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APPENDIX 28  
SIGNAL SORTER BIT SOFTWARE SPECIFICATION  
FINAL SOFTWARE REPORT  
DATA ITEM NO. A005

**INTEGRATED ELECTRONIC WARFARE SYSTEM  
ADVANCED DEVELOPMENT MODEL (ADM)**

78009828  
PREPARED FOR  
NAVAL AIR DEVELOPMENT CENTER  
WARMINSTER, PENNSYLVANIA  
CONTRACT N62269-75-C-0070



ELECTROMAGNETIC  
SYSTEMS DIVISION

1 OCTOBER 1977

UNCLASSIFIED

APPENDIX 28  
SIGNAL SORTER BUILT-IN TEST SOFTWARE SPECIFICATION  
FINAL SOFTWARE REPORT  
DATA ITEM A005

INTEGRATED ELECTRONIC WARFARE SYSTEM (IEWS)  
ADVANCED DEVELOPMENT MODEL (ADM)

Contract No. N62269-75-C-0070

Prepared for:

Naval Air Development Center  
Warminster, Pennsylvania

Prepared by:

RAYTHEON COMPANY  
Electromagnetic Systems Division  
6380 Hollister Avenue  
Goleta, California 93017

1 OCTOBER 1977



## IEWS SORTER BIT SOFTWARE - SUPERVISOR TESTS

### 1. INTRODUCTION

The IEWS Sorter Supervisor BIT is an SC-loadable supervisor program that can be used to verify the functional operation of the Input Buffer (IB), Track Correlator Coarse Search Unit (CSU), and the Track Correlator Fine Search Unit (FSU).

### 2. DESCRIPTION OF OUTPUT

#### 2.1 SORTER TO SC MESSAGES

##### 2.1.1 Bus Hung Message

A high-priority bus hung message (Op-Code =  $8D_{16}$ ) is sent to the SC if the Supervisor bus is not responding. If a true Supervisor bus hung condition is detected, the contents (at the time of the interrupt) of the Supervisor A, E, B, X, S, and P registers can be found in Supervisor memory locations 81, 82, 83, 84, 85, and  $86_{16}$ , respectively.

##### 2.1.2 Test Failure Messages

Execution of the Sorter Supervisor Bit may result in one of more low-priority test failure messages (Op-Code =  $93_{16}$ ) being sent to the SC. The format of the failure information contained in the message is described in Figure 4.

##### 2.1.3 End of Sorter Supervisor Bit Program

If the Sorter Supervisor Bit program terminates normally, a low-priority (Op-Code =  $93_{16}$ ) message is sent to the SC. This message can be distinguished from the Test Failure Messages by the fact that all data words for the End of Test message are  $FFFF_{16}$ .

##### 2.1.4 Sample Output

A Sudbury SC Simulator printout, resulting from the execution of the Sorter Supervisor Bit, is shown in Figure 1.

### 3. DESCRIPTION OF PROCEDURE

#### 3.1 MAIN PROGRAM

The main program is a very simple routine that processes the Test Table. The main program flowchart is shown in Figure 2.

#### 3.2 TEST TABLE

The Test Table defines the Sorter Supervisor Bit sequence of tests. The test table is a list of test routine addresses. Each test routine may be followed by one or more arguments (masks, data to be loaded into registers, pointers to PDW's, etc.). The Test Table is functionally described by Table 1. The sequence numbers shown in Table 1 appear as comments in the assembly listing of the Test Table. The test numbers that appear in the Test Failure Messages are not these sequence numbers. The message test numbers have been manually added to the assembly listing. Note that the Test Failure Message test number can be mapped to the assembly listing which is mapped to the Test Description (Table 1).

#### 3.3 TEST DATA

The Test Table Description (Table 1) references test data, e.g., PDW No. 1, Track File 31<sub>10</sub>, etc. This data is defined in the assembly listing as follows:

<u>Mnemonic</u>	<u>Description</u>
TF31	Track File 31 <sub>10</sub> Data
TF32	Track File 32 <sub>10</sub> Data
TF85	Track File 85 <sub>10</sub> Data
TF106	Track File 106 <sub>10</sub> Data
PDW1	PDW No. 1
REPDW1	Reformatted PDW No. 1
TFNULL	Null Track File
PDWNULL	Null PDW
CF1	CAM File 1 Data
BPDW1	Reformatted PDW No. 1
CF2	CAM File 2 Data
TFCS31	Expected Coarse Search Memory Contents Track File 31 <sub>10</sub>
TFCS32	Expected CSU Mem. Track File 32 <sub>10</sub>

### 3.3 TEST DATA (Cont'd)

<u>Mnemonic</u>	<u>Description</u>
TFCS85	Expected CSU Memory Track File 85 <sub>10</sub>
TFCS106	Expected CSU Memory Track File 106 <sub>10</sub>
TFFS31	Expected Fine Search Update Registers Contents Track File 31 <sub>10</sub>
TFFS32	Expected Fine Search Update Registers Contents Track File 32 <sub>10</sub>
TFFS85	Expected Fine Search Update Registers Contents Track File 85 <sub>10</sub>
TFFS106	Expected Fine Search Update Registers Contents Track File 106 <sub>10</sub>

### 3.4 TEST ROUTINES

Test routines are simple routines called by the main program to issue one command, perform one register contents verification, etc. Each test routine may have one or more arguments. The comments in the assembly listing describe the function of each test routine. All test routines exit to main program (JUMP TO RETURN). The GETARG sub-routine is called by test routines to retrieve arguments from the test table. A flowchart of a typical test routine is shown in Figure 1.

### 3.5 BUS HUNG INTERRUPT PROCESSING

The Bus Hung Interrupt is enabled at the start of the Test Table (ENBBHUNG). Test 2 (CKBHRUPT) verifies the operation of this interrupt. The Bus Hung Interrupt remains enabled throughout the entire Supervisor BIT. Flowcharts of the Bus Hung Interrupt Handler (BHRUPT) and the Bus Hung Interrupt Test Routine (CKBHRUPT) are shown in Figure 3.

IEWS SORTER SUPERVISOR BIT TEST DESCRIPTION

I. CHECKOUT INPUT BUFFER

1. Master Clear
2. Initialize IB.
3. Initialize TC.
- 3 4. Verify proper IB status bits.
- 1,4 5. Verify proper TC status bits.
6. Set BPDW Processing Flag.
7. Set UPDW Flag.
8. Reset BM Formatter Flag.
9. Set TC Run Flag
- 5 10. Verify proper TC status bits.
11. Reset BPDW Processing Flag.
12. Set BM Formatter Flag.
- 6 12a. Clear all Track Files.
13. Load TC DBR's with Track File (31)<sub>10</sub>.
14. Write Track File (31)<sub>10</sub>.
- 7 15. Clear DBR's.
- 8 16. Read Track File (31)<sub>10</sub>.
- 7 17. Verify proper data.
- A 18. Read Coarse Search Memory Track File (31)<sub>10</sub>.
- B 19. Verify proper data.
20. Load TC DBR's with Track File (32)<sub>10</sub>.
- C 21. Write Track File (32)<sub>10</sub>.
- D-10 22. Load TC DBR's with Track File (85)<sub>10</sub>.
23. Write Track File (85)<sub>10</sub>.
24. Load TC DBR's with Track File (106)<sub>10</sub>.
25. Write Track File (106)<sub>10</sub>.

TABLE 1

I. CHECKOUT INPUT BUFFER (Cont'd)

- 25a. Clear all IB CAM Files.
26. Set IB Run Mode.
27. Check IB status and verify.
28. Store Frequency to IB DBR 0.
29. Store Valid and Azimuth to IB DBR 1.
30. Store Reduction Factor to IB DBR 3.
31. Store Frequency to IB CAM File 7.
32. Store Valid and Azimuth to IB CAM File 7.
33. Store Reduction Factor to IB CAM File 7.
34. Read CAM File 7 parameters and verify.
35. Store PDW #1 to IB DBR's 0-3.
36. Check TC BPDW Ready Status Bit not set.
37. Execute Process Supervisor PDW command to IB.
38. Check TC BPDW Ready Status Bit set.
39. Execute Read BPDW command to TC.
40. Verify proper data.
41. Flush BPDW.
42. Check TC BPDW Ready Status Bit not set.
43. Store Reduction Factor of  $F_{16}$  to IB DBR 3.
44. Store Reduction Factor to IB CAM File 7.
45. Store PDW #1 to IB DBR's 0-3.
46. Execute 240 consecutive Process PDW commands to IB and verify TC BPDW Ready Status Bit is not set.
47. Execute 1 Process PDW command and verify TC BPDW Ready Status Bit is set.
48. Execute Read BPDW command to TC and verify same as PDW #1.

II. CHECK TC CSM INTERROGATE AND ADDRESS GENERATION

49. Load reformatted PDW #1 into TC DBR's 0,6.
50. Issue "Interrogate CSM" to TC.
51. Issue "Read Match Address Register".
52. Read TC IR.
53. Verify Track File 31 present in Bits 0-6.
54. Issue "Read MAR".
55. Read TC IR.
56. Verify Track File 32 present.
57. Issue "Read MAR".
58. Read TC IR.
59. Verify Track File 85 present.
60. Issue "Read MAR".
61. Read TC IR.
62. Verify Track File 106 present.
63. Issue "Read MAR".
64. Read TC IR.
65. Verify Bit 7 set (no more matches).

