030640
3354	502 S(1) = (D(0)(J) + D(0)(J-1))/D(2)		
3355	S(2) = (D(1)(J) + D(1)(J-1))/D(2)		70030660
3356	S(3) = (D(2)(J) + D(2)(J-1))/D(2)		70030670
3357	S(4) = D(4)*S(2)*(S(1)+S(3)) + D(4)*S(3)*S(1) + D(15)*S(3)**2		70030680
3358	S(5) = D(4)/D(3)*S(2)*(S(1)+S(3)) + D(4)/D(3)*S(3)*S(1) + D(15)/		70030690
3359	D(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(1)**2		70030700
3360	S(6) = D(4)/D(3)*S(1)*(S(2)+S(3)) + D(4)/D(3)*S(3)*S(2) + D(15)/		70030710
3361	D(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(2)**2		70030720
3362	GO TO 503		
3363	500 CONTINUE		
3364	C		70030750
3365	C TAIL CONE		70030760
3366	J = NC		70030770
3367	S(1) = PER(J)/D(2)/D(15)		70030780
3368	S(2) = P(10)/D(2)/D(15)		70030790
3369	S(3) = (BAR(J) - D(1))		70030800
3370	U(X(J) = D(3)/D(10)*S(1)**4 + S(1)**3*S(2) + S(1)**2*S(2)**2 +		70030810
3371	S(1)*S(2)**3 + S(2)**4/(S(1)**2 + S(1)*S(2) + S(2)**2)		70030811
3372	U(Y(J) = U(X(J)/D(2) + D(3)*D(10)/D(10)*S(3)**2		70030820
3373	U(Z(J) = U(Y(J))		70030830
3374	RETURN		70030880
3375	END		
3376	C		
3377	C		
3378	C SUBROUTINE MACD0		
3379	C		
3380	C		
3381	C SUBROUTINE MACD0		
3382	C WRITTEN 8 APRIL 1972		
3383	C TO DEVELOP MACELLE GEOMETRY		
3384	C		
3385	C COMMON TCON(4,320)		
3386	C		
3387	C DIMENSION D(700),DD(700),DV(2320),S(400),ND(200)		
3388	C DIMENSION BATH(70)		
3389	C DIMENSION DWH(150)		
3390	C DIMENSION EQU(200)		
3391	C DIMENSION MDN(10),RDN(10),DDN(10),BLN(10),BLN(10),DSN(10),		
3392	1 BLN(10),DWH(10),RCUN(10),RCLN(10),RCSN(10),MDN(10)		
3393	C DIMENSION U1DN(10),U1YN(10),U1ZN(10)		
3394	C EQUIVALENCE (D(1),TCON(1)),(D(11),TCON(70)),(D(11),TCON(140)),		
3395	1 (S(1),TCON(372)),(ND(1),TCON(412))		
3396	C EQUIVALENCE (EQU(1),D(1))		
3397	C EQUIVALENCE (BATH(1),DD(150))		
3398	C EQUIVALENCE (DWH(1),DV(157))		
3399	C EQUIVALENCE (MDN(1),DWH(1)),(RDN(1),DWH(1)),(DDN(1),DWH(2)),		
3400	1 (BLN(1),DWH(3)),(BLN(1),DWH(4)),(DSN(1),DWH(5)),		
3401	2 (BLN(1),DWH(6)),(DWH(1),DWH(7)),(RCUN(1),DWH(8)),		
3402	3 (RCLN(1),DWH(9)),(RCSN(1),DWH(10)),(MDN(1),DWH(11))		
3403	C EQUIVALENCE (U1DN(1),DWH(12)),(U1YN(1),DWH(13)),		
3404	1 (U1ZN(1),DWH(14))		
3405	C EQUIVALENCE (ND(10),1),(ND(10),J)		
3406	C EQUIVALENCE (MDN,ND(110)),(RDN,ND(120)),(DDN,ND(132))		
3407	C		

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CARD NO      ****      CONTENTS      ****

3400      C
3401      C      SETUP INDICATORS AND COUNTERS
3410      IF(1 - NCH) 10,20,20
3411      C      SHAPE CODE IS 2 DEVELOP PERIMETER
3412      10 DO 15 I=1,NCH
3413      IF(DATN(I+50)) 15,15,12
3414      12 DATN(I+50) = DATN(I+50)*(DATN(I+40) + DATN(I+50))*D(15)/D(2)
3415      15 CONTINUE
3416      C      FIT SHAPES
3417      20 DO 200 I=1,NCH
3418      IF(DATN(I+50)) 30,30,100
3419      C      PERIMETER IS ZERO CHECK ON GUIDE
3420      30 IF(DATN(I+40)) 34,34,32
3421      C      VERTICAL LIP
3422      32 ION = 1
3423      DATN(I+50) = D(24)
3424      GO TO 200
3425      34 IF(DATN(I+50)) 30,30,35
3426      30 WRITE(6,60)
3427      60 FORMAT (40H0 WARNING FROM NAGGED IN DATA MANAGEMENT,10X,
3428      120HAXCELLE LIP GEOMETRY ERROR)
3429      C      HORIZONTAL LIP (UPPER L E I)
3430      35 ION = 2
3431      DATN(I+50) = DATN(I+50)
3432      GO TO 200
3433      C      FULL SECTION
3434      100 S(1) = D(1)
3435      S(2) = (D(2)*(DATN(I+40) + DATN(I+50)) - DATN(I+50))/
3436      (D(1) - D(2)*D(15))
3437      IF(S(2)) 101,101,102
3438      101 S(1) = DATN(I+50)/(D(2)*DATN(I+40) + D(2)*DATN(I+50))
3439      S(2) = D(24)
3440      IF(S(1) .GT. EQU(145) .AND. S(1) .LT. EQU(146)) GO TO 110
3441      C
3442      C      ERROR MESSAGE
3443      GO TO 100
3444      102 S(4) = AMAXI(DATN(I+40),DATN(I+50))
3445      S(5) = AMINI(DATN(I+40),DATN(I+50))
3446      IF(S(5) - D(2)*S(2)) 104,110,110
3447      104 S(2) = S(5)/D(2)
3448      S(1) = DATN(I+50)/(D(2)*(D(15)*S(2) + S(4) - D(2)*S(2)))
3449      IF(S(1) .GT. EQU(145) .AND. S(1) .LT. EQU(146)) GO TO 110
3450      C
3451      C      ERROR MESSAGE
3452      100 WRITE (6,65) I, S(1)
3453      65 FORMAT (40H0 WARNING FROM NAGGED IN DATA MANAGEMENT /5H SECTION,
3454      1 113,47H IS RECTANGLE OR ROUNDED RECT., CORR. FACTOR IS, I6.3 )
3455      C
3456      110 S(6) = (DATN(I+50) - D(2)*S(2))*S(1)/D(2)
3457      S(3) = (DATN(I+40) - D(2)*S(2))*S(1)/D(2)
3458      IF(S(6)) 111,112,112
3459      111 S(6) = D(24)
3460      112 IF(S(3)) 114,115,115
3461      114 S(3) = D(24)
3462      115 MON(1) = S(6)
3463      RON(1) = S(2)*S(1)
3464      DON(1) = S(3)
3465      BLN(1) = D(2)*MON(1) + D(15)/D(2)*RON(1)
3466      BLN(1) = BLN(1)
3467      DBN(1) = D(2)*DON(1) + D(15)/D(2)*RON(1)
3468      IF(D(2) - RON(1)) 116,116,200
3469      116 S(1) = RON(1)*(D(1) - D(25)/D(2))
3470      S(2) = RON(1)*D(25)/D(2) + DON(1)
3471      S(3) = RON(1)*D(25)/D(2) + MON(1)
3472      RCLN(1) = (S(1)**2 + S(3)**2)/D(2)/S(1)
3473      RCLN(1) = RCLN(1)
3474      RCBN(1) = (S(1)**2 + S(2)**2)/D(2)/S(1)
3475      C      IF R(2,0) ASSUME RADIUS OF CURVATURE IS INFINITY IE FLAT PANEL
3476      200 CONTINUE
3477      J = 0
3478      IF(ION) 250,250,205

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CARD NO      ****      CONTENTS      ****
3478      C      CALCULATE LEADING EDGE SURFACE
3480      DO 3 J = 3
3481      BLN(1) = DATN(12) - DATN(11)
3482      MSH(1) = DATN(11) + D(2)/D(3)*BLN(1)
3483      IF(10N = 1) 210,210,220
3484      210 SFN(1) = BLN(1)/D(2)*(BLN(2) + BLN(2))
3485      GO TO 250
3486      220 SFN(1) = BLN(1)/D(2)*(DATN(11) + BLN(2) + D(2)*MSH(2))
3487      C      CALCULATE SUBSEQUENT SECTIONS OR MORE IF NO L.E.
3488      DO 300 I=J,NCH
3489      BLN(I-1) = DATN(I+10) - DATN(I+9)
3490      MSH(I-1) = DATN(I+9) + DLN(I-1)/D(2)
3491      SFN(I-1) = DLN(I-1)/D(2)*(DATN(I+60) + DATN(I+59))
3492      300 CONTINUE
3493      C      DESCRIPTION OF OUTPUT ARRAYS
3494      C      U10N = UNIT ROLL INERTIA      U11N = UNIT PITCH INERTIA
3495      C      U12N = UNIT YAW INERTIA
3496      J = 2
3497      IF(10N) 700,700,702
3498      702 J = 3
3499      C      CALCULATE LIP
3500      IF(10N = 1) 704,704,710
3501      C      VERTICAL LIP
3502      704 S(1) = DATN(2)**2/D(4)
3503      S(2) = DATN(5)**2/D(2)/D(12)
3504      S(3) = DLN(1)**2/D(2)/D(9)
3505      U10N(1) = S(2) + S(1)
3506      U11N(1) = S(3) + S(1)
3507      U12N(1) = S(2) + S(3)
3508      GO TO 720
3509      C      HORIZONTAL LIP
3510      710 S(1) = BSN(2)*DLN(1)
3511      S(2) = BLN(2)*DLN(1)
3512      S(4) = DATN(2)**2/D(2)/D(9)*S(1)
3513      S(5) = DATN(5)**2/D(12)*S(2)
3514      S(6) = DATN(5)**2/D(4)*S(1)
3515      S(7) = DATN(2)**2/D(9)*S(2)
3516      S(8) = DLN(1)**2/D(2)/D(9)*S(1)
3517      S(9) = DLN(1)**2/D(9)*S(2)
3518      U10N(1) = (S(4) + S(5) + S(6) + S(7))/SFN(1)
3519      U11N(1) = (S(4) + S(7) + S(8) + S(9))/SFN(1)
3520      U12N(1) = (S(5) + S(6) + S(8) + S(9))/SFN(1)
3521      C      NORMAL GEOMETRY
3522      DO 740 I=J,NCH
3523      S(1) = (DDN(I) + DDN(I-1))/D(2)
3524      S(2) = (MDN(1) + MDN(1-1))/D(2)
3525      S(3) = (RDN(1) + RDN(1-1))/D(2)
3526      S(4) = D(4)*S(2)*S(1) + S(3) + D(4)*S(3)*S(1) + D(15)*S(3)**2
3527      S(5) = D(4)/D(3)*S(2)*S(1) + S(3)**3 + D(4)/D(3)*S(3)*S(1)**3 +
3528      1 D(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(1)**2
3529      S(6) = D(4)/D(3)*S(1)*S(2) + S(3)**3 + D(4)/D(3)*S(3)*S(2)**3 +
3530      1 D(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(2)**2
3531      U10N(I-1) = (S(5) + S(6))/S(4)
3532      U11N(I-1) = (S(5)/S(4) + DLN(I-1)**2/D(12)
3533      U12N(I-1) = (S(6)/S(4) + DLN(I-1)**2/D(12)
3534      740 CONTINUE
3535      C      *** EXIT ***
3536      RETURN
3537      END
3538      C
3539      C
3540      C      SUBROUTINE HOBGEO
3541      C
3542      C
3543      C      SUBROUTINE HOBGEO
3544      C      JULY 1972
3545      C      COMMON TCON(4,320)
3546      DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
3547      *, GDB(80), DNB(440), BC(200), DWH(50), DWH(30)
3548      *, DELX(80), VDL(20), SS(20), ND(20), XI(10), EQU(200)
3549      EQUIVALENCE (TCON(1),D(1)), (TCON(70),GD(1)), (TCON(140),DV(1))

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CARD NO      ****      CONTENTS      ****
3000          * (TCOH(370),S(1)), (TCOH(412),ND(1))
3001          * (DV(32),DWH(1)), (DV(37),DWH(1)), (DV(43),DVB(1))
3002          * (DVB(10),DELX(1)), (DVB(20),VOL(1)), (DVB(34),S(1))
3003          * (OD(30),ODB(1)), (OD(10),XI(1)), (OD(50),ND(1))
3004          * (ND(15),NC)
3005          * (DV(212),BC(1)), (EQU(1),D(0))
3006      C BC(13)  X SUB 0  DIST. FROM X REFERENCE TO BODY NOSE INCHES
3007      C BC(34)  SH L SUB N  LENGTH OF NOSE INCHES
3008      C BC(35)  V SUB N  VOLUME OF NOSE CUBIC INCHES
3009      C BC(38)  R SUB N  RADIUS AT BASE OF NOSE INCHES
3010      C DEFINE AFT STATION OF NOSE SECTION BY SMALLEST OF FOLLOWING 3 POINTS
3011      C (1) APX OF WIND OR HORIZONTAL WHICH EVER IS SMALLEST.
3012      C (2) 1ST. FUSELAGE POINT WHERE CROSS SEC. AREA IS CONST. OR DECREAS
3013      C (3) STATION WHERE DELX IS LESS THAN OR EQU TO 2.0 (START DUCTS)
3014          BC(13) = XI(1)
3015          S(1) = XI(10)
3016          S(1) = AMIN(DWH(47), DWH(4))
3017          N=1
3018      70 IF(S(1)-S(1)+1) 75,80,80
3019      75 N=N+1
3020          IF(N.LE.NC) GO TO 70
3021      80 S(2) = X(N)
3022          DO 80 N=1,NC
3023          IF(DELX(N).GT.D(2)) GO TO 90
3024      85 IF(S(1)-EQU(144) - S(1)+1) 85,86,90
3025      86 S(3) = X(N)
3026          GO TO 95
3027      90 CONTINUE
3028      95 S(4) = AMIN(S(1),S(2),S(3))
3029          BC(34) = S(4) - XI(1)
3030          N=0
3031          S(5)=D(24)
3032      100 N=N+1
3033          IF(X(N)-S(4))105,110,115
3034      105 S(5) = S(5)+VOL(N)
3035          GO TO 100
3036      110 S(5) = S(5)+VOL(N)
3037          S(6) = S(3)
3038          GO TO 120
3039      115 S(6) = S(3)-1 + (S(3)-S(3)-1)*(S(4)-X(N)-1)/(X(N)-X(N)-1)
3040          S(5) = S(5) + (S(4)-X(N)-1)*(S(3)-1+S(6)/D(2))
3041      120 BC(35) = S(5)
3042          BC(36) = (S(6)/D(15))*D(10)
3043          RETURN
3044          END
3045      C
3046      C (((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
3047      C SUBROUTINE PRTOGE
3048      C ))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))
3049      C
3050      C SUBROUTINE PRTOGE
3051      C WRITTEN SEPT. 1972 OPERATIONAL WEIGHT EMPTY AND EXPEND. USEFUL
3052      C LOAD PRINT SUBROUTINE
3053      C
3054      C COMMON TCOH(4320)
3055      C
3056      C DIMENSION U(700), OD(700), DV(2320), S(400), ND(200)
3057      C DIMENSION GAWT(160)
3058      C DIMENSION DWAT(1000)
3059      C DIMENSION F(40), M(20), H(10), V(10), A(20), AD(20)
3060      C DIMENSION T(6,40)
3061      C
3062      C EQUIVALENCE (D(1),TCOH(1)), (D(1),TCOH(70)), (DV(1),TCOH(140)),
3063      C (S(1),TCOH(370)), (ND(1),TCOH(412))
3064      C EQUIVALENCE (DWH(1),OD(0))
3065      C EQUIVALENCE (DWH(1),DV(112))
3066      C EQUIVALENCE (F(1),DWH(10)), (M(1),DWH(10)), (H(1),DWH(22)),
3067      C (V(1),DWH(24)), (A(1),DWH(26)), (AD(1),DWH(30))
3068      C EQUIVALENCE (T(1,1),S(1))
3069      C PRINT BREAK DOWN FROM T(I,J) WHERE I=COMPONENT, J=LINE NO.
3070      C

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01/00/74

INPUT LISTING

AUTOFLOW CHART SET - SHEEP

DATA MANAGEMENT MODULE

CARD NO	****	CONTENTS	****
3021		DO IS M=1,240	
3022		S(M) = D(24)	
3023		10 CONTINUE	
3024		T(2,1) = M(1)	
3025		T(3,2) = M(1)	
3026		T(4,3) = V(1)	
3027		T(1,6) = F(1)	
3028		T(1,8) = F(2)	
3029		T(2,9) = M(2)	
3030		T(1,8) = F(3)	
3031		T(1,7) = F(4)+F(5)	
3032		T(2,7) = M(3)	
3033		T(3,7) = M(2)	
3034		T(4,7) = V(2)	
3035		T(5,8) = A(1)	
3036		T(6,8) = A(1)	
3037		T(1,9) = F(6)	
3038		T(5,10) = A(2)	
3039		T(6,10) = A(2)	
3040		T(5,11) = A(3)	
3041		T(6,11) = A(3)	
3042		T(5,12) = A(4)	
3043		T(6,12) = A(4)	
3044		T(5,13) = A(5)	
3045		T(6,13) = A(5)	
3046		T(5,14) = A(6)	
3047		T(6,14) = A(6)	
3048		T(5,15) = A(7)	
3049		T(6,15) = A(7)	
3050		T(5,16) = A(8)	
3051		T(6,16) = A(8)	
3052		T(1,17) = F(7)	
3053		T(2,17) = M(4)	
3054		T(1,18) = F(8)	
3055		T(5,18) = A(9)	
3056		T(6,18) = A(9)	
3057		T(1,20) = F(9)	
3058		T(5,20) = A(10)	
3059		T(6,20) = A(10)	
3060		T(1,21) = F(10)	
3061		T(2,21) = M(5)	
3062		T(5,21) = A(11)	
3063		T(6,21) = A(11)	
3064		T(1,22) = F(11)	
3065		T(5,22) = A(12)	
3066		T(6,22) = A(12)	
3067		T(1,23) = F(12)	
3068		T(5,23) = A(13)	
3069		T(6,23) = A(13)	
3070		T(1,24) = F(13)	
3071		T(1,25) = F(14)	
3072		T(1,26) = F(15)	
3073		T(1,27) = F(16)	
3074		T(5,27) = A(14)	
3075		T(6,27) = A(14)	
3076		T(1,28) = F(17)	
3077		T(1,29) = F(18)	
3078		T(1,30) = F(19)	
3079		T(1,31) = F(20)	
3080		T(1,32) = F(21)	
3081		T(2,32) = M(6)	
3082		T(5,32) = A(15)	
3083		T(6,32) = A(15)	
3084		T(1,34) = F(22)	
3085		T(1,35) = F(23)	
3086		T(1,36) = F(24)	
3087		T(2,37) = M(7)	
3088		T(2,38) = M(8)	
3089		T(1,39) = F(25)	
3090		T(1,40) = F(26)	
3091			

c

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CARD NO      ****      CONTENTS      ****
3702      C
3703      WRITE(6,20)
3704      20 FORMAT(1M,8F,21M** PRTOE - (P146) **/
3705      1      8M+ DATA MANAGEMENT *** OPERATIONAL WEIGHT EMPTY *** /
3706      1 10X. 30BTOTAL AND MAJOR COMPONENT BREAK DOWN // 20X.
3707      2 10BTOTAL WT. 8X. 3MARM 4X. 8MFUSELAGE 8X. 4MIND 2X.
3708      3 10HORIZONTAL 3X. 8MVERTICAL 11M 10 NACELLE 11M 00 NACELLE 1
3709      WRITE(6,30) (DWT(N),DWT(N+50), 11(N),1+1,0), N=1,40)
3710      7) FORMAT(5M MIND 12X,8F11.1 / 11M HORIZONTAL 8X,8F11.1 / 8M VERTICAL
3711      1 8X,8F11.1 / 8M BODY 12X,8F11.1 / 10M MAIN GEAR 7X,8F11.1 /
3712      2 10M NOSE GEAR 7X,8F11.1 / 14M SURF. CONTROL 3X,8F11.1 /
3713      3 13M ENG. SECTION 4X,8F11.1 / 17M OTHER STRUCTURE 8F11.1 /
3714      4 8M ENGINES 5X,8F11.1 / 17M ACCESSORY 0 BOX 8F11.1 /
3715      5 14M AIS STRUCTURE 3X,8F11.1 / 17M AIS ACT AND REC .8F11.1 /
3716      6 8M EXHAUST 8X,8F11.1 / 17M COOL. AND ORNS. .8F11.1 /
3717      7 12M LUBE SYSTEM 5X,8F11.1 / 12M FUEL SYSTEM 5X,8F11.1 /
3718      8 17M ENGINE CONTROLS . 8F11.1 /
3719      9 14M STARTING SYS. 3X,8F11.1 / 8M A P U 11X,8F11.1/12M INSTRUMENTS
3720      A 5X,8F11.1/11M HYDRAULIC 5X,8F11.1/11M ELECTRICAL 8X,8F11.1 /
3721      B 11M ELECTRONIC 8X,8F11.1 / 5M ARMAMENT 8X,8F11.1 / 12M FURNISHINGS
3722      C 5X,8F11.1 / 15M AIR CONDITION. 2X,8F11.1 / 7M PHOTO. 10X,8F11.1 /
3723      D 10M ALK. GEAR 7X,8F11.1 / 17M OTHER EQUIPMENT 8F11.1 / 5M CREW
3724      E 12X,8F11.1 / 11M TRAP. FUEL 8X,8F11.1 / 4M OIL 13X,8F11.1 /
3725      F 4M LME 13X,8F11.1 / 14M MISCELLANEOUS 3X,8F11.1 / 5M GUNS 12X.
3726      G 8F11.1 / 10M M. PYLONS 7X,8F11.1 / 14M M. EXT. TANKS 3X,8F11.1 /
3727      H 10M F. PYLONS 7X,8F11.1 / 14M F. EXT. TANKS 3X,8F11.1 )
3718      C
3719      C .....
3720      C
3721      C EXPENDABLE USEFUL LOAD
3722      WRITE(6,100) (ODMT(N+80),ODMT(N+90),DWT(N+80),DWT(N+90),
3723      * DMT(N+850),N=1,5 )
3724      100 FORMAT(1M,8X,21M** PRTOE - (P146) **/
3725      1      4M+ DATA MANAGEMENT -- EXPENDABLE USEFUL LOAD //3X.
3726      12M----- CAPACITY -----, 8X,4MTCOM,8X,4MFCOM,8X,4MLDGM / 30X.
3727      2 8MWEIGHT,8X. 3MARM // 13X. 21MPASSENGERS ON PAYLOAD, 5F12.2 /
3728      3 13X. 12MIND PAYLOAD,8X, 5F12.2 / 13X. 10MAMMUNITION, 11X.
3729      4 5F12.2 / 13X. 17MIND FUEL TANK 1, 4X, 5F12.2 / 13X.
3730      5 17MIND FUEL TANK 2, 4X, 5F12.2 )
3731      WRITE (6,110) ( N, ODMT(N+85),ODMT(N+95),DWT(N+85), DWT(N+95),
3732      * DMT(N+855), N=1,5 )
3733      110 FORMAT ( 13X, 10MFUSELAGE FUEL TANK, 12, X, 5F12.2 )
3734      C
3735      RETURN
3736      END
3737      C
3738      C .....
3739      C SUBROUTINE QUIKIE
3740      C .....
3741      C
3742      SUBROUTINE QUIKIE
3743      C WRITTEN 26 JUNE 1972
3744      C TO DO FIRST PASS WEIGHT ESTIMATES AND C.O.
3745      COMMON TCOM(4320)
3746      COMMON /PRINT/ IP(80)
3747      DIMENSION OI(700),ODI(700),DVI(2320),S(400),ND(200)
3748      DIMENSION EQU(200)
3749      DIMENSION OD(120),Z(130),ODMT(180),ODM(50),ODM(40),ODV(40),
3750      I ODB(80),DATS(40),DATD(70),DATR(20),DATN(70)
3751      DIMENSION DVM(50),DVM(30),DVM(30),DVM(40),DVO(100),DVM(150),
3752      I DWT(1000)
3753      DIMENSION OSP(18)
3754      DIMENSION XI(18)
3755      DIMENSION TOT(20),MBO(10),SFD(10),XBN(10),SFM(10)
3756      C
3757      EQUIVALENCE (O(1),TCOM(1)),(O(1),TCOM(701)),(DVI(1),TCOM(1401)),
3758      I (S(1),TCOM(372)),(ND(1),TCOM(4121))
3759      C
3760      EQUIVALENCE (EQU(1),D(81))
3761      EQUIVALENCE (OD(1),OD(1)),(ODD(1),OD(21)),(ODMT(1),OD(81)),
3762      I (ODM(1),OD(251)),(ODM(1),OD(301)),(ODVM(1),OD(341)),

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CARD NO      ****      CONTENTS      ****
3763          2 (DOB(1),DO(301)),(DATS(1),DO(401)),(DAD(1),DO(501)),
3764          3 (DAR(1),DO(571)),(DAR(1),DO(581))
3765          EQUIVALENCE (X(1),DO(10))
3766          EQUIVALENCE (DAR(1),DV(321)),(DAR(1),DV(371)),(DAR(1),DV(401)),
3767          1 (DAR(1),DV(431)),(DAR(1),DV(471)),(DAR(1),DV(471)),
3768          2 (DAR(1),DV(1121))
3769          EQUIVALENCE (DAR(1),DV(311))
3770          EQUIVALENCE (TOT(1),DVB(361)),(SFD(1),DVO(71)),
3771          1 (HED(1),DVO(101)),(SFD(1),DVI(71)),(HED(1),DVI(111))
3772          C
3773          EQUIVALENCE (I,ND(101)),(J,ND(102))
3774          EQUIVALENCE (I,ND(107))
3775          EQUIVALENCE (I,ND(111)),(I,ND(112)),(I,ND(114)),
3776          1 (NC,ND(115)),(NC,ND(117)),(NC,ND(118)),(I,ND(1121))
3777          C      CLEAR SCRATCH REGION
3778          DO 10 I=1,150
3779          S(I) = 0(24)
3780          10 CONTINUE
3781          C
3782          C      TRANSFER INPUT DATA TO STORAGE REGION DV FILE
3783          DO 20 I=1,40
3784          DWT(I) = GDMT(I)
3785          DWT(I+50) = GDMT(I+40)
3786          20 CONTINUE
3787          DO 30 I=1,50
3788          DWT(I) = GDMT(I+40)*GDMT(I+90)
3789          DWT(I+50) = GDMT(I+50)
3790          C      TRANSFER USEFUL LOAD TO DV REGION FOR TOUGH AND LDOM
3791          DWT(I+80) = GDMT(I+40)*GDMT(I+80)
3792          DWT(I+810) = GDMT(I+40)*GDMT(I+100)
3793          30 CONTINUE
3794          C
3795          C      TEST FOR AIR INDUCTION SYSTEM HEIGHT
3796          IF (GDMT(12)) 50,50,80
3797          C      DO FIRST PASS ESTIMATE ON AIS
3798          50 DO TO (80,70,60,60,70,70),140
3799          C      DO RAPP
3800          60 S(1) = DAR(4)*DAR(8) + DAR(5)*DAR(9) + DAR(6)*DAR(10) +
3801          1 DAR(7)*DAR(11)
3802          S(2) = DAR(17) + (DAR(4) + DAR(5) + DAR(6) + DAR(7))/D(2)
3803          S(3) = D(31)*OSP(6)
3804          S(4) = D(32)*OSP(7)
3805          S(5) = AMAX(1553),S(4))
3806          S(6) = S(1)/D(17)*EQU(7) + (S(5)/EQU(72))*EQU(73)*
3807          + DATS(5)*EQU(70)
3808          S(7) = S(2)
3809          GO TO 80
3810          C      SPIRES INITIAL ESTIMATE
3811          70 IF (140 - S) 70,74,70
3812          70 S(6) = EQU(20)*DATS(4)*DATS(5)/D(17)*EQU(70)
3813          GO TO 70
3814          74 S(6) = EQU(30)*DATS(4)*DATS(5)/D(17)*EQU(70)
3815          GO TO 70
3816          70 S(6) = EQU(31)*DATS(4)*DATS(5)/D(17)*EQU(70)
3817          70 S(7) = DATS(6)
3818          C      DUCTS INITIAL ESTIMATE
3819          80 J = 2
3820          IF (180) 85,85,81
3821          81 J = 3
3822          S(8) = SFD(1)/D(17)*EQU(74)*EQU(70)
3823          C      TEST FOR MAXIMUM DESIGN PRESSURE
3824          85 S(1) = OSP(8)*D(31)
3825          S(2) = OSP(8)*D(31)
3826          S(3) = OSP(10)*D(32)
3827          S(4) = AMAX(1551),S(2),S(3))
3828          S(5) = EQU(75)*EQU(70)
3829          IF (EQU(75) - S(4)) 86,80,80
3830          86 S(5) = (EQU(75) + ((S(4) - EQU(75))/EQU(75))*EQU(77))*EQU(70)
3831          80 DO 82 I=J,NC
3832          S(I+70) = SFD(I-1)/D(17)*S(5)
3833          82 CONTINUE

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CARD NO      ****      CONTENTS      ****