III. CHECK TC FSU

53. *Reset BPDW processing flag*
66. Load PDW #1 into TC DBR's.
  67. Issue "Load Synthetic PDW" to TC.
  68. Issue "Reset FSU" to TC.
  69. Load Track File 31 into TC DBR's.
  70. Issue "Process Synthetic Track File 31".
  - 70a. Load TC DBR's with 0's.
  71. Issue "Read FSU Update Registers".
  72. Read DBR's and verify proper results.
- 73-77. {
- 78-82. { Repeat bracketed area for Track Files 32, 85, 106.
- 83-87. }

UNIT NO. AND PFI	AND CODE	TRACK NO.	TEST NO.	TEST TABLE PTR	ACTUAL DATA	EXPECTED	INDEX	LAST COMMAND	CONTROL STATUS WORD	INTERRUPT STATUS WORD					
93	03	0000	0000	12B4	0000	7FE9	0000	701F	86F8	8041	0000	8041	86F8	0018	0000
93	03	0000	0010	12C7	0000	7FC9	0000	7020	86F8	8041	0000	8041	86F8	0016	0000
93	03	0000	001A	12FD	0000	7FE9	0000	706A	86F8	8041	0000	8041	86F8	0018	0000
93	03	0000	001F	1310	0000	1000	0000	C000	86F8	8041	0000	8041	86F8	0019	0000
93	03	0000	0021	1317	E2D4	AAAB	0000	8000	86F8	8041	0000	8041	86F8	0019	0000
93	03	0000	0025	1320	0000	1000	0001	8000	86F8	8041	0000	8041	86F8	0015	0000
93	03	0000	0027	1332	E2D4	AAAB	0000	8000	86F8	8041	0000	8041	86F8	0019	0000
93	05	0000	002A	1330	A655	A61F	0000	A655	88F8	0000	0000	8041	88F8	0019	0000
93	05	0000	002C	1343	A660	A620	0000	A660	88F8	0000	0000	8041	88F8	0019	0000
93	05	0000	002F	1349	A661	A655	0000	A661	88F8	0000	0000	8041	88F8	0019	0000
93	05	0000	0031	134F	A662	A66A	0000	A662	88F8	0000	0000	8041	88F8	0019	0000
93	05	0000	0032	1355	A600	A680	0000	A663	88F8	0000	0000	8041	88F8	0019	0000
93	05	0000	0036	1365	0470	0070	0000	8400	8AF8	0000	0000	8041	8AF8	0019	0000
93	05	0000	003A	1374	0070	0470	0000	8400	8AF8	0000	0000	8041	8AF8	0019	0000
93	05	0000	003E	1382	0C6A	1068	0000	8400	8CF8	0000	0000	8041	8CF8	0019	0000
93	05	0000	0042	1390	0C73	0C74	0000	8400	8EF8	0000	0000	8041	8EF8	0019	0000
93	00	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF

Figure 1. Sudbury SC Simulator BIT Printout

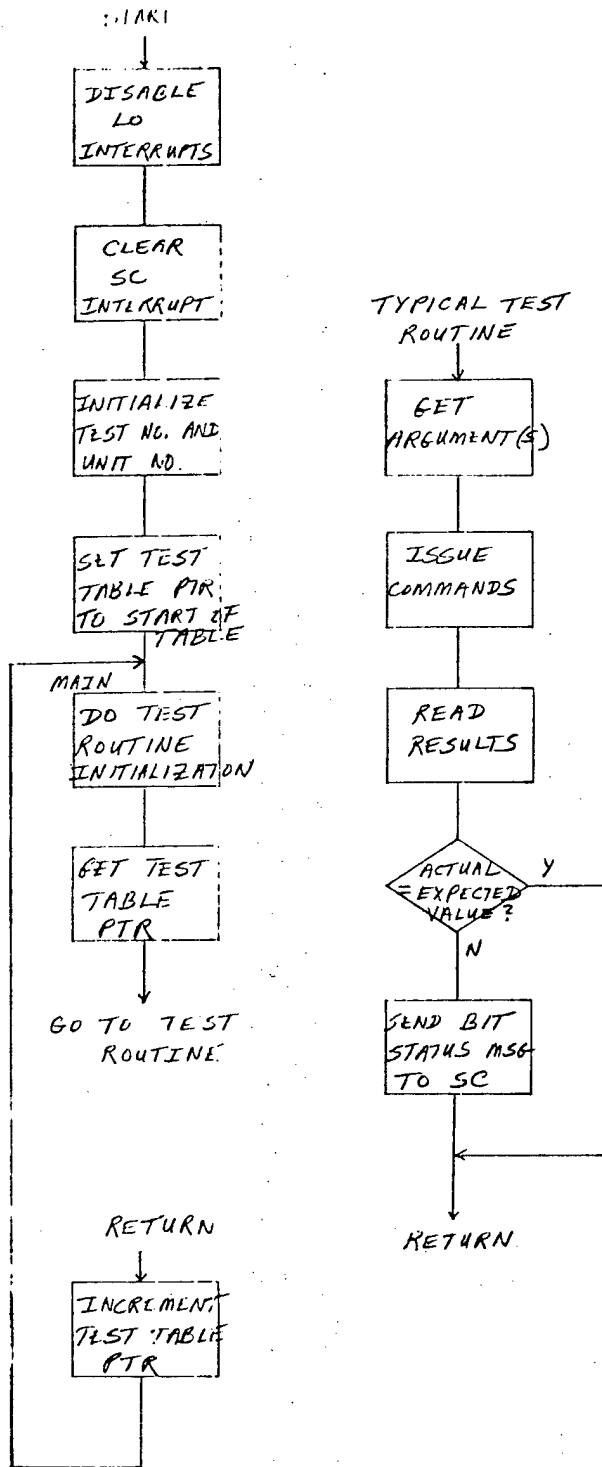
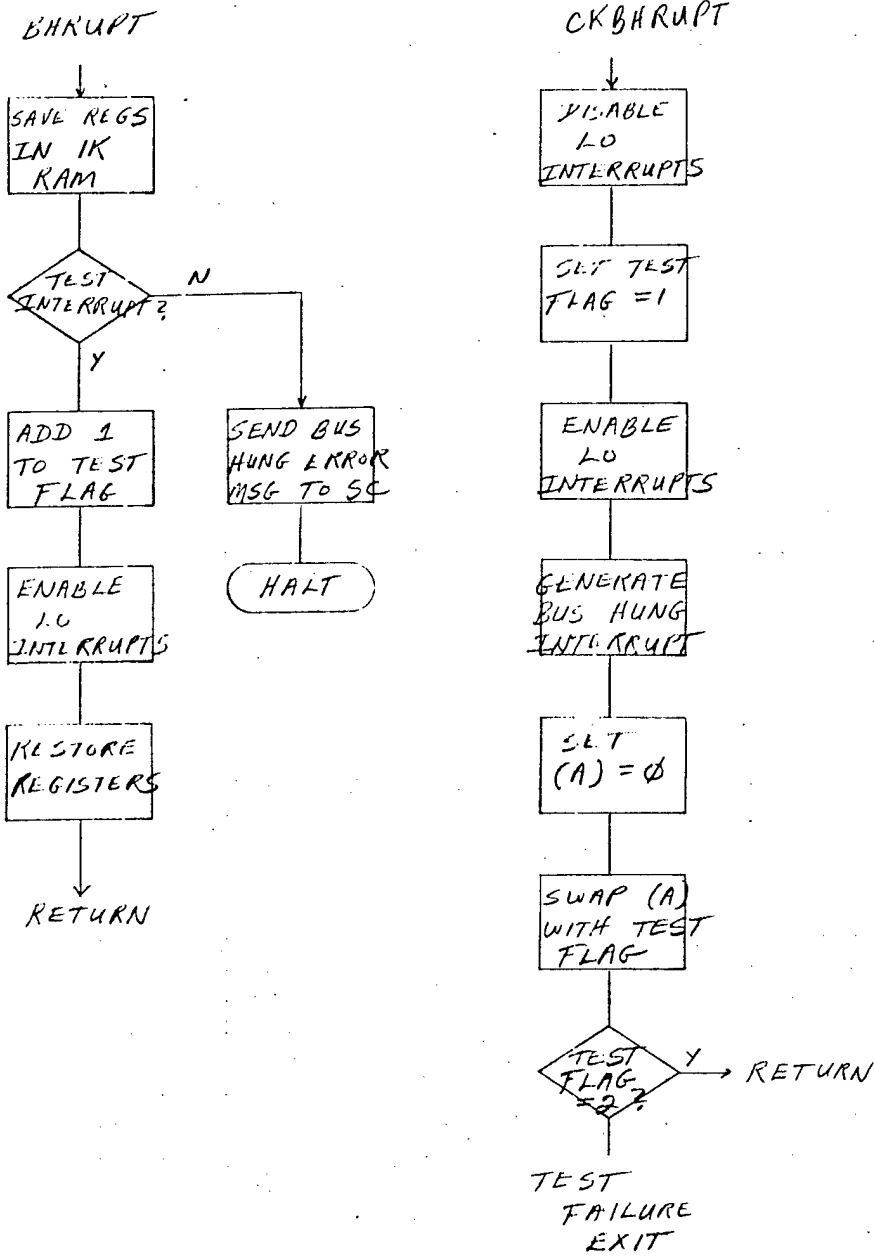


Fig. 2

<b>RAYTHEON</b>		RAYTHEON COMPANY LEXINGTON, MASS. 02173	
PROGRAM/ROUTINE/SUBROUTINE/ACRONYM IEWS SORTER BIT			
MAIN PROGRAM (SUPV TESTS)			
CODE IDENT NO.	PREPARED BY	DATE	
49956	T. CHLRNLSKY	19 MAY 76	
NUMBER	SHEET		OF 1



BHRUPT = BUS HUNG INTERRUPT HANDLER  
 CKBHRUPT = TEST BUS HUNG INTERRUPT ROUTINE

Fig. 3

<b>RAYTHEON</b>		RAYTHEON COMPANY LEXINGTON, MASS. 02173	
PROGRAM/ROUTINE/SUBROUTINE/ACRONYM: ILWS SURTER BIT BUS HUNG HANDLING (SUPV TESTS)			
COM. IDENT. NO. <b>49956</b>	PREPARED BY <b>T. CHERNLSAY</b>	DATE <b>24 JUN 76</b>	
NUMBER	SHEET 1 OF 1		

FLOW CHART

REMARKS

OP CODE 93 <sub>16</sub>	BIT ERROR CODE	P F I
	FILE NO. IN ERROR	
TEST NUMBER		
TEST TABLE POINTER		
ACTUAL DATA		
EXPECTED DATA		
INDEX (IF APPLICABLE)		
LAST COMMAND ISSUED TO UNIT		
CONTROL STATUS WORD		
INTERRUPT STATUS WORD (IF APPLICABLE)		
NOT USED		
NOT USED		
NOT USED		
NOT USED		
NOT USED		

BEC = UNIT NO. ;  
 φ1 = IB  
 φ2 = TC  
 PFI :  
 φ = PASS  
 1 = FAIL

Fig. 4

<b>RAYTHEON</b>		RAYTHEON COMPANY LEXINGTON, MASS. 02173	
PROGRAM/ROUTINE/SUBROUTINE/ACRONYM II. WS SOKER BIT			
BIT STATUS MSG FORMAT (SUPV TESTS)			
CODI IDENT NO	PREPARED BY	DATE	
49956	T. CHERNESKY	24 JUN 76	
NUMBER	SHEET 1 OF 1		

0000R 004C 0002 JUMP (=START)  
 0001R 0005R

0003 \*  
 0004 \* MARCO TO CREATE AND VERIFY 1 TRACK FILE  
 0005 \*

0006	GENTRK	MACR	TRK
0007		DC	LOADTCDB
0008		DC	TF:TRK
0009		DC	TEST....
0010		DC	WRTRACK
0011		DC	TRK
0012		DC	LOADTCDB,TFNULL
0013		DC	TEST....
0014		DC	RDTRACK
0015		DC	TRK
0016		DC	TEST....
0017		DC	CKTCDB,TF:TRK
0018		DC	TEST....
0019		DC	RDCSM
0020		DC	TRK
0021		DC	TEST....
0022		DC	CKCSM,TFCS:TRK
0023			ENDM

0024 \*  
 0025 \* MARCO TO READ AND VERIFY FSU UPDATE REGISTERS  
 0026 \* FOR 1 TRACK FILE

0027	CKFSU	MACR	TRK
0028		DC	TEST....
0029		DC	RESFTFSU
0030		DC	LOADTCDB,TF:TRK
0031		DC	TEST....
0032		DC	TOPSTF
0033		DC	TRK
0034		DC	LOADTCDB,TFNULL
0035		DC	TEST....
0036		DC	RDFSUR
0037		DC	TEST....
0038		DC	CKTCDB,TFFS:TRK
0039			ENDM

0040 \*  
 0041 \* MACRO TO GENERATE FAULT DETECTED SEQUENCE  
 0042 \*

0043	ERROR	MACR	
0044		JUMP	(=ERR1)
0045			ENDM

0046 \*  
 0047 \* TC CONTROL ADDRESSES  
 0048 \*

0000	0049	SKTCIR	EQU	1150000	TC INSTRUCTION REG.
0001	0050	SKTCISW	EQU	1150001	TC INTERRUPT STATUS WORD
0002	0051	SKTCSTAT	EQU	1150002	TC STATUS
0003	0052	SKTCSEQ01	EQU	1150003	TC SEQUENCER WORD 1
0004	0053	SKTCSEQ02	EQU	1150004	TC SEQUENCER WORD 2
0005	0054	SKTCSEQ03	EQU	1150005	TC SEQUENCER WORD 3

D006	0055	SFRESET	EQU	1150006	RESET WATCHDOG TIMER
D007	0056	SFTCINIT	EQU	1150007	INITIALIZE TC CONTROL
D008	0057	SFTCRPDU	EQU	1150010	DISABLE BPDW PROCESSING
D009	0058	SFTCBPDE	EQU	1150011	ENABLE
D00A	0059	SKDUPOW	EQU	1150012	DISABLE UPDW'S TO AUX
D00B	0060	SKLUPDW	EQU	1150013	ENABLE
D00C	0061	SFTCRUFD	EQU	1150014	DISABLE BUFFER MEMORY
D00D	0062	SFTCRUFE	EQU	1150015	ENABLE
D00E	0063	SFTCRUN	EQU	1150016	SET TC RUN MODE
D00F	0064	SFTCSTEP	EQU	1150017	SINGLE STEP TC
C400	0065	SKTCDB	EQU	1142000	TC DATA BUFFER REG 0
	0066	*			
	0067	*	IB CONTROL	ADDRESSES	
	0068	*			
D022	0069	SFFLSHTB	EQU	1150042	FLUSH CURRENT PE/STE PDW
D023	0070	SFRPDWIB	EQU	1150043	READ CURRENT PE/STE PDW
D024	0071	SFTNFIFO	EQU	1150044	INIT IB FIFO
D025	0072	SFINITIB	EQU	1150045	INIT IB CONTROL
D026	0073	SFENRIB	EQU	1150046	ENABLE IB PDW PROCESSING
D027	0074	SFOSRIB	EQU	1150047	DISABLE IB PDW PROCESSING
D028	0075	SFSTEPB	EQU	1150050	SINGLE STEP IB
D029	0076	SFSSSIB	EQU	1150051	SET IB SINGLE STEP MODE
D02A	0077	SFRUNR	EQU	1150052	SET IB RUN MODE
D02B	0078	SFIBIR	EQU	1150053	IB INSTRUCTION/STATUS REG.
D02C	0079	SKTBDB	EQU	1150054	IB DATA BUFFER REG 0
D030	0080	SFRDVA7	EQU	1150060	READ V, AZ, FREQ, CAM FILE 0
D038	0081	SFRDVF	EQU	1150070	READ REDUCT. FACTOR, CAM F 0
4800	0082	SKWRTF	EQU	24800	TC WRITE TRACK FILE COMMAND
5400	0083	SKRDTF	EQU	25400	TC READ TRACK FILE COMMAND
7E00	0084	SKTCHALT	EQU	27E00	HALT TC
	0085	*			
	0086	*			
FEFF	0087	SFPINMSK	EQU	1177377	PIN MASK REG.
2710	0088	WATTCT	EQU	10000	
0051	0089	SFMSGLO	EQU	1121	
0041	0090	SFMSGHT	EQU	1101	
0011	0091	SFMSGHT	EQU	121	
0010	0092	CFMSGHT	EQU	120	
00R1	0093	SHHNG	EQU	1201	
0140	0094	STACK	EQU	1500	
0054	0095	TTNO	EQU	1124	
0055	0096	TTPTR	EQU	1125	
0056	0097	ACTUAL	EQU	1126	
0057	0098	EXPECT	EQU	1127	
0058	0099	INDEX	EQU	1130	
0059	0100	CMND	EQU	1131	
005A	0101	CSTATUS	EQU	1132	
005B	0102	ISTATUS	EQU	1133	
0053	0103	TRACK	EQU	1123	
0059	0104	TCIR	EQU	CMND	
005B	0105	TCISW	EQU	ISTATUS	
005A	0106	TCSTATUS	EQU	CSTATUS	
0059	0107	IRIR	EQU	CMND	
005A	0108	IRSTATUS	EQU	CSTATUS	

	005D	0109	DTCISW	EQU	'135	DEBUG ONLY
	005E	0110	DTCSTAT	EQU	'136	DEBUG ONLY
	005F	0111	DIBSTAT	EQU	'137	DEBUG ONLY
0002R	0001	0112	BHTEST	RESV	1	
0003R	0001	0113	TESTNO	RESV	1	
0004R	0001	0114	UNITNO	RESV	1	
		0115	*			
		0116	* MAIN PROGRAM = TEST TABLE PROCESSOR			
		0117	*			
	0005R	0118	START	EQU	#	
0005R	8005	0119		DLOI		
0006R	104C	0120		LDSA	(=CFMSGHI)	CLR SC INTERRUPT
0007R	0010					
0008R	1088	0121		LDSS	=STACK	
0009R	0140					
000AR	6824	0122		XORA	A	
000BR	06F7	0123		STSA	TESTNO	
000CR	06F7	0124		STSA	UNITNO	
000DR	108C	0125		LDSA	=SORTTEST	
000ER	0281R					
000FR	0604	0126		STSA	PTR	INIT PTR
	0010R	0127	MAIN	EQU	#	
0010R	804C	0128		JSUB	(=RINIT)	
0011R	001FR					
0012R	1601	0129		LDSA	PTR	
0013R	8064	0130		JUMP	(A*)	GO TO ROUTINE
0014R	0001	0131	PTR	DS	1	
0015R	C6FE	0132	RETURN	ISE7	PTR	TEST ROUTINE RETURN POINT
0016R	86F9	0133		JUMP	MAIN	
		0134	*			
		0135	* SUBROUTINE TO GET 1 ARGUMENT FROM TEST TABLE			
		0136	*			
0017R	C6FC	0137	GETARG	ISEZ	PTR	
0018R	104C	0138		LDSA	(=PTR)	GET PTR TO ARG
0019R	0014R					
001AR	10A4	0139		LDSA	A*	GET VALUE
001BR	8044	0140		JUMP	(S*)	
		0141	*			
		0142	* PAUSE ROUTINE			
		0143	* (A) = LOOP COUNT (SHOULD BE POSITIVE)			
		0144	*			
001CR	C824	0145	WAIT	DSEZ	A	
001DR	86FE	0146		JUMP	WAIT	
001ER	8044	0147		JUMP	(S*)	
		0148	*			
		0149	* INITIALIZATION TO BE DONE PRIOR TO EACH TEST ROUTINE			
		0150	*			
	001FR	0151	RINIT	EQU	#	
001FR	6824	0152		XORA	A	
0020R	1080	0153		LDSE	=7	
0021R	0007					
0022R	108A	0154		LDSF	=SBMSGLO+1	
0023R	0052					
0024R	0094	0155	RINIT01	STSA	R*	CLR 7 WDS OF MSG BUFF

```

0025R 082C 0156 DSEZ E
0026R 86FD 0157 JUMP PINI01
0027R 8044 0158 JUMP (S*)
0159 *
0160 * ERROR DETECTED, SEQUENCE NO. 1
0161 *