3034          J = NCD - 1
3035          GO ON 1=1,J
3036          S(41) = S(41) + S(1+00)
3037          S(42) = S(42) + S(1+00)*NCD(1)
3038          ON CONTINUE
3039          S(62) = S(41)
3040          S(72) = S(42)/S(41)
3041          C
3042          C DO FACELLES IF APPLICABLE
3043          GO IF(ODM(8)) 100,100,105
3044          100 IF(1TP) 150,150,102
3045          102 J = 2
3046          IF(10N) 110,110,104
3047          104 J = 3
3048          110 DO 114 1=J,NCH
3049          S(1+00) = S(1+1)/D(17)*EQU(70)
3050          114 CONTINUE
3051          DO 116 1=J,NCH
3052          S(43) = S(43) + S(1+00)
3053          S(44) = S(44) + S(1+00)*NCH(1)
3054          116 CONTINUE
3055          S(63) = S(43)
3056          S(73) = S(44)/S(43)
3057          C TEST ON INBD PYLON
3058          IF(DATS(22)) 150,150,120
3059          120 S(64) = DATS(22)*DATS(23)/D(17)*EQU(80)
3060          S(74) = DATS(12) + DATD(NCD+10) + DATS(23)/D(2)*
3061          1 SIN(DATS(20)*D(18))
3062          IF(DATS(24)) 150,150,122
3063          C OUTBD PYLON
3064          122 S(65) = DATS(24)*DATS(25)/D(17)*EQU(80)
3065          S(75) = DATS(12) + DATD(NCD+10) + DATS(25)/D(2)*
3066          1 SIN(DATS(20)*D(18))
3067          C ENGINE POINTS
3068          150 S(66) = ODM(16)*EQU(81)
3069          S(76) = DATS(12) + DATD(NCD+10)
3070          C SLR ENGINE SECTION
3071          150 S(45) = S(63)*DATS(1) + S(64)*D(2) + S(65)*D(2) + S(66)
3072          IF(DATS(1) - D(2)) 160,160,105
3073          160 S(46) = S(63)*D(2)*(DATS(13) + S(73)) + S(64)*D(2)*
3074          1 (DATS(13) + S(74)) + S(65)*DATS(13) + S(76))
3075          IF(DATS(1)) 162,162,104
3076          162 S(47) = S(61) + S(62)
3077          S(48) = S(61)*(DATS(13) + S(71)) + S(62)*DATS(13) + S(72))
3078          GO TO 100
3079          104 S(47) = S(61) + D(2)*S(62)
3080          S(48) = S(61)*(DATS(13) + S(71)) + S(62)*D(2)*(DATS(13) + S(72))
3081          GO TO 100
3082          100 S(46) = S(63)*D(2)*(DATS(13) + DATS(16) + S(73)*D(2)) +
3083          1 S(64)*D(2)*DATS(13) + S(74)) + S(65)*D(2)*(DATS(16) + S(75)) +
3084          2 S(66)*(DATS(13) + DATS(16))/D(2) + S(76))
3085          S(47) = S(61) + S(62)*DATS(1)
3086          S(48) = S(61)*(DATS(13) + DATS(16))/D(2) + S(71)) +
3087          1 S(62)*DATS(1)*(DATS(13) + DATS(16))/D(2) + S(72))
3088          100 IF(S(45)) 190,190,162
3089          162 S(167) = S(45)
3090          S(117) = S(46)/S(45)
3091          100 IF(S(47)) 200,200,162
3092          162 S(168) = S(47)
3093          S(118) = S(48)/S(47)
3094          C
3095          C TEST ON HING
3096          200 IF(ODM(1)) 201,201,200
3097          201 S(20) = AMAX(ODD(11),ODD(12),ODD(14))
3098          S(21) = (ODD(3)+S(2))*D(31)*EQU(82)
3099          S(22) = ODP(S)*EQU(83)
3100          S(23) = ODM(1)*EQU(84)
3101          S(24) = (ODM(2)/COS(DM(50)*D(16)**2))*EQU(85)
3102          S(25) = (ODM(12)*D(16)*D(18)/COS(DM(50)*D(16)))*EQU(86)
3103          C TEST ON TAPER RATIO
3104          IF(ODM(13)) 222,222,224

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CARD NO	****	CONTENTS	****
3005	C	TAPER RATIO = 0.0 SET EQUAL TO 0.001	
3006		202 S(20) = D(11)/D(14)	
3007		GO TO 206	
3008		204 S(20) = GDM(3)	
3009		205 S(20) = S(20)**EQU(87)	
3010		S(27) = D(1)	
3011		IF(GDM(3)) 206,206,204	
3012	C	LANDING GEAR ON WING	
3013		204 S(27) = EQU(88)	
3014		205 S(20) = D(1)	
3015		IF(GDM(2)) 210,210,208	
3016	C	VARIABLE SHEEP WING	
3017		208 S(20) = EQU(89) - EQU(90)*GDM(31)/DWM(5)	
3018		210 S(101) = S(21)**S(22)**S(23)**S(24)**S(25)**S(26)**S(27)**S(28)/	
3019		1 EQU(91)**EQU(92)	
3020		S(111) = DWM(5) + (EQU(93) - D(23))*DWM(4)	
3021	C		
3022	C	HORIZONTAL TAIL	
3023		300 IF(GDM(2)) 302,302,400	
3024		302 S(30) = AMAX(1000*(11),GDM(12),GDM(14))	
3025		S(31) = (GDM(3)**S(30)*D(31))**EQU(94)	
3026		S(32) = DSP(5)**EQU(95)	
3027		S(33) = DWM(8)**EQU(96)	
3028		S(34) = (DWM(7)/(COS(DWM(23)*D(16)))**2)**EQU(97)	
3029		S(35) = (GDM(12)*D(10)*D(10)/COS(DWM(23)*D(16)))**EQU(98)	
3030	C	TEST ON TAPER RATIO	
3031		IF(DWM(6)) 304,304,306	
3032	C	TAPER RATIO = 0.0 SET EQUAL TO 0.001	
3033		304 S(37) = D(11)/D(14)	
3034		GO TO 308	
3035		305 S(37) = DWM(8)	
3036		306 S(35) = S(37)**EQU(99)	
3037		S(102) = (S(31)**S(32)**S(33)**S(34))/EQU(100)/S(35)/S(36)**EQU(101)	
3038		S(112) = DWM(24) + (EQU(102) - D(23))*DWM(25)	
3039	C		
3040	C	VERTICAL TAIL	
3041		400 IF(GDM(3)) 402,402,450	
3042		402 S(30) = AMAX(1000*(11),GDM(12),GDM(14))	
3043		S(31) = (GDM(3)**S(30)*D(31))**EQU(103)	
3044		S(32) = DSP(5)**EQU(104)	
3045		S(33) = GDM(11)**EQU(105)	
3046		S(34) = (GDM(2)/(COS(DVM(22)*D(10)))**2)**EQU(106)	
3047		S(35) = (GDM(12)*D(10)*D(10)/COS(DVM(22)*D(10)))**EQU(107)	
3048	C	TEST ON TAPER RATIO	
3049		IF(GDM(3)) 404,404,406	
3050	C	TAPER RATIO = 0.0 SET EQUAL TO 0.001	
3051		404 S(37) = D(11)/D(14)	
3052		GO TO 408	
3053		405 S(37) = GDM(3)	
3054		406 S(35) = S(37)**EQU(108)	
3055		S(103) = (S(31)**S(32)**S(33)**S(34)**S(35))/EQU(109)**EQU(110)*	
3056		1 **V(23)	
3057		S(113) = DVM(24) + (EQU(111) - D(23))*DVM(25)	
3058	C	LANDING GEAR	
3059		450 IF(GDM(5)) 460,460,452	
3060		452 IF(GDM(6)) 460,460,500	
3061		460 S(30) = D(2)	
3062		S(31) = GDM(20)**2/D(2)/D(26)/GDM(21)*D(12)	
3063		S(32) = S(30)*GDM(1)	
3064		S(33) = S(31)*GDM(5)	
3065		IF(S(32) - S(33)) 462,470,470	
3066	C	LANDING CRITICAL	
3067		462 S(34) = S(31)**EQU(112)	
3068		S(35) = GDM(5)**EQU(113)	
3069		GO TO 470	
3070		470 S(34) = S(30)**EQU(112)	
3071		S(35) = GDM(5)**EQU(113)	
3072		480 S(38) = (GDM(23)/D(12))**EQU(114)	
3073		IF(GDM(5)) 482,482,480	
3074		482 S(105) = EQU(115)**S(34)**S(35)**S(36)**GDM(14) - GDM(27)/	
3075		1 (GDM(26) - GDM(27))	

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CARD NO      CONTENTS
3076          S(115) = 000(25)
3077          400 IF(000(15)) 402,402,500
3078          402 S(100) = (000(115)*S(24)+S(25)*S(26)**(000(26) - 000(4)))/
3079          I (000(26) - 000(27))
3080          S(110) = 000(27)
3081          C
3082          C BODY GROUP
3083          000 IF(000(4)) 002,002,000
3084          002 S(30) = APMX(000(11),000(12),000(14))
3085          S(31) = (TOT(11)/D(17))*EQU(110)
3086          S(32) = (S(30)*D(31)+000(31))*EQU(110)
3087          S(33) = (ABS(DW(124) - DW(131))/D(12))*EQU(120)
3088          S(34) = (X(110) - X(111))/TOT(110) + TOT(20)*D(21)*EQU(121)
3089          S(35) = DWP(5)*EQU(122)
3090          S(104) = S(31)*S(32)/S(33)/S(34)+S(35)*EQU(123)*EQU(124)
3091          IF(DATS(1)) 010,010,020
3092          010 S(114) = X(11) + (X(110) - X(111))*EQU(125)
3093          GO TO 060
3094          020 S(114) = X(11) + (X(110) - X(111))*EQU(126)
3095          C
3096          C TEST ON HEIGHTS AND C.G. AT FLIGHT DESIGN GROSS HEIGHT
3097          000 DO 010 I=1,40
3098          S(1) = S(1) + DWT(1)
3099          S(2) = S(2) + DWT(1)*DWT(1+.50)
3100          010 CONTINUE
3101          DO 012 I=1,50
3102          S(1) = S(1) + DWT(1)
3103          S(2) = S(2) + DWT(1)*DWT(1+.50)
3104          012 CONTINUE
3105          DO 014 I=1,8
3106          S(3) = S(3) + S(1+100)
3107          014 CONTINUE
3108          IF(S(3) .NE. 0.0) GO TO 0140
3109          WRITE (6,0145)
3110          0145 FORMAT(/// 0240***** ALL DETAIL HEIGHTS AND C.G.'S WERE INPUT
3111          ***** ///)
3112          GO TO 002
3113          0140 CONTINUE
3114          S(11) = (000(3) - S(11))/S(3)
3115          DO 015 I=1,8
3116          S(1+130) = S(1+100)*S(11)
3117          S(4) = S(4) + S(1+130)
3118          S(5) = S(5) + S(1+130)*S(1+110)
3119          015 CONTINUE
3120          S(12) = 000(3)*000(4)
3121          C
3122          C ASSUME CG ERROR
3123          C TO MATCH REQUIRED CG ERROR, SHIFT CG OF LOADINGS
3124          C SETUP 10 PERCENT SHIFT
3125          C ACCORDING TO CHARACTERISTIC LENGTH
3126          S(121) = DW(144)
3127          S(122) = DW(125)
3128          S(123) = DW(125)
3129          S(124) = X(110) - X(11)
3130          S(125) = 000(23)
3131          S(126) = 000(24)
3132          S(127) = DAT(110)
3133          S(128) = (DAT(INC)+10) - DAT(11)
3134          DO 020 I=1,8
3135          S(6) = S(6) + S(1+130)*S(1+120)
3136          020 CONTINUE
3137          S(13) = S(12) - S(2) - S(5)
3138          S(14) = S(13)/S(6)
3139          DO 022 I=1,8
3140          IF(S(1+130)) 022,022,021
3141          021 S(1+140) = S(1+110) + S(1+120)*S(14)
3142          022 CONTINUE
3143          C
3144          C CORRECT MACELLE PIECES
3145          DO 024 I=1,8
3146          S(1+00) = S(1+00)*S(11)
3147          024 CONTINUE
3148          S(7) = S(7) + S(128)*S(14)

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CARD NO      ****      CONTENTS      ****
4047          S(70) = S(70) + S(120)*S(14)
4048          S(73) = S(73) + S(127)*S(14)
4049          S(74) = S(74) + S(127)*S(14)
4050          S(75) = S(75) + S(127)*S(14)
4051          S(76) = S(76) + S(127)*S(14)
4052          DD DDD I=1,20
4053          S(100) = S(100)*S(11)
4054          000 CONTINUE
4055          C      TRANSFER DATA TO STORAGE
4056          IF(DMNT(1)) 032,032,034
4057          032 DMNT(1) = S(131)
4058          DMNT(51) = S(141)
4059          034 IF(DMNT(2)) 030,030,030
4060          030 DMNT(2) = S(132)
4061          DMNT(52) = S(142)
4062          030 IF(DMNT(3)) 040,040,042
4063          040 DMNT(3) = S(133)
4064          DMNT(53) = S(143)
4065          042 IF(DMNT(4)) 044,044,046
4066          044 DMNT(4) = S(134)
4067          DMNT(54) = S(144)
4068          046 IF(DMNT(5)) 048,048,050
4069          048 DMNT(5) = S(135)
4070          DMNT(55) = S(145)
4071          050 IF(DMNT(6)) 052,052,054
4072          052 DMNT(6) = S(136)
4073          DMNT(56) = S(146)
4074          054 IF(DMNT(7)) 056,056,058
4075          056 DMNT(7) = S(137)
4076          DMNT(57) = S(147)
4077          058 IF(DMNT(12)) 060,060,062
4078          060 DMNT(12) = S(138)
4079          DMNT(62) = S(148)
4080          WRITE(6,1020)
4081          1020 FORMAT(1H,20X,50HSTRUCTURE WEIGHT DATA FROM QUIKIE IN DATA MANAGE
4082          *MENT//32X,10HINITIAL ESTIMATE,4X,14HCHARACTERISTIC,0X,
4083          *10HCORRECTED ESTIMATE/30X,04HEIGHT,5X,04HORIZ ARM,6X,04LENGTH,
4084          * 13X,04HEIGHT,5X,04HORIZ ARM)
4085          WRITE(6,1021) (S(1+100),S(1+110),S(1+120),S(1+130),S(1+140),1+1,0)
4086          1021 FORMAT(0X,40HIND,11X,2F12.1,4X,F12.1,4X,2F12.1/
4087          1 0X,15HORIZONTAL TAIL,2F12.1,4X,F12.1,4X,2F12.1/
4088          2 0X,13HVERTICAL TAIL,2X,2F12.1,4X,F12.1,4X,2F12.1/
4089          3 0X,04FUSELAGE,7X,2F12.1,4X,F12.1,4X,2F12.1/
4090          4 0X,04MAIN GEAR,6X,2F12.1,4X,F12.1,4X,2F12.1/
4091          5 0X,04SIDE GEAR,6X,2F12.1,4X,F12.1,4X,2F12.1/
4092          6 0X,14ENGINE SECTION,1X,2F12.1,4X,F12.1,4X,2F12.1/
4093          7 0X,15HAIR IND. SYSTEM,2F12.1,4X,F12.1,4X,2F12.1)
4094          C
4095          000 CONTINUE
4096          C      TEST FOR 0, 2 OR 4 NACELLES
4097          C      IF 4 NACELLES, PYLONS INBOARD MAY BE DIFFERENT FROM
4098          C      OUTBOARD PYLONS
4099          I1 = 1
4100          S(51) = D(1)
4101          S(52) = D(2)
4102          IF(D(2) - D(1)) 702,770,770
4103          702 I1 = 2
4104          S(51) = D(10)
4105          S(52) = (D(13) - D(10))/D(2)
4106          770 S(50) = (DMNT(8) - D(2)*S(54) + S(50))*S(51)
4107          S(60) = (DMNT(8)*DMNT(9) - D(2)*S(54)*(D(13) + S(74)) -
4108          1 D(2)*S(50)*(D(13) + S(74)))/S(51)
4109          DMNT(201) = S(50) + D(2)*S(54)
4110          DMNT(201) = (S(50)*S(50) + S(52) + D(2)*S(54) +
4111          1 (D(13) + S(74))/DMNT(201)
4112          IF(1 - I1) 070,000,000
4113          070 DMNT(201) = S(50) + D(2)*S(54)
4114          DMNT(201) = (S(50)*S(50) - S(52) + D(2)*S(54) +
4115          1 (D(13) + S(74))/DMNT(201)
4116          000 CONTINUE
4117          IF(0P140)0001,0001,0002