```

```

0028R 104C 0162 ERR1 EQU #
0028R 104C 0163 LDSA (=SBMSGLO)
0029R 0051
002AR 96FD 0164 JNGA #-2
002BR 104C 0165 LDSA (=SKTCISW)
002CR 0001
002DR 004C 0166 STSA (=DTCISW)
002ER 005D
002FR 104C 0167 LDSA (=SKTCSTAT)
0030R 0002
0031R 004C 0168 STSA (=DTCSTAT)
0032R 005E
0033R 104C 0169 LDSA (=SFIRIR)
0034R 002B
0035R 004C 0170 STSA (=DIBSTAT)
0036R 005F
0037R 104C 0171 LDSA (=TESTNO)
0038R 0003R
0039R 004C 0172 STSA (=TTNO)
003AR 0054
003BR 104C 0173 LDSA (=PTR)
003CR 0014R
003DR 004C 0174 STSA (=TTPTR)
003ER 0055
003FR 104C 0175 LDSA =29301
0040R 9301
0041R 604C 0176 IORA (=UNITNO)
0042R 0004R
0043R 004C 0177 STSA (=SBMSGLO+1)
0044R 0052
0045R 108C 0178 LDSA =2800F
0046R 800F
0047R 004C 0179 STSA (=SBMSGLO)
0048R 0051
0049R 104C 0180 LDSA (=SBMSGLO)
004AR 0051
004BR 96FD 0181 JNGA #-2
004CR 804C 0182 JUMP (=RETURN)
004DR 0015R

```

```

0183 *
0184 * BUS HUNG INTERRUPT HANDLER
0185 *

```

```

004ER 084C 0186 BRUPT STDA (=SBHUNG)
004FR 00B1
0050R 004A 0187 STSA (=SBHUNG+2)
0051R 00B3
0052R 004B 0188 STSX (=SBHUNG+3)
0053R 00B4

```

0054R 004B	0189		STSS	(=SPHUNG+4)	
0055R 0085					
0056R 1700	0190		LDSA	0,5	
0057R 004C	0191		STSA	(=SPHUNG+5)	
0058R 0086					
0059R 104C	0192		LDSA	(=BHTEST)	
005AR 0002R					
005BR 9E0A	0193		JFZA	BHRUPT1	NOT A TEST
005CR 004C	0194		ISEZ	(=BHTEST)	INCR TEST FLAG
005DR 0002R					
005ER 104C	0195	BHRUPT0	LDDA	(=SBHUNG)	
005FR 0081					
0060R 104A	0196		LDSR	(=SPHUNG+2)	
0061R 0083					
0062R 104B	0197		LDSY	(=SPHUNG+3)	
0063R 0084					
0064R 8806	0198		ELOI		
0065R 804A	0199		JUMP	(S*)	
	0200	*			
0066R 104C	0201	BHRUPT1	LDSA	(=SBMSGHI)	IS TO-SC HI-PRI MSG BUFF BUSY
0067R 0041					
0068R 96FD	0202		JNGA	#-2	
0069R 104C	0203		LDSA	=%0D00	SEND PUSHUNG MSG TO SC
006AR 8000					
006BR 004C	0204		STSA	(=SBMSGHI+1)	
006CR 0042					
006DR 108C	0205		LDSA	=%0001	SET MSG FLAG
006ER 8001					
006FR 004C	0206		STSA	(=SBMSGHI)	
0070R 0041					
0071R 004C	0207		STSA	(=SBMSGHI)	INTERRUPT THE SC
0072R 0011					
0073R 8800	0208		HALT		
	0210		LIST	EJECT	

		0211	*		
		0212	*	INITIALIZE	IR
		0213	*		
0074R	0049	0214		INITIR	STSP (=SFINITIR)
0075R	0025				
0076R	004C	0215		JUMP	(=RETURN)
0077R	0015R				
		0216	*		
		0217	*	INITIALIZE	FIFO
0078R	0049	0218		INITFIFO	STSP (=SFINFIFO)
0079R	0024				
007AR	004C	0219		JUMP	(=RETURN)
007BR	0015R				
		0220	*		
		0221	*	INITIALIZE	TC
		0222	*		
007CR	0049	0223		INITTC	STSP (=SFTCINIT)
007DR	0007				
007ER	004C	0224		JUMP	(=RETURN)
007FR	0015R				
		0225	*		
		0226	*	CHECK	IB STATUS
		0227	*	ARG1	= MASK
		0228	*	ARG2	= EXPECTED STATUS WORD AFTER MASKING
		0229	*		
0080R	1040	0230		CKIBSTAT	LDSE (=SFIBIR) RD STATUS
0081R	002B				
0082R	004D	0231		STSE	(=IBSTATUS)
0083R	005A				
0084R	004C	0232		JSUB	(=GETARG) 1ST ARG
0085R	0017R				
0086R	5825	0233		ANDF	A MASK STATUS
0087R	004D	0234		STSE	(=ACTUAL)
0088R	0056				
0089R	004C	0235		JSUB	(=GETARG) 2(L ARG
008AR	0017R				
008BR	004C	0236		STSA	(=EXPECT)
008CR	0057				
008DR	082C	0237		CSEA	F COMPARE
008ER	8602	0238		JUMP	CKIBST1
008FR	804C	0239		JUMP	(=RETURN) PASS
0090R	0015R				
		0240		CKIBST1	ERROR 1 FAIL
0091R	804C			JUMP	(=FRP1)
0092R	0028R				
				ENDM	
		0241	*		
		0242	*	CHECK	TC STATUS
		0243	*	ARG1	= MASK
		0244	*	ARG2	= EXPECTED STATUS WORD AFTER MASKING
		0245	*		
0093R	1040	0246		CKTCSTAT	LDSE (=SKTCSTAT) RD STATUS
0094R	0002				
0095R	004D	0247		STSE	(=TCSTATUS)

```

0096R 005A
0097R 804C 0248 JSUB (=GETARG)
0098R 0017R
0099R 5825 0249 ANDE A MASK
009AR 004D 0250 STSE (=ACTUAL)
009BR 0056
009CR 804C 0251 JSUB (=GETARG)
009DR 0017R
009ER 004C 0252 STSA (=EXPECT)
009FR 0057
00A0R 002C 0253 CSEA E COMPARE
00A1R 8002 0254 JUMP CKTCST1
00A2R 804C 0255 JUMP (=RETURN) PASS
00A3R 0015R
0256 CKTCST1 ERROR 2 FAIL
00A4R 804C JUMP (=ERR1)
00A5R 0028R
ENDM
0257 *
0258 * SET BPDW PROCESSING FLAG - TC COMMAND
0259 *
00A6R 0049 0260 SETBPDW STSP (=SFTCBPDE)
00A7R 0009
00A8R 804C 0261 JUMP (=RETURN)
00A9R 0015R
0262 *
0263 * SET UPDW FLAG - TC COMMAND
0264 *
00AAR 0049 0265 SETUPDW STSP (=SKEUPDW)
00ABR 000B
00ACR 804C 0266 JUMP (=RETURN)
00ADR 0015R
0267 *
0268 * RESET BM FORMATTER FLAG - TC COMMAND
0269 *
00AER 0049 0270 CLRBMFMT STSP (=SFTCBUFD)
00AFR 000C
00B0R 804C 0271 JUMP (=RETURN)
00B1R 0015R
0272 *
0273 * SET TC RUN FLAG
0274 *
00B2R 0049 0275 SETTCRUN STSP (=SFTCRUN)
00B3R 000E
00B4R 804C 0276 JUMP (=RETURN)
00B5R 0015R
0277 *
0278 * RESET BPDW PROCESSING FLAG
0279 *
00B6R 0049 0280 CLRBPDW STSP (=SFTCBPDD)
00B7R 0008
00B8R 804C 0281 JUMP (=RETURN)
00B9R 0015R
0282 *

```

	0283	*	SET	BM FORMATTER FLAG	
	0284	*			
00PAR 0049	0285		SETBMFMT	STSP (=SFTCBUFE)	
00BBR 000D					
00RCR 804C	0286		JUMP	(=RETURN)	
00BDR 0015R					
	0287	*			
	0288	*	LOAD	TC DATA BUFFER REGISTERS	
	0289	*		ARG1 = POINTER TO 8-WORD BUFFER	
	0290	*			
00BER 108B	0291		LOADTCDB	LDSX =SKTCDB PTR TO TC DB	
00BFR C400					
00C0R 804C	0292		JSUB	(=GETARG) 1ST ARG	
00C1R 0017R					
00C2R 1022	0293		LDSB	A PTR TO DATA TO BE LOADED	
00C3R 108D	0294		LDSE	=8	
00C4R 0008					
00C5R 1094	0295		LOADTC1	LDSA B* MOVE 8 WORDS	
00C6R 009C	0296		STSA	X*	
00C7R C82C	0297		DSEZ	E	
00C8R 86FC	0298		JUMP	LOADTC1	
00C9R 804C	0299		JUMP	(=RETURN)	
00CAR 0015R					
	0300	*			
	0301	*	WRITE	TRACK FILE (INCLUDES TC CONTROL STATUS LK)	
	0302	*		ARG1 = TRACK NO.	
	0303	*			
00C0R 804C	0304		WRTRACK	JSUB (=GETARG) GET TRK NO.	
00CCR 0017R					
00CDR 004C	0305		STSA	(=TRACK)	
00CER 0053					
00CFR 608C	0306		IORA	=SKWRTE	
00D0R 4000					
00D1R 004C	0307		WRTRAC0	STSA (=SKTCIR) WRITE TRACK	
00D2R D000					
00D3R 860F	0308		JUMP	WRTRAC1	
00D4R 004C	0309		STSA	(=TCIR)	
00D5R 0059					
00D6R 108C	0310		LDSA	=WAITCT	
00D7R 2710					
00D8R 804C	0311		JSUB	(=WAIT) WAIT AT LEAST 100US	
00D9R 001CR					
00DAR 104C	0312		LDSA	(=SKTCSTAT) BEFORE CHECKING STATUS	
00DBR 0002					
00DCR 004C	0313		STSA	(=TCSTATUS)	
00DDR 005A					
00DER E08C	0314		ASZA	=%4000	
00DFR 4000					
00E0R 8602	0315		JUMP	WRTRAC1 NG	
00E1R 804C	0316		JUMP	(=RETURN) OK	
00E2R 0015R					
	0317		WRTRAC1	ERROR 3	
00E3R 804C			JUMP	(=ERR1)	
00E4R 0028R					

ENDM

	0318	*			
	0319	*	READ TRACK FILE (INCLUDES TC CONTROL STATUS CK)		
	0320	*	ARG1 = TRACK NO.		
	0321	*			
00E5R B04C	0322		RDTRACK JSUB (=GETARG)	GET TRACK NO.	
00E6R 0017R					
00E7R 004C	0323		STSA (=TRACK)		
00E8R 0053					
00E9R 608C	0324		IORA =SKRDTF		
00EAR 5400					
00E8R 86E5	0325		JUMP WRTRAC0	SET COMMAND, CK STATUS	
	0326	*			
	0327	*	CHECK CONTENTS OF TC DATA BUFFER		
	0328	*	ARG1 = PTR TO 8-WORD BUFFER OF EXPECTED DA		
	0329	*			
00ECR 108B	0330		CKTCDB LDSY =SKTCDB	PTR TO TC DB	
00EDR C400					
00EER B04C	0331		JSUB (=GETARG)		
00EFR 0017R					
00F0R 1022	0332		LDSB A	PTR TO EXPECTED DATA	
00F1R 108D	0333		LDSE =B		
00F2R 0008					
00F3R 109C	0334		CKTCDB1 LDSA X*	COMPARE 8 WORDS	
00F4R 0894	0335		CSEA B*		
00F5R 8604	0336		JUMP CKTCDB2	EPR	
00F6R C82C	0337		USEZ E		
00F7R 86FB	0338		JUMP CKTCDB1	CONTINUE	
00F8R B04C	0339		JUMP (=RETURN)	DONE	
00F9R 0015R					
00FAR 10DC	0340		CKTCDB2 LDSA *X		
00FBR 004C	0341		STSA (=ACTUAL)		
00FCR 0056					
00FDR 10D4	0342		LDSA *P		
00FER 004C	0343		STSA (=EXPECT)		
00FFR 0057					
0100R 004D	0344		STSE (=INDEX)		
0101R 0058					
	0345		ERROR 4		
0102R B04C			JUMP (=ERR1)		
0103R 0028R					

ENDM

	0346	*			
	0347	*	READ COARSE SEARCH MEMORY (CSM)		
	0348	*	ARG1 = TRACK NO.		
	0349	*			
0104R B04C	0350		RDCSM JSUB (=GETARG)	GET TRK NO.	
0105R 0017R					
0106R 004C	0351		STSA (=TRACK)		
0107R 0053					
0108R 608C	0352		IORA =%7000		
0109R 7000					
010AR B04C	0353		JUMP (=WRTRAC0)	SET COMMAND, CK STATUS	
010BR 00D1R					

```

0354 *
0355 *   VERIFY CONTENTS OF CSM (CK TC DR REG 0 AND REG 1)
0356 *   ARG1 = PTR TO 2 WORD BUFFER OF EXPECTED
0357 *   DATA
0358 *
010CR 108B 0359 CKCSM   LDSX  =SKTCDB   PTR TO TC DB
010DR C400
010ER B04C 0360           JSUB  (=GETARG)  PTR TO EXPECTED DATA
010FR 0017R
0110R 18A4 0361           LODA  A*       GET EXPECTED
0111R D89C 0362           CSEA  X*       CK DBR 0
0112R 8604 0363           JUMP  CKCSM1
0113R D89D 0364           CSEE  X*       CK DBR 1
0114R 8605 0365           JUMP  CKCSM2
0115R 804C 0366           JUMP  (=RETURN)  PASS
0116R 0015R
0117R 004C 0367 CKCSM1  STSA  (=EXPECT)
0118R 0057
0119R 8602 0368           JUMP  CKCSM3
011AR 004D 0369 CKCSM2  STSF  (=EXPECT)
011BR 0057
011CR 10DC 0370 CKCSM3  LDSA  *X
011DR 004C 0371           STSA  (=ACTUAL)
011ER 0056
0372           ERROR   5
011FR 804C           JUMP  (=ERR1)
0120R 0028R
                                ENDM
0373 *
0374 *   SET IB RUN MODE
0375 *
0121R 0049 0376 SETIBRUN STSP  (=SFRUNIB)
0122R D02A
0123R 804C 0377           JUMP  (=RETURN)
0124R 0015R
0378 *
0379 *   LOAD IB DATA BUFFER
0380 *   ARG1 = PTR TO 4 WORD DATA BUFFER
0381 *
0125R 108B 0382 LOADIB0B LDSX  =SKIB0B   PTR TO IB DB
0126R D02C
0127R 804C 0383           JSUB  (=GETARG)
0128R 0017R
0129R 1022 0384           LDSR  A       PTR TO DATA TO BE LOADED
012AR 108D 0385           LDSE  =4
012BR 0004
012CR 1094 0386 LOADIB1  LDSA  B*       MOVE 4 WORDS
012DR 009C 0387           STSA  X*
012ER C82C 0388           DSEZ  E
012FR 86FC 0389           JUMP  LOADIB1
0130R 804C 0390           JUMP  (=RETURN)
0131R 0015R
0391 *
0392 *   WRITE FREQ DATA IN IB DBR 0 INTO CAM FILE

```

	0393	*	ARG1 = CAM FILE NO.
	0394	*	
0132R 004C	0395	WRIBFREQ JSUB	(=GETARG) GET CFN
0133R 0017R			
0134R 608C	0396	IORA	=%28
0135R 0028			
0136R F08C	0397	WRIBF1 RSPA	=10
0137R 000A			
0138R 004C	0398	STSA	(=SFIBIR)
0139R D02B			
013AR 004C	0399	STSA	(=IBIR)
013BR 0059			
013CR 804C	0400	JUMP	(=RETURN)
013DR 0015R			
	0401	*	
	0402	*	WRITE VALID AND AZIMUTH DATA IN IB DBR1 INTO CAM FILE
	0403	*	ARG1 = CAM FILE NO.
	0404	*	
013ER 004C	0405	WRIBVAZ JSUB	(=GETARG) GET CFN
013FR 0017R			
0140R 608C	0406	IORA	=%20
0141R 0020			
0142R 86F3	0407	JUMP WRIBF1	
	0408	*	
	0409	*	WRITE REDUCTION FACTOR IN IB DBR3 INTO CAM FILE
	0410	*	ARG1 = CAM FILE NO.
	0411	*	
0143R 004C	0412	WRIBRF JSUB	(=GETARG)
0144R 0017R			
0145R 608C	0413	IORA	=%18
0146R 0018			
0147R 86EE	0414	JUMP WRIBF1	
	0415	*	
	0416	*	ISSUE PROCESS SPDW COMMAND TO IB
	0417	*	
0148R 108C	0418	IBSPDW LDSA	=%C000
0149R C000			
014AR 004C	0419	STSA	(=SFIBIR)
014BR D02B			
014CR 004C	0420	STSA	(=IBIR)
014DR 0059			
014ER 804C	0421	JUMP	(=RETURN)
014FR 0015R			
	0422	*	
	0423	*	ISSUE READ BPDW COMMAND TO TC
	0424	*	
0150R 108C	0425	TCRDBPDW LDSA	=%8000
0151R 8000			
0152R 804C	0426	JUMP (=WRTRACM)	ISSUE COMMAND, CK STATUS
0153R 00D1R			
	0427	*	
	0428	*	ISSUE FLUSH BPDW COMMAND TO TC
	0429	*	
0154R 108C	0430	TCFLSHBP LDSA	=%8800