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CARD NO      ****      CONTENTS      ****

9110          900) CONTINUE
9110          C      BREAKPOINT OUTPUT
9120          WRITE(6,1000)
9121          1000 FORMAT(1X,3X,11X 5-REGION,4X,21X** QUIKIE - (P(44) **))
9122          DO 1004 N=1,100,5
9123          K = N + 5
9124          WRITE(6,1002) N,(51:J),J=N,K,1)
9125          1002 FORMAT(4X,14,9F10.4)
9126          1004 CONTINUE
9127          9002 CONTINUE
9128          RETURN
9129          END

9130          C
9131          C *****
9132          C      SUBROUTINE SPQALT
9133          C *****
9134          C
9135          SUBROUTINE SPQALT      00020010
9136          C      WRITTEN 20 MARCH 1972      00020020
9137          C      TO DETERMINE ATMOSPHERIC PROPERTIES FOR 9 POINTS ON V-A DIAGRAM      00020030
9138          C      00020040
9139          COMMON TCOM(420)
9140          COMMON /IPRINT/ IP(80)
9141          COMMON /MISC/ MISC(100)
9142          C      00020050
9143          DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
9144          DIMENSION OD(120),OOD(30)
9145          DIMENSION DATH(40)      00020060
9146          DIMENSION EQU(200)      00020070
9147          DIMENSION TITLE(16)
9148          DIMENSION ALT(10),TEMP(10),PO(10),G(10),CS(10),RND(10)      00020110
9149          DIMENSION WH(10),VL(10),GH(10),QL(10),EPH(10),EPL(10),      00020120
9150          IRATH(10),RATL(10),TEPH(10),TEPL(10),PTH(10),PTL(10),PSH(10),      00020130
9151          SPPL(10)      00020140
9152          DIMENSION DVB(440),TOT(20)
9153          C      00020160
9154          EQUIVALENCE (D(1),TCOM(1)),(OD(1),TCOM(70)),(DV(1),TCOM(140)),
9155          I (S(1),TCOM(372)),(ND(1),TCOM(412))
9156          EQUIVALENCE (D(8),EQU(1))      00020190
9157          EQUIVALENCE (OD(1),OD(1)),(OOD(1),OOD(2))
9158          EQUIVALENCE (DATH(1),OD(5))
9159          EQUIVALENCE (DATH(3),DVL0),(DATH(32),RAT0)      00020210
9160          EQUIVALENCE (TITLE(1),MISC(85))
9161          EQUIVALENCE (S(1),TEMP(1)),(S(2),PRESH),(S(4),ALT)
9162          EQUIVALENCE (ALT(1),DV(1)),(TEMP(1),DV(1)),(PO(1),DV(2)),
9163          I (G(1),DV(3)),(CS(1),DV(4)),(RND(1),DV(5))
9164          EQUIVALENCE (WH(1),DV(6)),(VL(1),DV(7)),(GH(1),DV(8)),
9165          I (QL(1),DV(9)),(EPH(1),DV(10)),(EPL(1),DV(11)),
9166          2 (IRATH(1),DV(12)),(IRATL(1),DV(13)),(TEPH(1),DV(14)),
9167          3 (TEPL(1),DV(15)),(PTH(1),DV(16)),(PTL(1),DV(17)),
9168          4 (PSH(1),DV(18)),(SPPL(1),DV(19))
9169          EQUIVALENCE (DVB(1),DV(43)),(TOT(1),DVB(36))
9170          EQUIVALENCE (ND(18),1),(ND(182),J)      00020330
9171          C      00020340
9172          DO 20 I=1,5      00020350
9173          2 IF (DATH(I)=10) 4,6,10      00020360
9174          4 DATH(I+10) = D(I) - DATH(I+10)      00020370
9175          DO 10 I      00020380
9176          6 DATH(I+10) = DVL0      00020390
9177          IF (DVL0) 2,10,10      00020400
9178          10 J = 2*I - 1      00020410
9179          ALT(J) = DATH(I+5)      00020420
9180          WH(J) = DATH(I)      00020430
9181          IF (DATH(I+10) = 0(1)) 12,16,16      00020440
9182          12 VL(J) = WH(J) + DATH(I+10)      00020450
9183          GO TO 20      00020460
9184          16 VL(J) = WH(J)+DATH(I+10)      00020470
9185          20 CONTINUE      00020480
9186          C      INTERPOLATE FOR INTERMEDIATE ALTITUDES      00020490
9187          DO 40 I=1,4      00020500
9188          J = I+2      00020510

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CARD NO	****	CONTENTS	****
4109		ALT(J) = (ALT(J-1) + ALT(J+1))/D(2)	00020520
4100		90 CONTINUE	00020530
4101	C	DEVELOP ATMOSPHERIC TABLES - 0 ALTITUDES	00020540
4102		DO 100 I=1,9	00020550
4103		ALT(I) = ALT(1)	
4104		CALL TEMPRE	00020560
4105		TEMP(I) = TEMP(1)	00020570
4106		PO(I) = PRES(1)	00020580
4107		O(I) = O(20) - ALT(I)*EQU(21)	00020590
4108		RHO(I) = PO(I)/TEMP(I)*EQU(22)	00020600
4109		CS(I) = (EQU(23)*O(I)*EQU(22)+TEMP(I))**.5	00020610
4200		100 CONTINUE	00020620
4201	C	DETERMINE DYNAMIC PRESSURE AT INITIAL POINTS	00020630
4202		DO 120 I=1,5	00020640
4203		J = 2*I - 1	00020650
4204		QH(J) = RHO(J)/G(J)/D(2)**(WH(J)*CS(J))**.2	00020660
4205		QL(J) = RHO(J)/G(J)/D(2)**(ML(J)*CS(J))**.2	00020670
4206		120 CONTINUE	00020680
4207	C	DETERMINE SPEED AND DYNAMIC PRESSURE AT INTERMEDIATE POINTS	00020690
4208	C	STRAIGHT LINE INTERPOLATION ON DYNAMIC PRESSURE	00020700
4209		DO 140 I=1,4	00020710
4210		J = I*2	00020720
4211		IF (WH(J-1) - WH(J+1)) 132,130,132	00020730
4212		130 WH(J) = WH(J-1)	00020740
4213		QH(J) = RHO(J)/G(J)/D(2)**(WH(J)*CS(J))**.2	00020750
4214		GO TO 134	00020760
4215		132 QH(J) = (QH(J-1) + QH(J+1))/D(2)	00020770
4216		WH(J) = (D(2)*QH(J)*G(J)/RHO(J))**.5/CS(J)	00020780
4217		134 IF (ML(J-1) - ML(J+1)) 130,136,130	00020790
4218		136 ML(J) = ML(J-1)	00020800
4219		QL(J) = RHO(J)/G(J)/D(2)**(ML(J)*CS(J))**.2	00020810
4220		GO TO 140	00020820
4221		130 QL(J) = (QL(J-1) + QL(J+1))/D(2)	00020830
4222		ML(J) = (D(2)*QL(J)*G(J)/RHO(J))**.5/CS(J)	00020840
4223		140 CONTINUE	00020850
4224	C	DETERMINE PRESSURE RECOVERY AND FLOW RATE AT ENGINE FACE	00020860
4225	C	9 POINTS	00020870
4226		DO 400 I=1,5	00020880
4227		J = 2*I - 1	00020890
4228		IF (DATH(I+15)) 162,162,100	00020900
4229		162 IF (RATG) 184,184,200	00020910
4230		184 IF (WH(J) - D(1)) 166,166,160	00020920
4231		166 RATH(J) = D(1)	00020930
4232		GO TO 170	00020940
4233		160 RATH(J) = D(1) - EQU(24)*(WH(J) - D(1))**EQU(25)	00020950
4234		170 IF (ML(J) - D(1)) 172,172,174	00020960
4235		172 RATL(J) = D(1)	00020970
4236		GO TO 176	00020980
4237		174 RATL(J) = D(1) - EQU(24)*(ML(J) - D(1))**EQU(25)	00020990
4238		176 IF (J - 0) 178,300,300	00021000
4239		178 IF (WH(J+1) - D(1)) 180,180,182	00021010
4240		180 RATH(J+1) = D(1)	00021020
4241		GO TO 184	00021030
4242		182 RATH(J+1) = D(1) - EQU(24)*(WH(J+1) - D(1))**EQU(25)	00021040
4243		184 IF (ML(J+1) - D(1)) 186,186,188	00021050
4244		186 RATL(J+1) = D(1)	00021060
4245		GO TO 300	00021070
4246		180 RATL(J) = D(1) - EQU(24)*(ML(J) - D(1))**EQU(25)	00021080
4247		GO TO 300	00021090
4248		180 RATH(J) = DATH(I+15)	00021100
4249		RATL(J) = DATH(I+20)	00021110
4250		181 IF (I - J) 182,300,300	00021120
4251		182 RATH(J-1) = (RATH(J-2) + RATH(J))/D(2)	00021130
4252		RATL(J-1) = (RATL(J-2) + RATL(J))/D(2)	00021140
4253		GO TO 300	00021150
4254		200 RATH(J) = RATH	00021160
4255		RATL(J) = RATL	00021170
4256		GO TO 181	00021180
4257	C		00021190
4258		300 IF (DATH(I+25)) 310,310,350	00021200
4259		310 EPH(J) = EQU(26)	00021210

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CARD NO ***** CONTENTS *****
4850 DEL(J) = EQU(20) 00021220
4851 IF(MH(J) - 0(1)) 312,312,320 00021230
4852 312 DMH(J) = EQU(27) 00021240
4853 320 IF(ML(J) - 0(1)) 322,322,330 00021250
4854 322 DEL(J) = EQU(27) 00021260
4855 330 IF(I - J) 332,332,400 00021320
4856 332 DMH(J-1) = (DMH(J-2) + DMH(J))/0(2) 00021330
4857 DEL(J-1) = (DEL(J-2) + DEL(J))/0(2) 00021340
4858 GO TO 400 00021350
4859 300 DMH(J) = BATH(1+25) 00021360
4870 DEL(J) = BATH(1+25) 00021370
4871 GO TO 330 00021380
4872 400 CONTINUE 00021390
4873 S(1) = EQU(23)/(EQU(23) - 0(1)) 00021400
4874 S(2) = (EQU(23) - 0(1))/0(2) 00021410
4875 C DETERMINE RAM TEMPERATURE, TOTAL AND STATIC PRESSURE 00021420
4876 DO 500 I=1,9 00021430
4877 TEM(I) = TEM(1)+0(1) + S(2)*MH(I)**2 00021440
4878 TEML(I) = TEM(1)+0(1) + S(2)*ML(I)**2 00021450
4879 PTH(I) = PO(1)+RATH(1)+0(1) + S(2)*MH(I)**2**S(1)/0(17) 00021460
4880 PTL(I) = PO(1)+RATL(1)+0(1) + S(2)*ML(I)**2**S(1)/0(17) 00021470
4881 PSH(I) = PTH(I)/I(0(1) + S(2)*MH(I)**2**S(1)) 00021480
4882 PSL(I) = PTL(I)/I(0(1) + S(2)*ML(I)**2**S(1)) 00021490
4883 500 CONTINUE 00021500
4884 C ADDED CAPABILITY FOR DETERMINING CABIN PRESSURE AND CYCLES
4885 ALT = BATH(30)
4886 CALL TEMPRE
4887 TOT(10) = (PRESM - PO(0))/0(17)
4888 S(5) = 0(1)
4889 IF(00(1)) - 0(13) 503,503,505
4890 503 S(5) = 0(6)
4891 505 IF(000(0)) 507,507,509
4892 507 000(0) = EQU(05)*S(5)
4893 508 TOT(17) = 000(0)
4894 IF(IP(2))5001,5001,5002
4895 C BREAKPOINT OUTPUT 00021510
4896 5001 WRITE(6,1111)(TITLE(N),N=1,10) 00021530
4897 1111 FORMAT(1H,10X,21H** SPDALT - 1P(4) **/10X,8A10/10X,8A10)
4898 WRITE(6,60) 00021550
4899 60 FORMAT(1H,30X,37H*** SPEED ALTITUDE PROFILE TABLES *** 00021560
4900 1 //40X,10HSTANDARD ATMOSPHERE//15X,8HALTITUDE,3X, 00021570
4901 211HTEMPERATURE,5X,7HDENSITY,5X,8HPRESSURE,5X,10H,5X, 00021580
4902 31HVSPEED OF SOUND/17X,4HFEET,5X,11HDEG RANKINE,7X,3HPCF,10X, 00021590
4903 4HPSF,5X,8HFT/SEC 50,7X,8HFT/SEC) 00021600
4904 WRITE(6,62) (ALT(I),TEM(I),RHO(I),PO(I),0(1),CS(I),I=1,9) 00021610
4905 62 FORMAT(12X,F11.1,F12.3,5X,F10.7, F12.2,F11.3,F14.2) 00021620
4906 WRITE(6,64) 00021630
4907 64 FORMAT(//40X,13HPROFILE TABLE//4X, 00021640
4908 1NHALT.,3X,4HVIH),4X,4HDIH),3X,8HVE,2X,7HPTZ/PTO,2X, 00021650
4909 2HURAH T,4X,3HPTZ,4X,2HPE,4X,4HVL),4X,4HDL),3X,8HVE,2X, 00021660
4910 3HPTZ/PTO,2X,5HURAH T,4X,3HPTZ,4X,2HPE/4X, 00021670
4911 4HFEET,4X,2HVN,5X,3HPSF,4X,2HVN,11X,5HDEG R,4X,3HPS),4X,3HPS), 00021680
4912 5X,2HVN,5X,3HPSF,4X,2HVN,11X,5HDEG R,4X,3HPS),4X,3HPS)) 00021690
4913 WRITE(6,66) (ALT(I),MH(I),0H(I),DMH(I),RATH(I),TEMH(I),PTH(I), 00021700
4914 IPH(I),ML(I),0L(I),EML(I),RATL(I),TEML(I),PTL(I),PSL(I),I=1,9) 00021710
4915 66 FORMAT(F10.1,F6.2,F6.2,F7.4,F6.2,F7.2,F7.2,F7.2,F6.2,F6.2, 00021720
4916 IF7.4,F6.2,F7.2) 00021730
4917 4002 CONTINUE
4918 RETURN 00021740
4919 END
4920 C
4921 C
4922 C SUBROUTINE TEMPRE
4923 C
4924 C
4925 C SUBROUTINE TEMPRE 00030010
4926 C WRITTEN 20 MARCH 1972 00030020
4927 C SUBROUTINE TO DEVELOP TEMPERATURE AND PRESSURE AS WOULD BE 00030030
4928 C INDICATED BY AN ALTIMETER CALIBRATED IN GEOPOTENTIAL ALTITUDE 00030040
4929 C FOR U.S. STANDARD ATMOSPHERE, 1962. 00030050
4930 C
4931 C 00030060