0155R	8000				
0156R	804C	0431	JUMP	(=WRTRAC0)	ISSUE CMND, CK STATUS
0157R	00D1R				
		0432	*		
		0433	*	ISSUE PROCESS	BPDW COMMAND TO TC AND CHECK STATUS
		0434	*	ARG1	= COUNT OF NO. OF PROCESS BPDW
		0435	*		CMNDS TO BE ISSUED
		0436	*	ARG2	= STATUS MASK
		0437	*	ARG3	= EXPECTED STATUS AFTER MASKING
		0438	*		
0158R	B04C	0439	TCPBPDW	JSUB	(=GETARG) GET COUNT
0159R	0017R				
015AR	1025	0440	LDSE	A	
015BR	B04C	0441	JSUB	(=GETARG)	
015CR	0017R				
015DR	001C	0442	STSA	X	SAVE MASK
015ER	B04C	0443	JSUB	(=GETARG)	
015FR	0017R				
0160R	0014	0444	STSA	B	SAVE EXPECTED STATUS
0161R	004C	0445	STSA	(=EXPECT)	
0162R	0057				
0163R	004D	0446	TCPBP1	STSE	(=INDEX)
0164R	0058				
0165R	108C	0447	LDSA	=%8A00	
0166R	8A00				
0167R	004C	0448	STSA	(=SKTCIR)	ISSUE CMND
0168R	0000				
0169R	8616	0449	JUMP	TCPBP2	
016AR	004C	0450	STSA	(=TCIR)	
016BR	0059				
016CR	108C	0451	LDSA	=%AITCT	
016DR	2710				
016ER	B04C	0452	JSUB	(=WAIT)	WAIT AT LEAST 10US
016FR	001CR				
0170R	104C	0453	LDSA	(=SKTCSTAT)	
0171R	D002				
0172R	004C	0454	STSA	(=TCSTATUS)	
0173R	005A				
0174R	E08C	0455	ASZA	=%4000	
0175R	4000				
0176R	8609	0456	JUMP	TCPBP2	NOT READY
0177R	581C	0457	ANDA	X	APPLY MASK
0178R	004C	0458	STSA	(=ACTUAL)	
0179R	0056				
017AR	D814	0459	CSEA	B	CK VS EXPECTED DATA
017BR	8604	0460	JUMP	TCPBP2	NG
017CR	C82C	0461	DSEZ	E	
017DR	86E5	0462	JUMP	TCPBP1	CONTINUF
017ER	804C	0463	JUMP	(=RETURN)	PASS
017FR	0015R				
		0464	TCPBP2	ERROR	6
0180R	804C		JUMP	(=ERR1)	
0181R	0028R				
			ENDM		

```

0465 *
0466 * READ VALID, AZIMUTH, AND FREQUENCY FROM CAM FILE
0467 * ARG1 = CAM FILE NO.
0468 * ARG2 = EXPECTED CONTENTS
0469 *
0182R D030 0470 RDIBP1 DC SFRDVAZ
0183R D038 0471 RDIBP2 DC SFRDRF
0184R B04C 0472 RDIBVAF JSUB (=GETARG)
0185R 0017R
0186R B04C 0473 STSA (=INDEX)
0187R 0058
0188R 1023 0474 LDSX A GET CFN
0189R B04C 0475 JSUB (=GETARG)
018AR 0017R
018BR B04C 0476 STSA (=EXPECT)
018CR 0057
018DR 1025 0477 LDSE A GET EXPECTED ANS
018ER 12F3 0478 LDSA (RDIBP1),X RD
018FR B04C 0479 STSA (=ACTUAL)
0190R 0056
0191R D82C 0480 CSEA E
0192R 8602 0481 JUMP RDIBVAF1 NE
0193R B04C 0482 JUMP (=RETURN) OK
0194R 0015R
0483 RDIBVAF1 ERROR 7
0195R B04C JUMP (=ERR1)
0196R 0028R

```

ENDM

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0484 *
0485 * READ REDUCTION FACTOR FROM CAM FILE
0486 * ARG1 = CAM FILE NO.
0487 * ARG2 = EXPECTED CONTENTS
0488 *
0197R B04C 0489 RDIBRF JSUB (=GETARG)
0198R 0017R
0199R B04C 0490 STSA (=INDEX)
019AR 0058
019BR 1023 0491 LDSX A GET CFN
019CR B04C 0492 JSUB (=GETARG)
019DR 0017R
019ER B04C 0493 STSA (=EXPECT)
019FR 0057
01A0R 1025 0494 LDSE A GET EXPECTED ANS
01A1R 12E1 0495 LDSA (RDIBP2),X RD
01A2R 580C 0496 ANDA =XF000
01A3R F000
01A4R B04C 0497 STSA (=ACTUAL)
01A5R 0056
01A6R D82C 0498 CSEA E
01A7R 8602 0499 JUMP RDIBRF1 NE
01A8R B04C 0500 JUMP (=RETURN) OK
01A9R 0015R
0501 RDIBRF1 ERROR 8
01AAR B04C JUMP (=ERR1)

```

P1ABR 002BR

ENDM

```

0502 *
0503 * CLEAR ALL TRACKS IN TDM
0504 *
01ACR 681B 0505 INITTDM XORX X
01ADR 6812 0506 XORR B
01AER 101C 0507 INITTD1 LDSA X
01AFR 004C 0508 STSA (=TRACK)
01B0R 0053
01B1R 004A 0509 STSB (=SKTCDB+7) CLR VALID BIT IN TC DBR 7
01B2R C407
01B3R 608C 0510 IORA =SKWRTF
01B4R 4800
01B5R 004C 0511 STSA (=SKTCIR)
01B6R D000
01B7R 8613 0512 JUMP INITTD2
01B8R 004C 0513 STSA (=TCIR)
01B9R 0059
01BAR 108C 0514 LDSA =WAITCT
01BBR 2710
01BCR B04C 0515 JSUB (=WAIT) WAIT AT LEAST 10US
01BDR 001CR
01BER 104C 0516 LDSA (=SKTCSTAT) BEFORE CHECKING STATUS
01BFR D002
01C0R 004C 0517 STSA (=TCSTATUS)
01C1R 005A
01C2R E08C 0518 ASZA =%4000
01C3R 4000
01C4R 8606 0519 JUMP INITTD2 NG
01C5R C01C 0520 ISEZ X NEVER SKIPS
01C6R D88B 0521 CSEX =128
01C7R 0080
01C8R 86E5 0522 JUMP INITTD1 DO NEXT TRACK
01C9R 804C 0523 JUMP (=RETURN)
01CAR 0015R
0524 INITTD2 ERROR 9
01CBR R04C JUMP (=ERR1)
01CCR 002BR

```

ENDM

```

0525 *
0526 * CLEAR ALL IB CAM FILES
0527 *
01CDR 108A 0528 INITIRCF LDSB =8 CLR 8 CAM FILES
01CER 0006
01CFR 108D 0529 LDSE =7
01D0R 0007
01D1R 6824 0530 INITIB1 XORA A
01D2R 004C 0531 STSA (=SKIBDB+1)
01D3R D02D
01D4R 108C 0532 LDSA =%20
01D5R 0020
01D6R 602C 0533 IORA E
01D7R F08C 0534 RSPA =10

```

01D8R 000A				
01D9R 004C	0535	STSA	(=SFIRIR)	
01DAR 002B				
01DBR 004C	0536	STSA	(=IRIR)	
01DCR 0059				
01DDR 082C	0537	DSEZ	E	
01DER 0000	0538	NDP		
01DFR 0814	0539	DSEZ	B	
01E0R 86F0	0540	JUMP	INITIB1	
01E1R 804C	0541	JUMP	(=RETURN)	
01E2R 0015R				
	0542	*		
	0543	*	ISSUE INTERROGATE CSM COMMAND TO TC	
	0544	*		
01E3R 108C	0545	INTGTCSM	LDSA =%9E00	
01E4R 9E00				
01E5R 804C	0546	JUMP	(=WRTRAC0)	
01E6R 00D1R				
	0547	*		
	0548	*	ISSUE READ MATCH ADDRESS REGISTER COMMAND TO TC	
	0549	*		
01E7R 108C	0550	RDTCMAR	LDSA =%A600	
01E8R A600				
01E9R 804C	0551	JUMP	(=WRTRAC0)	
01EAR 00D1R				
	0552	*		
	0553	*	VERIFY CONTENTS OF TC IR	
	0554	*	ARG1 = MASK	
	0555	*	ARG2 = EXPECTED IP CONTENTS AFTER MASKII	
	0556	*		
01EBR 104D	0557	CKTCIR	LDSE (=SKTCIR)	
01ECR 0000				
01EDR 004D	0558	STSE	(=TCIR)	
01EER 0059				
01EFR 804C	0559	JSUB	(=GETARG)	
01F0R 0017R				
01F1R 5825	0560	ANDF	A MASK	
01F2R 004D	0561	STSE	(=ACTUAL)	
01F3R 0056				
01F4R 804C	0562	JSUB	(=GETARG)	
01F5R 0017R				
01F6R 004C	0563	STSA	(=EXPECT)	
01F7R 0057				
01F8R 082C	0564	CSEA	E COMPARE	
01F9R 8602	0565	JUMP	CKTCIR1	
01FAR 804C	0566	JUMP	(=RETURN) PASS	
01FBR 0015R				
	0567	CKTCIR1	ERROR 10 FAIL	
01FCR 804C		JUMP	(=ERR1)	
01FDR 0028R				
		ENDM		
	0568	*		
	0569	*	ISSUE LOAD SYNTHETIC PDW COMMAND TO TC	
	0570	*		

01FER 108C	0571	LDTCSPOW	LDSA	=%8D00
01FFR 8D00				
0200R 804C	0572		JUMP	(=WRTRAC0)
0201R 00D1R				
	0573	*		
	0574	*	ISSUE RESET FSU	COMMAND TO TC
	0575	*		
0202R 108C	0576	RESETFSU	LDSA	=%8B00
0203R 8B00				
0204R 804C	0577		JUMP	(=WRTRAC0)
0205R 00D1R				
	0578	*		
	0579	*	ISSUE PROCESS SYNTHETIC TRACK FILE	COMMAND TO TC
	0580	*	ARG1	= TRACK NO. TO BE ASSUMED BY STF
	0581	*		
0206R 804C	0582	TCPSTF	JSUB	(=GETARG)
0207R 0017R				
0208R 004C	0583		STSA	(=TRACK)
0209R 0053				
020AR 608C	0584		IDRA	=%A800
020BR AB00				
020CR 804C	0585		JUMP	(=WRTRAC0)
020DR 00D1R				
	0586	*		
	0587	*	ISSUE READ FSU UPDATE REGISTERS	COMMAND TO TC
	0588	*		
020ER 108C	0589	RDFSUUR	LDSA	=%B400
020FR B400				
0210R 804C	0590		JUMP	(=WRTRAC0)
0211R 00D1R				
	0591	*		
	0592	*	LOAD TC INTERRUPT STATUS WORD	
	0593	*	ARG1	= DATA TO BE LOADED
	0594	*		
0212R 804C	0595	LDTCISW	JSUB	(=GETARG)
0213R 0017R				
0214R 004C	0596		STSA	(=SKTCISW)
0215R D001				
0216R 004C	0597		STSA	(=TCISW)
0217R 005B				
0218R 804C	0598		JUMP	(=RETURN)
0219R 0015R				
	0599	*		
	0600	*	READ AND VERIFY TC ISW	
	0601	*	ARG1	= MASK
	0602	*	ARG2	= EXPECTED CONTENTS AFTER MASKING
	0603	*		
021AR 804C	0604	CKTCISW	JSUB	(=GETARG)
021BR 0017R				
021CR 104A	0605		LDSB	(=SKTCISW) RD
021DR D001				
021ER 004A	0606		STSB	(=TCISW)
021FR 005B				
0220R 5822	0607	ANDB	A	MASK