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CARD NO	****	CONTENTS	****
4331		COMMON TCON(4320)	
4332	C		00030000
4333		DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)	
4334		DIMENSION EQU(200)	00030100
4335	C		00030120
4336		EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(70)),(DV(1),TCON(140)),	
4337		S(1),TCON(370)),(ND(1),TCON(412))	
4338		EQUIVALENCE (D(8),EQU(1))	00030150
4339		EQUIVALENCE (S(1),TEMPALT),(S(2),PRESM),(S(3),ALOFF),(S(4),ALTT)	00030170
4340	C		00030210
4341		ALOFF = ALTT/D(14)	00030220
4342	C	DEVELOP AMBIENT PRESSURE	00030230
4343		IF(ALOFF - EQU(1)) 30,30,20	00030240
4344		30 PRESM = EQU(2)*(D(1) - EQU(3))*ALOFF**EQU(4)	00030250
4345		GO TO 100	00030260
4346	C	ALTITUDE GREATER THAN 38000.230 FT.	00030270
4347		20 IF(ALOFF - EQU(5)) 30,30,40	00030280
4348	C	ALTITUDE BETWEEN 38000.230 AND 05616.00 FT.	00030290
4349		20 PRESM = EQU(7)/(EMP*IALOFF - EQU(11)/EQU(8))	00030300
4350		GO TO 100	00030310
4351		40 IF(ALOFF - EQU(8)) 50,50,55	00030320
4352	C	ALTITUDE BETWEEN 05616.00 AND 10488.00 FT.	00030330
4353		50 PRESM = EQU(9)*(D(1) + EQU(12))*ALOFF - EQU(5)/EQU(10)**	00030340
4354		EQU(11)	00030350
4355		GO TO 100	00030360
4356	C	ALTITUDE BETWEEN 10488.00 AND 15400.40 FT.	00030370
4357		55 PRESM = EQU(13)*(D(1) + EQU(14))*ALOFF - EQU(8)/EQU(15)**EQU(16)	00030380
4358		IF(ALOFF - EQU(17)) 100,100,57	00030390
4359		57 WRITE(6,60)	00030400
4360		60 FORMAT(1H0,6X,23H*** WARNING MESSAGE ***,16X,	00030410
4361		14N)ALTITUDE IS BEYOND VALID RANGE OF PRESSURE)	00030420
4362		100 CONTINUE	00030440
4363	C		00030450
4364	C	DEVELOP AMBIENT TEMPERATURE	00030460
4365		IF(ALOFF - EQU(1)) 110,125,120	00030470
4366	C	ALTITUDE BETWEEN SEA LEVEL AND 38000.230 FT	00030480
4367		110 TEMPALT = EQU(18) - EQU(19)*ALOFF	00030490
4368		GO TO 630	00030500
4369		120 IF(ALOFF - EQU(5)) 125,125,140	00030510
4370	C	ALTITUDE BETWEEN 38000.230 AND 05616.00 FT.	00030520
4371		125 TEMPALT = EQU(20)	00030530
4372		GO TO 630	00030540
4373		140 IF(ALOFF - EQU(8)) 145,100,100	00030550
4374	C	ALTITUDE BETWEEN 05616.00 AND 10488.00 FT	00030560
4375		145 TEMPALT = EQU(20) + EQU(12)*(ALOFF-EQU(5))	00030570
4376		GO TO 630	00030580
4377	C	ALTITUDE BETWEEN 10488.00 AND 15400.40 FT.	00030590
4378		100 TEMPALT = EQU(15) + EQU(14)*(ALOFF - EQU(8))	00030600
4379		IF(ALOFF - EQU(17)) 630,630,610	00030610
4380		610 WRITE(6,61)	00030620
4381		61 FORMAT(1H0,6X,23H*** WARNING MESSAGE *** ,16 ,	00030630
4382		14N)ALTITUDE IS BEYOND VALID RANGE OF TEMPERATURE)	00030640
4383		630 CONTINUE	00030650
4384		RETURN	00030660
4385		END	00030670
4386	C		
4387	C	
4388	C	SUBROUTINE ME10ST	
4389	C	
4390	C		
4391		SUBROUTINE ME10ST	
4392	C	SUBDIVIDED FROM ORIGINAL SU1KIC	
4393		COMMON TCON(4320)	
4394		COMMON /IPRINT/ IP(80)	
4395		DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)	
4396		DIMENSION EQU(200)	
4397		DIMENSION GD(120),GDHT(100),DATS(40),DWT(1000)	
4398		EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(70)),(DV(1),TCON(140)),	
4399		*,(S(1),TCON(370)),(ND(1),TCON(412))	
4400		EQUIVALENCE (GD(1),GD(1)),(GDHT(1),GD(8)),(DATS(1),GD(46))	
4401		*,(DWT(1),DV(112))	

CARD NO	CONTENTS
9402	EQUIVALENCE (EQU(1),D(81))
9403	EQUIVALENCE (1,ND(101)),(J,ND(102)),(II,ND(107))
9404	C LOCATE OPERATIONAL WEIGHT EMPTY ITEMS ACCORDING TO STRUCTURE
9405	710 DWT(101) = DWT(1)
9406	DWT(20) = DWT(51)
9407	DWT(2) = DWT(2)
9408	DWT(23) = DWT(52)
9409	DWT(24) = DWT(3)
9410	DWT(25) = DWT(53)
9411	DWT(101) = DWT(4)
9412	DWT(14) = DWT(94)
9413	IF(001(3)) 700,720,725
9414	700 DWT(102) = DWT(5)
9415	DWT(142) = DWT(55)
9416	GO TO 730
9417	725 DWT(102) = DWT(5)
9418	DWT(202) = DWT(55)
9419	730 DWT(103) = DWT(6)
9420	DWT(143) = DWT(56)
9421	C DISTRIBUTE SURFACE CONTROLS BETWEEN COMPONENTS
9422	C FIXED WING
9423	IF(DWT(7)) 752,752,731
9424	731 S(51) = EQU(133)
9425	S(52) = EQU(134)
9426	S(53) = EQU(135)
9427	S(54) = EQU(131)
9428	S(55) = EQU(132)
9429	IF(001(2)) 732,732,734
9430	732 S(51) = EQU(120)
9431	734 IF(001(4) - D(1)) 730,735,730
9432	730 S(52) = EQU(120)
9433	730 IF(001(5) - D(1)) 742,740,742
9434	740 S(53) = EQU(130)
9435	742 S(56) = D(1)/(S(51) + S(52) + S(53) + S(54) + S(55))
9436	DO 750 I=1,5
9437	S(I+50) = S(I+50)*S(56)
9438	750 CONTINUE
9439	DWT(103) = DWT(7)*S(51)
9440	DWT(203) = DWT(51)
9441	DWT(222) = DWT(7)*S(52)
9442	DWT(232) = DWT(52)
9443	DWT(242) = DWT(7)*S(53)
9444	DWT(252) = DWT(53)
9445	DWT(104) = DWT(7)*S(54)
9446	DWT(144) = DWT(8) - D(10)
9447	DWT(105) = DWT(7)*S(55)
9448	S(57) = DWT(7)*DWT(57)
9449	S(58) = DWT(103)*DWT(203) + DWT(222)*DWT(232) +
9450	1 DWT(242)*DWT(252) + DWT(104)*DWT(144)
9451	DWT(145) = (S(57) - S(58))/DWT(105)
9452	C WAGLE AND CONTENTS
9453	752 II = 1
9454	S(81) = D(1)
9455	S(82) = D(24)
9456	IF(D(2) - DATS(1)) 760,770,770
9457	760 II = 2
9458	S(81) = D(10)
9459	S(82) = (DATS(13) - DATS(10))/D(2)
9460	770 DO 780 I=1,7
9461	DWT(1+201) = DWT(1+0)*S(81)
9462	DWT(1+201) = DWT(1+50) + S(82)
9463	780 CONTINUE
9464	DWT(200) = DWT(10)*S(81)
9465	DWT(200) = DWT(80) + S(82)
9466	IF(001(6)) 782,782,784
9467	780 DWT(20) = DWT(20)*S(81)
9468	780 DWT(70) = S(82)
9469	780
9470	780 DWT(20) = DWT(20)
9471	780 DWT(70) = DWT(70)
9472	80 DWT(100) = DWT(8)

01/05/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD No	****	CONTENTS	****
4473		DWAT(146) = DWAT(88)	
4474	C	DISTRIBUTE FUEL SYSTEM ACCORDING TO FUEL DISTRIBUTION	
4475		S(53) = D(24)	
4476		GO 002 1=1.7	
4477		S(53) = S(53) + GDMT(1+03)	
4478		002 CONTINUE	
4479		S(56) = GDMT(04) + GDMT(05)	
4480		S(57) = GDMT(04)*GDMT(04) + GDMT(05)*GDMT(05)	
4481		DWAT(107) = DWAT(17)/S(53)*(S(53) - S(56))	
4482		DWAT(121) = DWAT(32)/S(53)*(S(53) - S(56))	
4483		DWAT(104) = DWAT(17)/S(53)*S(56)	
4484		DWAT(108) = DWAT(32)/S(53)*S(56)	
4485		IF(DWAT(107)) 010,010,012	
4486		010 DWAT(204) = DWAT(07)	
4487		GO TO 020	
4488		012 IF(DWAT(104)) 014,014,016	
4489		014 DWAT(147) = DWAT(07)	
4490		GO TO 020	
4491		016 DWAT(204) = S(57)/S(56)	
4492		DWAT(147) = (DWAT(17)*DWAT(07) - DWAT(104)*DWAT(204))/DWAT(107)	
4493		020 IF(DWAT(121)) 022,022,024	
4494		022 DWAT(206) = DWAT(02)	
4495		GO TO 050	
4496		024 IF(DWAT(108)) 026,026,028	
4497		026 DWAT(101) = DWAT(02)	
4498		GO TO 050	
4499		028 DWAT(206) = S(57)/S(56)	
4500		DWAT(101) = (DWAT(32)*DWAT(02) - DWAT(108)*DWAT(206))/DWAT(121)	
4501		050 DWAT(108) = DWAT(10)	
4502		DWAT(140) = DWAT(00)	
4503	C	DISTRIBUTE INSTRUMENTS	
4504		DWAT(105) = DWAT(21)*EQU(137)*S(56)/S(53)	
4505		IF(DWAT(105)) 050,050,052	
4506		052 DWAT(205) = S(57)/S(56)	
4507		050 DWAT(271) = DWAT(21)*EQU(137)*S(51)	
4508		DWAT(201) = DWAT(00) + S(52)	
4509		DWAT(110) = DWAT(21) - DWAT(105) - DWAT(21)*EQU(137)	
4510		IF(DWAT(110)) 052,052,051	
4511		051 DWAT(150) = (DWAT(21)*DWAT(71) - DWAT(105)*DWAT(205) -	
4512		DWAT(21)*EQU(137)*DWAT(00))/DWAT(110)	
4513	C	HYDRAULICS	
4514		052 IF(DWAT(22)) 054,054,053	
4515		053 DWAT(272) = DWAT(22)*EQU(139)*S(51)	
4516		DWAT(202) = DWAT(00) - DATS(12) - DATS(11)/D(2) + S(52)	
4517		DWAT(111) = DWAT(22)*(D(1) - EQU(130))	
4518		DWAT(151) = (DWAT(22)*DWAT(72) - DWAT(22)*EQU(139)*DWAT(202) -	
4519		S(52))/DWAT(111)	
4520	C	ELECTRICAL	
4521		054 IF(DWAT(23)) 056,056,055	
4522		055 DWAT(273) = DWAT(23)*EQU(140)*S(51)	
4523		DWAT(203) = DWAT(00) - DATS(12) - DATS(11)/D(2) + S(52)	
4524		DWAT(112) = DWAT(23)*(D(1) - EQU(140))	
4525		DWAT(152) = (DWAT(23)*DWAT(73) - DWAT(23)*EQU(140)*DWAT(203) -	
4526		S(52))/DWAT(112)	
4527	C	ELECTRONICS, ARRIVANT, AND FURNISHINGS	
4528		056 DWAT(113) = DWAT(24)	
4529		DWAT(153) = DWAT(74)	
4530		DWAT(114) = DWAT(25)	
4531		DWAT(154) = DWAT(75)	
4532		DWAT(115) = DWAT(26)	
4533		DWAT(155) = DWAT(76)	
4534	C	AIR CONDITIONING	
4535		IF(DWAT(27)) 058,058,057	
4536		057 DWAT(274) = DWAT(27)*EQU(141)*S(51)	
4537		DWAT(204) = DWAT(00) + S(52)	
4538		DWAT(116) = DWAT(27)*(D(1) - EQU(141))	
4539		DWAT(156) = (DWAT(27)*DWAT(77) - DWAT(27)*EQU(141)*DWAT(204))/	
4540		DWAT(116)	
4541	C	PHOTOGRAPHIC, AUXILIARY GEAR, AND OTHERS, AND CREW	
4542		058 DWAT(117) = DWAT(28)	
4543		DWAT(157) = DWAT(78)	

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CARD NO      ****      CONTENTS      ****
494          DWAT(110) = DWAT(29)
495          DWAT(115) = DWAT(79)
496          DWAT(119) = DWAT(30)
497          DWAT(199) = DWAT(80)
498          DWAT(120) = DWAT(31)
499          DWAT(180) = DWAT(81)
500          C      OIL
501          DWAT(275) = DWAT(33)*S(51)
502          DWAT(298) = DWAT(83) + S(52)
503          C      LIQUID NITROGEN, MISC. GUNS
504          DWAT(122) = DWAT(13)
505          DWAT(182) = DWAT(18)
506          DWAT(123) = DWAT(35)
507          DWAT(163) = DWAT(85)
508          DWAT(124) = DWAT(36)
509          DWAT(184) = DWAT(86)
510          C      WING PYLONS AND TANKS
511          DWAT(187) = DWAT(37)
512          DWAT(207) = DWAT(87)
513          DWAT(188) = DWAT(38)
514          DWAT(208) = DWAT(88)
515          C      FUSELAGE PYLONS AND TANKS
516          DWAT(125) = DWAT(39)
517          DWAT(185) = DWAT(89)
518          DWAT(126) = DWAT(40)
519          DWAT(186) = DWAT(90)
520          C      TEST FOR OUTBOARD MACELLES
521          IF(1 - 1) 870,900,900
522          870 DO 875 1+1,19
523          DWAT(1+301) = DWAT(1+261)
524          DWAT(1+321) = DWAT(1+281) - D(2)*S(52)
525          875 CONTINUE
526          900 CONTINUE
527          RETURN
528          END
529          C
530          C !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
531          C      SUBROUTINE MANGEO
532          C !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
533          C
534          SUBROUTINE MANGEO
535          C      WRITTEN 25 MAY 1972
536          C      TO DEVELOP VEHICLE GEOMETRY DATA IN FORM REQUIRED FOR OTHER MODU
537          C      LES
538          COMMON TCOM(420)
539          COMMON /MISC/ MISC(100)
540          DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
541          DIMENSION EQU(200)
542          DIMENSION OD(20),OD(80),X(10),Z(10)
543          DIMENSION ODH(50),ODH(40),ODV(40),DWH(50),DWH(30),DWH(30)
544          DIMENSION DWAT(1000)
545          DIMENSION X(16),Y(16)
546          EQUIVALENCE (D(1),TCOM(1)),(OD(1),TCOM(70)),(DV(1),TCOM(140)),
547          I (S(1),TCOM(372)),(ND(1),TCOM(412))
548          EQUIVALENCE (EQU(1),D(8))
549          EQUIVALENCE (OD(1),OD(1)),(OD(1),OD(38))
550          * , (X(1),OD(16)),(Z(1),OD(16))
551          EQUIVALENCE (ODH(1),OD(25)),(ODH(1),OD(30)),(ODV(1),OD(34)),
552          I (DWH(1),DV(32)),(DWH(1),DV(37)),(DWH(1),DV(40))
553          EQUIVALENCE (DWAT(1),DV(112))
554          EQUIVALENCE (I,ND(101)),(J,ND(102)),(K,ND(103)),(L,ND(107))
555          C      DEVELOP REFERENCE WING DATA
556          S(1) = (ODH(1)*ODH(2))**.5*D(2)
557          S(1) = D(2)*ODH(1)*D(17)/S(13)/D(1) + ODH(3)
558          S(2) = ODH(3)*S(1)
559          S(1) = TAN(ODH(4)*D(18))
560          S(2) = O(4)/ODH(2)*D(1) - ODH(3)/D(1) + ODH(3)
561          S(3) = S(1) + S(2)*ODH(5)
562          S(4) = S(1) + S(2)*ODH(5) - O(1)
563          S(5) = S(1) + S(2)*(ODH(5) - ODH(18))
564          S(6) = S(1) + S(2)*(ODH(5) - D(18))

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CARD NO      ****      CONTENTS      ****
4615          S(7) = D(2)/D(3)*(S(11) + S(12) - S(11)*S(12)/(S(11) + S(12)))
4616          S(14) = ATAN(S(3))/D(16)
4617          S(15) = ATAN(S(4))/D(16)
4618          S(16) = ATAN(S(5))/D(16)
4619          S(17) = ATAN(S(6))/D(16)
4620          S(18) = QDM(8)
4621          IF(QDM(8)) 10,10,20
4622          C      COMPUTE LEADING EDGE LOCATION FROM MAC LOCATION
4623          10 IF(S(11) - S(12)) 12,12,14
4624          12 S(18) = QDM(8) - S(11)/D(4)
4625          GO TO 20
4626          14 S(18) = QDM(8) - S(7)/D(4) - (S(11) - S(7))/(S(11) - S(12))*
4627          1 S(13)/D(2)*S(3)
4628          20 S(18) = QDM(18)
4629          DMM(2) = ATAN(S(6))/D(16)
4630          IF(S(11) - S(12)) 22,22,24
4631          22 DMM(3) = S(18) + S(11)/D(4)
4632          GO TO 26
4633          24 DMM(3) = S(18) + S(7)/D(4) + (S(11) - S(7))/(S(11) - S(12))*
4634          1 S(13)/D(2)*S(3)
4635          26 DMM(4) = S(7)
4636          DMM(5) = S(13)/D(2)
4637          DMM(6) = ATAN(S(3))/D(16)
4638          DMM(7) = S(18)
4639          DMM(8) = S(11)
4640          DMM(9) = S(12)
4641          S(35) = S(1) + S(2)*(QDM(5) - D(23))
4642          DMM(50) = ATAN(S(35))/D(16)
4643          C      TEST FOR INPUT CUTS
4644          IF(QDM(10)) 35,35,40
4645          C      COMPUTE Y FOR 11 CUTS
4646          35 S(8) = (S(13)/D(2) - QDM(7))/D(10)
4647          S(20) = QDM(7)
4648          S(28) = S(20) + EQU(66)*S(8)*D(10)
4649          DO 35 I=1,8
4650          S(1+20) = S(1+10) + S(8)
4651          36 CONTINUE
4652          GO TO 50
4653          40 DO 40 I=1,11
4654          S(1+10) = QDM(1+10) + COS(S(18)*D(16))
4655          IF(QDM(17)) 42,42,48
4656          42 S(1+10) = QDM(1+10)
4657          IF(QDM(1+10) - D(11)) 44,44,48
4658          44 S(1+10) = QDM(7) + (S(13)/D(2) - QDM(7))*QDM(1+10)
4659          48 CONTINUE
4660          C
4661          C      TEST FOR INPUT ERROR LAST CUT OUTBOARD OF TIP
4662          50 IF(S(30) .GT. S(13)/D(2)) S(30) = S(13)/D(2)
4663          C
4664          C      TRANSFER REFERENCE HING CUTS IN S(20-30) TO DVT(1001-1001)
4665          DO 52 I=1,11
4666          52 DMM(1+1000) = S(1+10)
4667          C
4668          C      TEST FOR VARIABLE SHEEP HING
4669          IF(QD(12))100,100,200
4670          C      FIXED HING - TRANSFER DATA TO DV REGION
4671          100 DMM(1) = QDM(7)
4672          DMM(2) = S(14)
4673          DMM(3) = S(16)
4674          DMM(4) = S(18)
4675          DMM(5) = S(11)
4676          DMM(6) = QDM(3)
4677          DMM(7) = QDM(2)
4678          DMM(8) = QDM(1)
4679          DMM(9) = S(13)/D(12)
4680          DO 110 I=1,11
4681          DMM(1+9) = S(1+10)
4682          110 CONTINUE
4683          DMM(21) = S(18)
4684          C      USE INPUT OR CALCULATED CUT NO 2 FOR FATIGUE
4685          DMM(130) = DMM(11)
    
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CARD NO      ****      CONTENTS      ****
4885          DMAT(395) = DM(4) + DM(11)*TAN(DM(2)*0.118) + DM(21)*DM(5)*
4887          I (D(1) - (D(1) - DM(18))*DM(11)/S(13)*0(2))
4888          DMAT(396) = DMAT(394)
4889          DMAT(397) = DMAT(395)
4890          GO TO 300
4891          C
4892          C      I1=1 IS AFT HIND POSITION  I1=2 IS FMD POSITION
4893          C
4894          200 I1 = 1
4895          DM(11) = DM(7)
4896          C
4897          202 J = 20*I1 - 19
4898          C
4899          DANGLE = 'DM(11+32) - DM(4) / 57.2958
4900          CDA = COS(DANGLE)
4901          SDA = SIN(DANGLE)
4902          C
4903          SSPAN = S(13) / 2.0
4904          C
4905          X(1) = S(18)
4906          X(2) = S(18) + S(11)
4907          X(3) = X(1) + SSPAN * TAN(S(14)/57.2958)
4908          X(4) = X(2) + SSPAN * TAN(S(15)/57.2958)
4909          C
4910          Y(1) = 0.0
4911          Y(2) = 0.0
4912          Y(3) = SSPAN
4913          Y(4) = SSPAN
4914          C
4915          VAR = X(1) + DM(16) + S(11)
4916          VAR1 = TAN(S(16)/57.2958)
4917          C
4918          DO 3000 N=5,15
4919          X(N) = VAR + VAR1 * SIN(N)
4920          3000 Y(N) = SIN(N)
4921          C
4922          X(16) = VAR + VAR1 * SSPAN
4923          Y(16) = SSPAN
4924          C
4925          DO 3010 N=1,16
4926          XPNT = X(N)
4927          YPNT = Y(N)
4928          X(N) = (XPNT-DM(32))*CDA + (YPNT-DM(31))*SDA + DM(32)
4929          3010 Y(N) = -(XPNT-DM(32))*SDA + (YPNT-DM(31))*CDA + DM(31)
4930          C
4931          XIP = X(1) - (X(1)-X(3)) * (Y(1)/(Y(1)-Y(3)))
4932          XBP = X(2) - (X(2)-X(4)) * (Y(2)/(Y(2)-Y(4)))
4933          XCP = X(3) + (X(1)-X(3)) * ((Y(16)-Y(3)) / (Y(1)-Y(3)))
4934          XNP = X(4) + (X(2)-X(4)) * ((Y(16)-Y(4)) / (Y(2)-Y(4)))
4935          C
4936          AREA = (XBP - XIP + XNP - XCP) * Y(16) / 144.0
4937          ROOTC = XIP - XIP
4938          TAPER = (XNP - XCP) / (XBP - XIP)
4939          SPAN = Y(16) / 8.0
4940          AR = SPAN**2 / AREA
4941          XOC = (X(16)-XCP) / (XNP-XCP)
4942          TAREA = ATAN((X(16)-X(5)) / (Y(16)-Y(5))) * 57.2958
4943          TABLE = ATAN((XCP-XIP) / Y(16)) * 57.2958
4944          C
4945          DM(J+20) = XOC
4946          DM(J+1) = TABLE
4947          DM(J+2) = TAREA
4948          DM(J+3) = XIP
4949          DM(J+4) = ROOTC
4950          DM(J+5) = TAPER
4951          DM(J+7) = AREA
4952          DM(J+8) = SPAN
4953          DM(J+8) = AR
4954          C
4955          DO 250 I=1,11
4956          K = J + I
    
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CARD NO      ****      CONTENTS      ****
4757      250 DWIK(8) = Y(14)
4758      C
4759      I = 2+11
4760      DWI(1+382) = DWIJ(18)
4761      DWI(1+383) = DWIJ(3) + DWIJ(18)*TAN(DWIJ+1)*D(18) +
4762      I DWIJ(20)*DWIJ(4)*D(1) - D(1) - DWIJ(5)*DWIJ(18)/Y(18)
4763      IF(1) - 1) 260,260,300
4764      C      DO FORWARD SHEEP
4765      260 II = 2
4766      GO TO 262
4767      C      VERTICAL STABILIZER
4768      300 S(8) = TAN(OOV(4)*D(18))
4769      S(82) = D(2)/GOV(2)*D(1) - OOV(3)/D(1) + OOV(3)
4770      S(83) = S(8) + S(82)*OOV(5)
4771      S(84) = S(8) + S(82)*OOV(5) - D(1)
4772      S(85) = S(8) + S(82)*OOV(5) - OOV(18)
4773      S(74) = S(8) + S(82)*OOV(5) - D(23)
4774      S(88) = (OOV(2)*OOV(1))**.5*D(12)
4775      S(66) = D(2)*GOV(1)*D(17)/S(68)/D(1) + OOV(3)
4776      S(87) = S(88)*OOV(3)
4777      S(89) = D(2)/D(3)*S(86) + S(87) - S(86)*S(87)/(S(86) + S(87))
4778      C      HORIZONTAL TAIL DATA
4779      S(8) = TAN(OOH(4)*D(18))
4780      S(82) = D(4)/OOH(2)*D(1) - OOH(3)/D(1) + OOH(3)
4781      S(83) = S(8) + S(82)*OOH(5)
4782      S(84) = S(8) + S(82)*OOH(5) - OOH(18)
4783      S(87) = (OOH(2)*OOH(1))**.5*D(12)
4784      S(95) = D(2)*OOH(1)*D(17)/S(97)/D(1) + OOH(3)
4785      S(86) = OOH(3)*S(95)
4786      S(88) = D(2)/D(3)*S(95) + S(86) - S(95)*S(86)/(S(95) + S(86))
4787      S(89) = OOH(8)
4788      S(10) = S(8) + S(82)*OOH(5) - D(23)
4789      IF(OOH(8)) 402,402,410
4790      402 IF(S(95) - S(86)) 404,404,408
4791      404 S(88) = OOH(8) - S(95)/D(4)
4792      GO TO 410
4793      408 S(88) = OOH(8) - S(88)/D(4) - (S(95) - S(86))/(S(95) - S(86))
4794      I S(97)/D(12)*S(93)
4795      410 DW(1) = D(24)
4796      S(70) = OOV(8)
4797      IF(OOV(8)) 302,302,305
4798      302 IF(S(66) - S(87)) 303,303,304
4799      303 S(70) = OOV(8) - S(88)/D(4)
4800      GO TO 305
4801      304 S(70) = OOV(8) - S(88)/D(4) - (S(86) - S(88))/(S(86) - S(87))
4802      I S(88)*S(82)
4803      305 DW(23) = D(1)
4804      DW(25) = S(88)
4805      IF(S(88) - S(87)) 306,306,307
4806      306 DW(24) = S(70) + S(88)/D(4)
4807      GO TO 308
4808      307 DW(24) = S(70) + S(88)/D(4) + (S(86) - S(88))/(S(86) - S(87))
4809      I S(88)*S(83)
4810      308 DW(27) = OOV(11) + S(88)
4811      DW(28) = S(70) + S(88)*S(83) + S(87)
4812      DW(29) = S(88)/D(12)
4813      DW(30) = S(88)
4814      IF(OOV(7)) 310,310,309
4815      309 DW(23) = D(2)
4816      310 IF(OOV(30)) 320,320,312
4817      C      VERTICAL IS ON MIND OR AFT OFFURELAGE
4818      312 DW(1) = ATAN(S(83)/D(18))
4819      DW(2) = ATAN(S(85)/D(18))
4820      DW(3) = S(78)
4821      DW(4) = S(88)
4822      DW(5) = OOV(3)
4823      DW(6) = OOV(2)
4824      DW(7) = OOV(1)
4825      DW(8) = S(88)/D(12)
4826      DW(9) = D(24)
4827      DW(88) = OOV(11)

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CARD NO      ****      COMMENTS      ****
4000          IF(DDV(10)) 313,313,310
4001          C          COMPUTE CUTS
4002          313 S(71) = S(00)/D(10)
4003          DNV(10) = D(24)
4004          314 DNV(20) = DNV(10) + (DU(00)*S(71)+D(10))
4005          DO 315 I=1,9
4006          DNV(I+10) = DNV(I+0) + S(71)
4007          315 CONTINUE
4008          GO TO 300
4009          316 DO 318 I=1,11
4010          IF(DDV(17)) 3161,3161,317
4011          3161 IF(DDV(I+10) - D(1)) 3163,3163,3165
4012          3163 DNV(I+0) = S(00)*DDV(I+10)
4013          GO TO 318
4014          3165 DNV(I+0) = DDV(I+10)
4015          GO TO 318
4016          317 DNV(I+0) = DDV(I+10)*COS(DW(2)*D(10))
4017          318 CONTINUE
4018          GO TO 300
4019          C          VERTICAL IS ON FUSELAGE DETERMINE EFFECTIVE SURFACE
4020          320 S(71) = S(70) + S(00)/D(2)
4021          S(72) = Z(10)
4022          IF(S(71) - X(10)) 322,312,312
4023          C          DETERMINE WATER PLANE OF FUSELAGE AT STATION S(71)
4024          322 I = 1
4025          324 IF(X(I) - S(71)) 326,330,330
4026          326 I = I+1
4027          GO TO 324
4028          330 S(72) = Z(I-1) + (Z(I) - Z(I-1))*(S(71) - X(I-1))/
4029          + (X(I) - X(I-1))
4030          C          TEST ON HORIZONTAL TAIL
4031          IF(DD(10)) 333,333,330
4032          C          HORIZONTAL TAIL ON FUSELAGE
4033          333 IF(S(70) - S(00) - S(05)) 334,334,330
4034          334 IF(DDH(11) - DDV(11)) 335,335,330
4035          335 S(72) = DDH(11)
4036          336 S(73) = DDV(11) - S(72)
4037          DNV(20) = S(72)
4038          DNV(0) = (S(00) + S(73))/D(12)
4039          DNV(4) = S(07) + (S(06) - S(07))*(S(00) + S(73))/S(00)
4040          DNV(1) = ATAN(S(03))/D(10)
4041          DNV(2) = ATAN(S(05))/D(10)
4042          DNV(3) = S(70) - S(73)*S(03)
4043          DNV(5) = S(07)/DNV(4)
4044          DNV(7) = (DNV(4) + S(07))/D(2)*(S(00) + S(73))/D(17)
4045          DNV(8) = DNV(8)**2/DNV(7)
4046          DNV(9) = S(73)
4047          IF(DDV(10)) 332,332,340
4048          332 DNV(10) = DNV(9)
4049          S(71) = S(00)/D(10)
4050          GO TO 314
4051          340 DO 349 I=1,11
4052          IF(DDV(17)) 341,341,347
4053          341 IF(DDV(I+10)-D(1)) 342,342,344
4054          342 DNV(I+0) = DDV(I+10) + S(00)*(DDV(11)-S(72))
4055          GO TO 349
4056          344 DNV(I+0) = DDV(I+10) + (DDV(11) - S(72))
4057          GO TO 349
4058          347 DNV(I+0) = DDV(I+10)*COS(DW(2)*D(10)) + (DDV(11)-S(72))
4059          349 CONTINUE
4060          C          TEST FOR INPUT ERROR LAST CUT OUTBOARD OF TIP
4061          300 IF(DNV(20) .GT. DNV(0)+D(12)) DNV(20) = DNV(0)+D(12)
4062          DNV(21) = DDV(10)
4063          DNV(22) = ATAN(S(74))/D(10)
4064          IF(DDV(30)) 414,414,420
4065          C          HORIZONTAL IS ON FUSELAGE OR VERTICAL
4066          414 IF(DD(10)) 420,420,410
4067          410 DNV(1) = DDH(11) - S(72)
4068          420 DNV(2) = ATAN(S(03))/D(10)
4069          DNV(3) = ATAN(S(05))/D(10)
4070          DNV(10) = DDH(17)