```

0221R 004A 0608 STSE (=ACTUAL)
0222R 0056
0223R B04C 0609 JSUB (=GETARG)
0224R 0017R
0225R 004C 0610 STSA (=EXPECT)
0226R 0057
0227R D022 0611 CSEF A COMPARE
0228R 8002 0612 JUMP CKTCISW1 NG
0229R 804C 0613 JUMP (=RETURN) OK
022AR 0015R
0614 CKTCISW1 ERROR 11
022BR 804C JUMP (=ERR1)
022CR 002BR
ENDM

0615 *
0616 * ENABLE BUS HUNG INTERRUPT
0617 *
022DR 022DR 0618 ENRBHUNG EQU #
022DR 100C 0619 LDSA =BHRUPT
022ER 004ER
022FR 004C 0620 STSA (=1700) SET TRAP ADDR
0230R 01C0
0231R 6B24 0621 XORA A
0232R 004C 0622 STSA (=SFPINMSK)
0233R FEFF
0234R 108C 0623 LDSA =9 ENB VIA TC
0235R 0009
0236R 004C 0624 STSA (=SKTCISW)
0237R D001
0238R 004C 0625 STSA (=TCISW)
0239R 005B
023AR 8807 0626 EHII
023BR 8806 0627 ELOI
023CR 804C 0628 JUMP (=RETURN)
023DR 0015R
0629 *
0630 * GENERATE TEST BUS HUNG INTERRUPT
0631 *
023ER 8805 0632 CKBHRUPT DLOI
023FR 108C 0633 LDSA =1
0240R 0001
0241R 004C 0634 STSA (=BHTEST)
0242R 0002R
0243R 8806 0635 ELOI
0244R 104C 0636 LDSA (=SFINITIB) HANG THE BUS
0245R D025
0246R 0000 0637 NOP ALLOW BUS TO HANG
0247R 0000 0638 NOP
0248R 0000 0639 NOP
0249R 0000 0640 NOP
024AR 6B24 0641 XORA A
024BR 304C 0642 SWPA (=BHTEST) CLR TEST FLAG
024CR 0002R
024DR D80C 0643 CSEA =2
    