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CARD NO	****	CONTENTS	****
4000		DWH(11) = GDH(7)	
4001		DWH(21) = GDH(8)	
4002		DWH(23) = ATAN(S(1011)/D(10))	
4003		IF(GDH(30)) 421,421,440	
4004	C	GROSS DATA GIVEN	
4005	421	DWH(4) = S(90)	
4006		DWH(5) = S(95)	
4007		DWH(8) = GDH(3)	
4008		DWH(7) = GDH(2)	
4009		DWH(8) = GDH(1)	
4010		DWH(9) = S(97)/D(12)	
4011		IF(GDH(10)) 422,422,430	
4012	C	CALCULATE CUTS	
4013	422	S(100) = (S(97)/D(2) - GDH(7))/D(10)	
4014	423	DWH(21) = DWH(11) + (GDH(7)*S(100)*D(10))	
4015		DO 424 I=1,8	
4016		DWH(I+11) = DWH(I+10) + S(100)	
4017	424	CONTINUE	
4018		GO TO 500	
4019	C	CUTS ARE INPUT	
4020	430	DO 439 I=1,11	
4021		IF(GDH(17)) 431,431,437	
4022	431	IF(GDH(I+10) - D(I)) 433,433,435	
4023	433	DWH(I+10) = GDH(I+10)*S(97)/D(2) - GDH(7) + GDH(7)	
4024		GO TO 439	
4025	435	DWH(I+10) = GDH(I+10)	
4026		GO TO 439	
4027	437	DWH(I+10) = GDH(I+10)*COS(DWH(3)*D(10))	
4028	439	CONTINUE	
4029		GO TO 500	
4030	C	EXPOSED GEOMETRY GIVEN COMPUTE GROSS GEOMETRY	
4031	440	DWH(5) = S(96) + (S(95) - S(96))*S(97)/D(2) + GDH(7)/S(97)*D(2)	
4032		DWH(4) = S(99) - GDH(7)*S(93)	
4033		DWH(8) = S(96)/DWH(5)	
4034		DWH(8) = (S(96) + DWH(5))*S(97)/D(2) + GDH(7)/D(17)	
4035		DWH(8) = (S(97) + D(2)*GDH(7))/D(12)	
4036		DWH(7) = DWH(9)**2/DWH(8)	
4037		IF(GDH(10)) 442,442,450	
4038	C	CALCULATE CUTS	
4039	442	S(100) = S(97)/D(2)/D(10)	
4040		GO TO 423	
4041	C		
4042	450	DO 459 I=1,11	
4043		IF(GDH(17)) 451,451,457	
4044	451	IF(GDH(I+10) - D(I)) 453,453,455	
4045	453	DWH(I+10) = GDH(I+10) + S(97)/D(2) + GDH(7)	
4046		GO TO 459	
4047	455	DWH(I+10) = GDH(I+10) + GDH(7)	
4048		GO TO 459	
4049	457	DWH(I+10) = GDH(I+10)*COS(DWH(3)*D(10)) + GDH(7)	
4050	459	CONTINUE	
4051	C	TEST FOR INPUT ERROR LAST CUT OUTBOARD OF TIP	
4052	500	IF(DWH(21) GT DWH(9)+D(6)) DWH(21) = DWH(9)+D(6)	
4053	C	CALCULATE GROSS MAC DATA	
4054		DWH(27) = D(2)/D(3)*DWH(5)*D(11) + DWH(8) - DWH(8)/	
4055		I (D(1) + DWH(8))	
4056		(F(D(1) - DWH(8)) 502,502,504	
4057	502	DWH(28) = DWH(4) + DWH(5)/D(14)	
4058		GO TO 506	
4059	504	DWH(28) = DWH(4) + DWH(27)/D(14) + (DWH(5) - DWH(27))/	
4060		I (D(1) - DWH(8))*DWH(8)*D(6)/DWH(5)*S(93)	
4061	C	FOR SPINDLE USE EXPOSED MAC FOR BALANCE GO(14) = 2	
4062	C	FOR OTHER TYPES USE GROSS DATA GO(14) = 0.1	
4063	506	IF(D(14) - D(1)) 510,510,520	
4064	510	DWH(25) = DWH(27)	
4065		DWH(24) = DWH(28)	
4066		GO TO 530	
4067	520	(F(D(1) - DWH(8)) 522,522,524	
4068	522	DWH(24) = DWH(4) + DWH(5)/D(14)	
4069		DWH(25) = DWH(5)	
4070		GO TO 530	

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CARD NO      ****      CONTENTS      ****
4870      S(102) = (D11) - D(161)/D(16)
4871      S(103) = D(15)*(D11) - S(102)*D(16)
4872      S(104) = D(15)*D(16)/S(103)
4873      D(125) = D(2)/D(3)*S(103)*D(11) + S(104) - S(104)/(D11*S(104))
4874      D(124) = D(14) + D(125)/D(4) + (D(15) - D(125))/S(102)/
4875      * D(15)*S(103)
4876      C
4877      C      **** STORE THE AR, SHEEP OF THE .25 CHORD, AND TR IN      ****
4878      C      **** ARRAY XHISC      ****
4879      C
4880      C
4881      C      **** MIND FINED OR AFT      ****
4882      C      S30 XHISC(12) = D(17)
4883      C      VAR = D(4)*D(11) - D(161)/(D11) + D(161)/D(17)
4884      C      XHISC(13) = ATAN(TAN(D(12)*D(16)) - VAR*D(23)/D(16))
4885      C      XHISC(14) = D(16)
4886      C
4887      C      **** HORIZONTAL TAIL      ****
4888      C      XHISC(16) = D(17)
4889      C      XHISC(17) = D(123)
4890      C      XHISC(18) = D(16)
4891      C
4892      C      **** VERTICAL TAIL      ****
4893      C      XHISC(20) = D(12)*D(2)
4894      C      XHISC(21) = D(122)
4895      C      XHISC(22) = D(13)
4896      C
4897      C      IF(D(12)) S99,999,540
4898      C
4899      C      **** STORE THE AR, SHEEP OF THE .25 CHORD, AND TR WITH THE ***
4900      C      **** MIND FORWARD IN ARRAY XHISC      ****
4901      C
4902      C      S40 XHISC(25) = D(127)
4903      C      VARF = D(4)*D(11) - D(126)/(D11) + D(126)/D(127)
4904      C      XHISC(26) = ATAN(TAN(D(12)*D(16)) - VARF*D(23)/D(16))
4905      C      XHISC(27) = D(126)
4906      C      S80 CONTINUE
4907      C      RETURN
4908      C      END
4909      C
4910      C      !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
4911      C      SUBROUTINE XHISCST
4912      C      !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
4913      C
4914      C      SUBROUTINE XHISCST
4915      C
4916      C      WRITTEN 10 JULY 1972
4917      C      TO DISTRIBUTE MIND AND CONTENTS AND DETERMINE INERTIAS
4918      C
4919      C      COMMON TCOM(4320)
4920      C
4921      C      DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
4922      C
4923      C      DIMENSION OD(120),ODM(160),ODM(50)
4924      C
4925      C      DIMENSION D(150),D(1000)
4926      C      DIMENSION Y(113),Y(112),D(112),CB(112),L(112),U(112),V(112),L(112)
4927      C
4928      C      DIMENSION XLM(12)
4929      C
4930      C      DIMENSION X(1012),Y(1012),X(2012),Y(2012)
4931      C      DIMENSION M(112),X(112),M(112),X(112),M(112),X(112),M(112),X(112),
4932      C      1 M(112),X(112),M(112),X(112),Y(112),Y(112),
4933      C      2 X(112),X(112),Y(112),Y(112),X(112),X(112),
4934      C      3 Y(112),Y(112),Y(112),Y(112),Y(112),Y(112)
4935      C
4936      C      DIMENSION D(112),X(112),X(112),X(112),Y(112),Y(112)
4937      C
4938      C      EQUIVALENCE (D(1),TCOM(1)),(D(1),TCOM(701)),(D(1),TCOM(1401)),
4939      C      1 (D(1),TCOM(1371)),(D(1),TCOM(1421))
4940      C
    
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CARD NO      ****      CONTENTS      ****

9041      EQUIVALENCE (DWH(1),DV(32)),(DWT(1),DV(12))
9042      1, (D(1),D(1)), (DCH(1),D(9)), (DCH(1),D(25))
9043      C
9044      EQUIVALENCE (YH(1),DWT(38)),(YBH(1),DWT(40)),
9045      1 (DYM(1),DWT(43)),(CBH(1),DWT(25)),(UX(1),DWT(37)),
9046      2 (UY(1),DWT(49)),(UZ(1),DWT(46))
9047      C
9048      EQUIVALENCE (RLM(1),S(16))
9049      C
9050      EQUIVALENCE (HMT(1),DWT(47)),(XBM(1),DWT(48)),
9051      1 (HMT(1),DWT(47)),(XBM(1),DWT(48)),(HMT(1),DWT(52)),
9052      2 (HBM(1),DWT(53)),(HMT(1),DWT(49)),(XBM(1),DWT(55)),
9053      3 (H(1),DWT(56)),(X(1),DWT(58)),(Y(1),DWT(59)),
9054      4 (Y(2),DWT(60)),(X(2),DWT(61)),(X(2),DWT(62)),
9055      5 (Y(2),DWT(64)),(Y(2),DWT(65)),(X(3),DWT(66)),
9056      6 (X(3),DWT(67)),(Y(3),DWT(68)),(Y(3),DWT(70)),
9057      7 (Y(2),DWT(71)),(Y(2),DWT(72)),(Y(2),DWT(73)),(Y(2),DWT(73)),
9058      8 (Y(2),DWT(74))
9059      C
9060      EQUIVALENCE (YB(1),DWT(40)),(XB(1),DWT(43)),
9061      1 (YB(1),DWT(25)),(XB(1),DWT(48))
9062      C
9063      EQUIVALENCE (DWH(1),DWT(87)),(XDM(1),DWT(88)),
9064      1 (XDM(1),DWT(89)),(XDM(1),DWT(90)),
9065      2 (YDM(1),DWT(90)),(YDM(1),DWT(93))
9066      C
9067      EQUIVALENCE (I,ND(10)),(J,ND(10)),(K,ND(10)),(L,ND(10)),
9068      1 (N,ND(10)),(I,ND(10)),(J,ND(10))
9069      C
9070      C      DEVELOP SECTION CUTS FOR DEAD HEIGHT DISTRIBUTION AND INERTIA
9071      C      ROOT, 11 SYNTHESIS CUTS, TIP
9072      YH(1) = D(2)
9073      YH(3) = DWH(5)
9074      DO 120 I=2,12
9075      YH(I) = DWT(1+85)
9076      120 CONTINUE
9077      C
9078      DO 140 I=1,12
9079      YBH(I) = (YH(I) + YH(I+1))/2
9080      DYM(I) = YH(I) - YH(I)
9081      CBH(I) = DWH(4) - (DWH(4) - DWH(5))*YBH(I)/DWH(5)
9082      RLM(I) = DWH(7) + YBH(I)*TAN(DWH(6)*D(16))
9083      S(1) = DYM(I)**2
9084      S(2) = (CBH(I)*D(8)/D(10))**2
9085      S(3) = (CBH(I)*D(12)*D(8)/D(10))**2
9086      U(1) = (S(1) + S(3))/D(12)
9087      U(2) = (S(2) + S(3))/D(12)
9088      U(3) = (S(1) + S(2))/D(12)
9089      140 CONTINUE
9090      C
9091      C
9092      C      DISTRIBUTE WIND ACCORDING TO PARABOLIC DISTRIBUTION
9093      S(1) = DWT(18)*D(20)
9094      S(2) = DWT(18)*DWT(20)
9095      S(5) = S(1)/DWH(5)*D(20)
9096      HMT(1) = S(1) - S(5)*(DWH(5) - YH(2))*D(20)
9097      S(3) = HMT(1)*RLM(1)
9098      S(4) = HMT(1)*CBH(1)
9099      C
9100      DO 150 I=2,12
9101      HMT(I) = S(5)*(DWH(5) - YH(I))*D(20) -
9102      1 S(5)*(DWH(5) - YH(I+1))*D(20)
9103      S(3) = S(3) + HMT(I)*RLM(I)
9104      S(4) = S(4) + HMT(I)*CBH(I)
9105      150 CONTINUE
9106      C
9107      S(6) = (S(2) - S(3))/S(4)
9108      DO 154 I=1,12
9109      HBM(I) = RLM(I) + S(6)*CBH(I)
9110      154 CONTINUE
9111      C

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01/08/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

0112      C
0113      C      DISTRIBUTE WING CONTENTS ACCORDING TO PARABOLIC DIST.
0114      C      S(1+120) = FIXED HEIGHT
0115      C      S(1+140) = X-CO
0116      C
0117      S(1) = D(24)
0118      S(2) = D(24)
0119      C
0120      DO 100 I=3,10
0121      S(1) = S(1) + DWT(1+100)
0122      S(2) = S(2) + DWT(1+100) + DWT(1+200)
0123      100 CONTINUE
0124      C
0125      S(5) = S(1) / D(W(45)) * D(20)
0126      S(121) = S(1) - S(5) * D(W(45)) - YW(21) * D(20)
0127      S(3) = S(121) * XLM(11)
0128      S(4) = S(121) * CBW(11)
0129      C
0130      DO 104 I=2,12
0131      S(1+120) = S(5) * D(W(45)) - YW(11) * D(20) -
0132      I S(5) * D(W(45)) - YW(11) * D(20)
0133      S(3) = S(3) + S(1+120) * XLM(11)
0134      S(4) = S(4) + S(1+120) * CBW(11)
0135      104 CONTINUE
0136      C
0137      S(8) = (S(2) - S(3)) / S(4)
0138      C
0139      DO 100 I=1,12
0140      S(1+140) = XLM(11) + S(8) * CBW(11)
0141      100 CONTINUE
0142      C
0143      C
0144      C      TEST FOR LANDING GEAR ON WING
0145      IF(DWT(182)) 100,100,170
0146      C      SCAN WING CUTS FOR LOCATION
0147      170 I = 1
0148      172 IF(YBW(11) - GD(40)) 174,170,170
0149      174 I = I+1
0150      IF(I2 - I) 176,172,172
0151      176 I = I-1
0152      170 J = I-1
0153      IF(J) 100,100,102
0154      100 J = I
0155      S(J+20) = DWT(182)
0156      GO TO 103
0157      102 S(1+20) = DWT(182) * (GD(40) - YBW(J)) / (YBW(11) - YBW(J))
0158      S(J+20) = DWT(182) - S(1+20)
0159      103 S(14) = D(24)
0160      S(15) = D(24)
0161      C
0162      DO 104 L=J,1
0163      S(14) = S(14) + S(L+20) * XLM(L)
0164      S(15) = S(15) + S(L+20) * CBW(L)
0165      104 CONTINUE
0166      C
0167      S(16) = (DWT(182) * DWT(202) - S(14)) / S(15)
0168      C
0169      DO 100 L=J,1
0170      S(L+40) = XLM(L) + CBW(L) * S(16)
0171      IF(S(L+120) + S(L+20)) 105,100,105
0172      105 S(L+140) = (S(L+120) * S(L+140) + S(L+20) * S(L+40)) /
0173      I (S(L+120) + S(L+20))
0174      S(L+120) = S(L+120) + S(L+20)
0175      100 CONTINUE
0176      C
0177      100 CONTINUE
0178      C
0179      C
0180      C      DISTRIBUTE WING PAYLOAD
0181      C      I = GROSS WEIGHT COUNTER      JJ = PAYLOAD COUNTER
0182      I = 1

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CARD NO      *****      CONTENTS      *****
0103          S(1) = GDMT(122)
0104          S(2) = GDMT(132)
0105          S(3) = GDMT(142)
0106          S(4) = GDMT(124)
0107          S(5) = GDMT(134)
0108          S(6) = GDMT(144)
0109          S(7) = GDMT(125)
0110          S(8) = GDMT(135)
0111          S(9) = GDMT(145)
0112          100 S(11) = D(11)/D(2)
0113          K = 1
0114          IF(GDMT(104)) 104,104,200
0115          104 S(11) = D(11)
0116          C
0117          C      CLEAR SCRATCH REGION
0118          C
0119          200 DO 205 I=1,20
0120          S(I+20) = D(24)
0121          S(I+40) = D(24)
0122          205 CONTINUE
0123          C
0124          IF(GDMT(82)*S(11)) 300,300,220
0125          C      DISTRIBUTE WING PAY LOAD - TEST ON INBOARD OR OUTBOARD PAYLOAD
0126          220 S(12) = GDMT(82)*S(11)*S(11)
0127          S(13) = GDMT(K+102)
0128          S(17) = GDMT(92)
0129          IF(S(11) - D(11)) 222,251,251
0130          222 S(19) = ((GDMT(104) - GDMT(103))*TAN(DM(46)*D(16)))/D(2)
0131          S(17) = GDMT(92) - S(19)
0132          S(18) = GDMT(92) + S(19)
0133          C      SCAN WING CUTS FOR LOCATION
0134          251 I = 1
0135          252 IF(YB(I) - S(13)) 254,250,250
0136          254 I = I + 1
0137          IF(I2 - 1)256,252,252
0138          256 I = I - 1
0139          258 J = I - 1
0140          IF(J) 260,260,262
0141          260 J = 1
0142          S(J+60) = S(12)
0143          60 TO 270
0144          262 S(I+60) = S(12)*(S(13) - YB(J))/(YB(I) - YB(J))
0145          S(J+60) = S(12) - S(I+60)
0146          270 S(14) = D(24)
0147          S(15) = D(24)
0148          C
0149          DO 276 L=J,1
0150          S(14) = S(14) + S(L+60)*XLM(L)
0151          S(15) = S(15) + S(L+60)*CBM(L)
0152          276 CONTINUE
0153          C
0154          S(18) = (S(12)*S(K+10) - S(14))/S(15)
0155          C
0156          DO 278 L = J,1
0157          S(L+60) = XLM(L) + CBM(L)*S(18)
0158          IF(S(L+20) + S(L+60)) 274,276,274
0159          274 S(19) = (S(L+20)*S(L+40) + S(L+60)*S(L+60))/(S(L+20) + S(L+60))
0160          S(L+20) = S(L+20) + S(L+60)
0161          S(L+40) = S(19)
0162          278 CONTINUE
0163          C
0164          C
0165          C
0166          IF(K - 1) 200,200,300
0167          200 IF(S(11) - D(11)) 202,300,300
0168          202 K = K + 1
0169          GO TO 200
0170          C      DISTRIBUTE WING FUEL K = 1 INBD K = 2 OUTBD
0171          300 K = 1
0172          302 JJ = 1 + K*3
0173          IF(GDMT(K+62)*S(JJ)) 400,400,300

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CARD NO      ****      CONTENTS      ****
0274      300 S(11) = ODMT(K+03)*S(1,J)
0275      I = 2*4
0276      S(12) = ODMT(1+103)
0277      S(13) = ODMT(1+104)
0278      IF(YM(13) - S(12)) 310,314,314
0279      310 WRITE(6,312)
0280      312 FORMAT(1M0,20X,3PERROR 1M0 FUEL RIB IS OUTRD OF TIP)
0281      I = 12
0282      J = 13
0283      GO TO 340
0284      314 I = 1
0285      302 IF(YM(1) - S(12)) 324,330,320
0286      324 I = I + 1
0287      GO TO 322
0288      326 IF(YM(1)-1) .GT. S(12)) I = I - 1
0289      330 J = 1
0290      332 IF(YM(J) - S(13)) 334,340,336
0291      334 J = J + 1
0292      IF(I3 - J) 330,332,332
0293      336 IF(S(13) - YM(J-1)) 330,340,340
0294      338 J = J - 1
0295      340 N = J - 1
0296      S(14) = D(24)
0297      DO 342 L=1,N
0298      C      DISTRIBUTE FUEL ACCORDING TO WING VOLUME
0299      S(L+100) = DYM(L)*CBW(L)*(D(1) - D(1)) - ODM(3)*ODM(13)*
0300      I YMW(L)/DMW(45))
0301      S(14) = S(14) + S(L+100)
0302      342 CONTINUE
0303      C
0304      DO 344 L=1,N
0305      S(L+80) = S(11)*S(L+100)/S(14)
0306      344 CONTINUE
0307      C
0308      S(15) = D(24)
0309      S(16) = D(24)
0310      C
0311      DO 350 L=1,N
0312      S(15) = S(15) + S(L+80)*LM(L)
0313      S(16) = S(16) + S(L+80)*CBW(L)
0314      350 CONTINUE
0315      C
0316      S(17) = (S(11)*ODMT(K+03) - S(15))/S(16)
0317      DO 354 L=1,N
0318      S(L+80) = LM(L) + CBW(L)*S(17)
0319      IF(S(L+20) + S(L+80)) 352,354,352
0320      352 S(18) = (S(L+20)*S(L+40) + S(L+80)*S(L+80))/(S(L+20) + S(L+80))
0321      S(L+40) = S(18)
0322      S(L+20) = S(L+20) + S(L+80)
0323      354 CONTINUE
0324      400 IF(K - 1) 402,402,450
0325      402 K = K + 1
0326      GO TO 302
0327      C
0328      C
0329      C      SETUP DEAD WEIGHT DISTRIBUTION ARRAYS
0330      450 GO TO(460,470,480),11
0331      C
0332      C      MAXIMUM DESIGN HEIGHT ARRAY
0333      460 11 = 2
0334      C
0335      DO 405 I=1,12
0336      405 11(1) = 11(1) + S(1+20) + S(1+20)
0337      IF(11(1)) 402,405,402
0338      402 11(1) = 11(1)*11(1) + S(1+20)*S(1+10) + S(1+20)*S(1+40)/
0339      I 11(1)
0340      405 CONTINUE
0341      C
0342      GO TO 100
0343      C
0344      C      BASIC FLIGHT DESIGN HEIGHT ARRAY

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CARD NO      ****      CONTENTS      ****
9325         470 I1 = 3
9326         C
9327         DO 475 I=1,12
9328         WMT2(I) = WMT(I) + S(I)*120 + S(I)*20
9329         IF(WMT2(I)) 472,475,472
9330         472 XBW2(I) = WMT(I)*XBW(I) + S(I)*120*S(I)*140 + S(I)*20*S(I)*40)/
9331         I WMT2(I)
9332         475 CONTINUE
9333         C
9334         GO TO 190
9335         C
9336         C      LANDING DESIGN WEIGHT ARRAY
9337         C
9338         480 DO 485 I=1,12
9339         WMT3(I) = WMT(I) + S(I)*120 + S(I)*20
9340         IF(WMT3(I)) 482,485,482
9341         482 XBW3(I) = WMT(I)*XBW(I) + S(I)*120*S(I)*140 + S(I)*20*S(I)*40)/
9342         I WMT3(I)
9343         485 CONTINUE
9344         C
9345         C      MINIMUM FLIGHT WEIGHT ARRAY
9346         C
9347         DO 495 I=1,12
9348         DM(I) = WMT(I) + S(I)*120
9349         IF(DM(I)) 492,495,492
9350         492 XDM(I) = WMT(I)*XBW(I) + S(I)*120*S(I)*140)/DM(I)
9351         495 CONTINUE
9352         C
9353         C
9354         C      TRANSFER DATA TO WORKING REGION ROTATE WING IF SHING WING
9355         DO 650 I=1,12
9356         IF(GO1(I)) 602,602,610
9357         C      FIXED WING OR SEGMENT INBOARD OF PIVOT
9358         602 XB1(I) = XBW(I)
9359         XB2(I) = XBW(I)
9360         YB1(I) = YBW(I)
9361         YB2(I) = YBW(I)
9362         XB12(I) = XBW2(I)
9363         XB22(I) = XBW2(I)
9364         YB12(I) = YBW(I)
9365         YB22(I) = YBW(I)
9366         XB13(I) = XBW3(I)
9367         XB23(I) = XBW3(I)
9368         YB13(I) = YBW(I)
9369         YB23(I) = YBW(I)
9370         YY12(I) = WMT2(I)*UY(I)
9371         YY22(I) = WMT2(I)*UY(I)
9372         YY13(I) = WMT3(I)*UY(I)
9373         YY23(I) = WMT3(I)*UY(I)
9374         XDM1(I) = XDM(I)
9375         XDM2(I) = XDM(I)
9376         YDM1(I) = YBW(I)
9377         YDM2(I) = YBW(I)
9378         GO TO 650
9379         C
9380         C      VARIABLE SHEEP WING
9381         610 IF(YBW(I) - ODM(3)) 602,602,612
9382         C      SEGMENT OUTBOARD OF PIVOT
9383         612 S(1) = ATAN(XBW(I) - ODM(32))/(YBW(I) - ODM(31))
9384         S(2) = ((XBW(I) - ODM(32))**2 + (YBW(I) - ODM(31))**2)**.5
9385         S(3) = ODM(33) - ODM(4)
9386         S(4) = ODM(34) - ODM(4)
9387         XB1(I) = ODM(32) + S(2)*SIN(S(1)) + S(3)*D(16)
9388         YB1(I) = ODM(31) + S(2)*COS(S(1)) + S(3)*D(16)
9389         XB2(I) = ODM(32) + S(2)*SIN(S(1)) + S(4)*D(16)
9390         YB2(I) = ODM(31) + S(2)*COS(S(1)) + S(4)*D(16)
9391         S(1) = ATAN(XBW2(I) - ODM(32))/(YBW(I) - ODM(31))
9392         S(2) = ((XBW2(I) - ODM(32))**2 + (YBW(I) - ODM(31))**2)**.5
9393         XB12(I) = ODM(32) + S(2)*SIN(S(1)) + S(3)*D(16)
9394         YB12(I) = ODM(31) + S(2)*COS(S(1)) + S(3)*D(16)
9395         XB22(I) = ODM(32) + S(2)*SIN(S(1)) + S(4)*D(16)

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01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
0306		YB2(1) = QDM(3) + S(2)*COS(S(1) + S(4)*D(16))	
0307		S(1) = ATAN((YB4(1) - QDM(32))/(YB4(1) - QDM(31)))	
0308		S(2) = ((YB4(1) - QDM(32))**2 + (YB4(1) - QDM(31))**2)**.5	
0309		YB1(1) = QDM(32) + S(2)*SIN(S(1) + S(3)*D(16))	
0400		YB1(1) = QDM(31) + S(2)*COS(S(1) + S(3)*D(16))	
0401		YB2(1) = QDM(32) + S(2)*SIN(S(1) + S(4)*D(16))	
0402		YB3(1) = QDM(31) + S(2)*COS(S(1) + S(4)*D(16))	
0403		S(1) = ATAN((YB4(1) - QDM(32))/(YB4(1) - QDM(31)))	
0404		S(2) = ((YB4(1) - QDM(32))**2 + (YB4(1) - QDM(31))**2)**.5	
0405		YB4(1) = QDM(32) + S(2)*SIN(S(1) + S(3)*D(16))	
0406		YB4(1) = QDM(31) + S(2)*COS(S(1) + S(3)*D(16))	
0407		YB4(1) = QDM(32) + S(2)*SIN(S(1) + S(4)*D(16))	
0408		YB4(1) = QDM(31) + S(2)*COS(S(1) + S(4)*D(16))	
0409		YV1(1) = M4T(1)*(UY(1)*COS(S(3)*D(16))**2 +	
0410		1 UX(1)*SIN(S(3)*D(16))**2)	
0411		YV2(1) = M4T(1)*(UY(1)*COS(S(4)*D(16))**2 +	
0412		1 UX(1)*SIN(S(4)*D(16))**2)	
0413		YV2(1) = M4T(1)*(UY(1)*COS(S(4)*D(16))**2 +	
0414		1 UX(1)*SIN(S(4)*D(16))**2)	
0415		YV3(1) = M4T(1)*(UY(1)*COS(S(4)*D(16))**2 +	
0416		1 UX(1)*SIN(S(4)*D(16))**2)	
0417		850 CONTINUE	
0418	C		
0419	C	NOTE YB10 AND YB4, AND XB10 AND XB4 ARE COMMON - SEE EQUIVA	
0420	C	TRANSFER WING HEIGHT DATA - ROTATE IF SHING WING	
0421		DO 750 1=1,12	
0422		IF(QDM(12)) 710,710,720	
0423	C		
0424	C	FIXED WING	
0425	710	XB20(1) = XB10(1)	
0426		YB20(1) = YB10(1)	
0427		GO TO 750	
0428	C		
0429	C	SHING WING	
0430	720	IF(YB4(1) - QDM(31)) 710,710,730	
0431	C	HEIGHT OUTBOARD OF PIVOT	
0432	730	S(1) = ATAN((YB4(1) - QDM(32))/(YB4(1) - QDM(31)))	
0433		S(2) = ((YB4(1) - QDM(32))**2 + (YB4(1) - QDM(31))**2)**.5	
0434		S(3) = QDM(33) - QDM(4)	
0435		S(4) = QDM(34) - QDM(4)	
0436		XB10(1) = QDM(32) + S(2)*SIN(S(1) + S(3)*D(16))	
0437		YB10(1) = QDM(31) + S(2)*COS(S(1) + S(3)*D(16))	
0438		XB20(1) = QDM(32) + S(2)*SIN(S(1) + S(4)*D(16))	
0439		YB20(1) = QDM(31) + S(2)*COS(S(1) + S(4)*D(16))	
0440		750 CONTINUE	
0441	C		
0442		RETURN	
0443		END	