```

024ER 0002

024FR 8002

0644

JUMP CK8HRU1 FAIL

0250R 804C

0645

JUMP (=RETURN) PASS

0251R 0015R

0646

CK8HRU1 ERROR 12

0252R 804C

JUMP (=ERR1)

0253R 0028R

ENDM

0648 \*

0649 \*

LOAD TC INSTRUCTION REGISTER

0650 \*

ARG1 = DATA TO BE LOADED

0651 \*

0254R

0652

LOADTCIR EQU #

0254R 804C

0653

JSUB (=GETARG)

0255R 0017R

0256R 804C

0654

JUMP (=WRTRAC0)

0257R 0001R

0655 \*

0656 \*

NOP ROUTINE

0657 \*

0258R 804C

0658

NOPROUT JUMP (=RETURN)

0259R 0015R

0659 \*

0660 \*

END OF TEST PROGRAM ROUTINE

0661 \*

025AR

0662

EOTEST EQU #

025AR 104C

0663

LDSA (=SBMSGLO)

025BR 0051

025CR 06FD

0664

JNGA #-2

025DR 108C

0665

LDSA =%9300

025ER 9300

025FR 004C

0666

STSA (=SBMSGLO+1)

0260R 0052

0261R 108C

0667

LDSA =-1

0262R FFFF

0263R 108A

0668

LDSB =TRACK

0264R 0053

0265R 108D

0669

LDSE =14

0266R 000E

0267R 0094

0670

EOT1 STSA B\*

0268R C82C

0671

DSEZ E

0269R 86FD

0672

JUMP EOT1

026AR 108C

0673

LDSA =%8002

026BR 8002

026CR 004C

0674

STSA (=SBMSGLO)

026DR 0051

026ER 8800

0675

HALT

0676 \*

0677 \*

INCREMENT TEST NO.

0678 \*

026FR C04C

0679

TEST.... ISEZ (=TESTNO)

0270R 0003R

0271R 804C

0680

JUMP (=RETURN)

0272R 0015R

		0681	*			
		0682	*	INCREMENT	UNIT NO.	
		0683	*	(DESTINFD FOR BITS 6-1 OF ERR MSG)		
		0684	*			
0273R	C04C	0685		UNIT....	ISEZ	(=UNITNO)
0274R	0004R					
0275R	C04C	0686			ISEZ	(=UNITNO)
0276R	0004R					
0277R	6624	0687		XORA	A	
0278R	108D	0688		LDSE	=8	
0279R	0008					
027AR	108A	0689		LDSB	=CMND	
027BR	0059					
027CR	0094	0690	UNIT1	STSA	R*	CLR LAST 8 WDS OF MSG BUFF
027DR	C82C	0691		OSEZ	E	
027ER	86FD	0692		JUMP	UNIT1	
027FR	004C	0693		JUMP	(=RETURN)	
0280R	0015R	0694		LIST	EJECT	

Address	Code	Label	DC	Comments	Page
0695	*				
0696	*	CHECKOUT OF INPUT BUFFER			
0697	*				
0281R	0698	SORTTEST EQU	#	1	
0281R	0273R	0699	DC	UNIT....	
0282R	022DR	0700	DC	ENBBHUNG	
0283R	0074R	0701	DC	INITIB	2
0284R	0078R	0702	DC	INITFIFO	
0285R	007CR	0703	DC	INITIC	3
0286R	0212R	0704	DC	LDTCISW,9	ENB BUS HUNG
0287R	0009	0704			
0288R	026FR	0705	DC	TEST...1	
0289R	021AR	0706	DC	CKTCISW	
028AR	0000	0707	DC	%0000,%8000	
028BR	0000	0707			
028CR	026FR	0708	DC	TEST....2	
028DR	023ER	0709	DC	CKBHRUPT	GEN TEST BUS HUN
028ER	026FR	0710	DC	TEST...3	
028FR	0080R	0711	DC	CKIBSTAT	4
0290R	<del>0000</del> 7	0712	DC	7,0	
0291R	<del>0007</del> 0	0712			
0292R	026FR	0713	DC	TEST...4	
0293R	0093R	0714	DC	CKTCSTAT	5
0294R	F0FB	0715	DC	%F0FB,%78	
0295R	0078	0715			
0296R	00A6R	0716	DC	SETBPDW	6
0297R	00AAR	0717	DC	SETUPDW	7
0298R	00AER	0718	DC	CLRRMFMT	8
0299R	00B2R	0719	DC	SETTCRUN	9
029AR	026FR	0720	DC	TEST...5	
029BR	0093R	0721	DC	CKTCSTAT	
029CR	F0FB	0722	DC	%F0FB,%A0BB 10	
029DR	A0BB	0722			
029ER	00B6R	0723	DC	CLRRPDW	11
029FR	00BAR	0724	DC	SETRMFMT	12
02A0R	026FR	0725	DC	TEST...6	
02A1R	01ACR	0726	DC	INITTDM	12A
	0727		GENTRK	31	13-19
02A2R	00BER		DC	LOADTCDB	
02A3R	0396R		DC	TF31	
02A4R	026FR		DC	TEST...7	
02A5R	00CBR		DC	WRTRACK	
02A6R	001F		DC	31	
02A7R	00BER		DC	LOADTCDB,TFMILL	
02A8R	0386R				
02A9R	026FR		DC	TEST...8	
02AAR	00E5R		DC	RDTRACK	
02ABR	001F		DC	31	
02ACR	026FR		DC	TEST...9	
02ADR	00ECP		DC	CKTCDB,TF31	
02AER	0396R				
02AFR	026FR		DC	TEST...A	
02B0R	0104R		DC	RDCSM	
02B1R	001F		DC	31	



02E2R	026FR	DC	TEST... <sup>17</sup>
02E3R	00E5R	DC	RDTRACK
02E4R	006A	DC	106
02E5R	026FR	DC	TEST... <sup>18</sup>
02E6R	00ECR	DC	CKTCDB,TF106
02E7R	03AER		
02E8R	026FR	DC	TEST... <sup>19</sup>
02E9R	0104R	DC	RDCSM
02EAR	006A	DC	106
02EBR	026FR	DC	TEST... <sup>1A</sup>
02ECR	010CR	DC	CKCSM,TFCS106
02EDR	03EER		

ENDM

02EER	01CDR	0731	DC	INITIBCF	25A
02EFR	0121R	0732	DC	SFTIBRUN	26
02F0R	026FR	0733	DC	TEST... <sup>1B</sup>	
02F1R	0080R	0734	DC	CKIBSTAT	27
02F2R	<del>0001</del> 7	0735	DC	<del>17</del> 7,1	
02F3R	<del>0001</del> 1	0735			
02F4R	0125R	0736	DC	LOADIBDB	28-30
02F5R	03BER	0737	DC	CF1	
02F6R	0132R	0738	DC	WRIBFREQ,7	31
02F7R	0007	0738			
02F8R	013ER	0739	DC	WRIBVAZ,7	32
02F9R	0007	0739			
02FAR	0143R	0740	DC	WRIBRF,7	33
02FBR	0007	0740			
02FCR	0125R	0741	DC	LOADIBDB	
02FDR	03BAR	0742	DC	PDWNULL	
02FER	026FR	0743	DC	TEST... <sup>1C</sup>	
02FFR	0184R	0744	DC	RDIBVAF,7,%A7FF	34
0300R	0007	0744			
0301R	A7FF	0744			
0302R	026FR	0745	DC	TEST... <sup>1D</sup>	
0303R	0197R	0746	DC	RDIBRF,7,0	34
0304R	0007	0746			
0305R	0000	0746			
0306R	0125R	0747	DC	LOADIBDB,PDW1	35
0307R	0392R	0747			
0308R	026FR	0748	DC	TEST... <sup>1E</sup>	
0309R	0093R	0749	DC	CKTCSTAT	36
030AR	1000	0750	DC	%1000,0	
030BR	0000	0750			
030CR	0148R	0751	DC	IRSPDW	37
030DR	026FR	0752	DC	TEST... <sup>1F</sup>	
030ER	0093R	0753	DC	CKTCSTAT	38
030FR	1000	0754	DC	%1000,%1000	
0310R	1000	0754			
0311R	00BER	0755	DC	LOADTCDB,TFNULL	
0312R	03B6R	0755			
0313R	026FR	0756	DC	TEST... <sup>20</sup>	
0314R	0150R	0757	DC	TCRDBPDW	39
0315R	026FR	0758	DC	TEST... <sup>21</sup>	
0316R	00ECR	0759	DC	CKTCDB	40

TEST TABLE

0317R	03C2R	0760	DC	BPDW1	
0318R	026FR	0761	DC	TEST. <i>2.2</i>	
0319R	0154R	0762	DC	TCFLSHBP	41
031AR	026FR	0763	DC	TEST. <i>2.3</i>	
031BR	0093R	0764	DC	CKTCSTAT	42
031CR	1000	0765	DC	%1000,0	
031DR	0000	0765			
031ER	0125R	0766	DC	LOADIBDB	43
031FR	03CAR	0767	DC	CF2	
0320R	0143R	0768	DC	WRIBRF,7	44
0321R	0007	0768			
0322R	0125R	0769	DC	LOADIBDB,PDW1	45
0323P	0392R	0769			
0324R	026FR	0770	DC	TEST. <i>2.4</i>	
0325R	0158R	0771	DC	TCPBPDW,240	46
0326R	00F0	0771			
0327R	1000	0772	DC	%1000,0	
0328R	0000	0772			
0329R	026FR	0773	DC	TEST. <i>2.5</i>	
032AR	0158R	0774	DC	TCPBPDW,1	47
032BR	0001	0774			
032CR	1000	0775	DC	%1000,%1000	
032DR	1000	0775			
032ER	026FR	0776	DC	TEST. <i>2.6</i>	
032FR	0150R	0777	DC	TCRDBPDW	48
0330R	026FR	0778	DC	TEST. <i>2.7</i>	
0331R	00FCR	0779	DC	CKTCOB	48
0332R	03C2R	0780	DC	BPDW1	
		0781	*		
		0782	*	CHECKOUT OF CSM INTERROGATE AND	
		0783	*	ADDRESS GENERATION	
		0784	*		
0333R	0273R	0785	DC	UNIT. <i>2</i>	
0334R	00BER	0786	DC	LOADTCDB	49
0335R	03CER	0787	DC	REPDW1	
0336R	026FR	0788	DC	TEST. <i>2.8</i>	
0337R	01E3P	0789	DC	INTGTCSM	50
0338R	026FR	0790	DC	TEST. <i>2.9</i>	
0339R	01E7R	0791	DC	RDTCMAR	51
033AR	026FR	0792	DC	TEST. <i>2.A</i>	
033BR	01EBR	0793	DC	CKTCIR	52-53
033CR	FFFF	0794	DC	-1,%A61F	
033DR	A61F	0794			
033ER	026FR	0795	DC	TEST. <i>2.B</i>	
033FR	01E7R	0796	DC	RDTCMAR	54
0340R	026FR	0797	DC	TEST. <i>2.C</i>	
0341R	01EBR	0798	DC	CKTCIR	55-56
0342R	FFFF	0799	DC	-1,%A620	
0343R	A620	0799			
0344R	026FR	0800	DC	TEST. <i>2.D</i>	
0345R	01E7R	0801	DC	RDTCMAR	57
0346R	026FR	0802	DC	TEST. <i>2.E</i>	
0347R	01EBR	0803	DC	CKTCIR	58-59
0348R	FFFF	0804	DC	-1,%A655	

0349R	A655	0804			
034AR	026FR	0805	DC	TEST... <sup>2F</sup>	
034BR	01E7R	0806	DC	ROTCMAR	60
034CR	026FR	0807	DC	TEST... <sup>30</sup>	
034DR	01EBR	0808	DC	CKTCIR	61-62
034ER	FFFF	0809	DC	-1, XA66A	
034FR	A66A	0809			
0350R	026FR	0810	DC	TEST... <sup>31</sup>	
0351R	01E7R	0811	DC	ROTCMAR	63
0352R	026FR	0812	DC	TEST... <sup>32</sup>	
0353R	01EBR	0813	DC	CKTCIR	64-65
0354R	FF80	0814	DC	%FF80, XA680	
0355R	A680	0814			

0815 \*  
 0816 \* CHECKOUT OF TC FSU  
 0817 \*

0356R	00BER	0818	DC	LOADTCDB	66
0357R	03C2R	0819	DC	BPDW1	
0358R	01FER	0820	DC	LOTCSPOW	67
		0821	CKFSU	31	68-72

0359R	026FR		DC	TEST... <sup>33</sup>	
035AR	0202R		DC	RESETFSU	
035BR	00BER		DC	LOADTCDB, TF31	
035CR	0396R				
035DR	026FR		DC	TEST... <sup>34</sup>	
035ER	0206R		DC	TCPSTF	
035FR	001F		DC	31	
0360R	00BER		DC	LOADTCDB, TFNULL	
0361R	03B6R				
0362R	026FR		DC	TEST... <sup>35</sup>	
0363R	020ER		DC	RDFSUUR	
0364R	026FR		DC	TEST... <sup>36</sup>	
0365R	00ECR		DC	CKTCDB, TFFS31	
0366R	03F6R				

0822 ENDM CKFSU 32 73-77

0367R	026FR		DC	TEST... <sup>37</sup>	
0368R	0202R		DC	RESETFSU	
0369R	00BER		DC	LOADTCDB, TF32	
036AR	039ER				
036BR	026FR		DC	TEST... <sup>38</sup>	
036CR	0206R		DC	TCPSTF	
036DR	0020		DC	32	
036ER	00BER		DC	LOADTCDB, TFNULL	
036FR	03B6R				
0370R	026FR		DC	TEST... <sup>39</sup>	
0371R	020ER		DC	RDFSUUR	
0372R	026FR		DC	TEST... <sup>3A</sup>	
0373R	00ECR		DC	CKTCDB, TFFS32	
0374R	03FER				

0823 ENDM CKFSU 85 78-82

0375R	026FR		DC	TEST... <sup>3B</sup>	
0376R	0202R		DC	RESETFSU	

0377R	00BER	DC	LOADTCDB,TF85
0378R	03A6R		
0379R	026FR	DC	TEST.3C
037AR	0206R	DC	TCPSTF
037BR	0055	DC	85
037CR	00BER	DC	LOADTCDB,TFNULL
037DR	03B6R		
037ER	026FR	DC	TEST.3D
037FR	020ER	DC	RDFSUUR
0380R	026FR	DC	TEST.3E
0381R	00ECP	DC	CKTCDB,TFFS85
0382R	0406R		

ENDM

0383R	026FR	0824	CKFSU	106	83-87
0384R	0202P		DC	TEST.3F	
0385R	00BER		DC	RESETFSU	
0386R	03AER		DC	LOADTCDB,TF106	
0387R	026FR		DC	TEST.40	
0388R	0206R		DC	TCPSTF	
0389R	006A		DC	106	
038AR	00BER		DC	LOADTCDB,TFNULL	
038BR	03B6R				
038CR	026FR		DC	TEST.41	
038DR	020ER		DC	RDFSUUR	
038ER	026FR		DC	TEST.42	
038FR	00ECP		DC	CKTCDB,TFFS106	
0390R	040ER				

ENDM

0391R	025AR	0825	DC	EDTEST	
		0826	*		
		0827	*	TEST DATA	
		0828	*		
0392R	AAA8	0829	PCW1	DC	%AAA8
0393R	0072	0830		DC	%0072
0394R	780C	0831		DC	%780C
0395R	1FFF	0832		DC	%1FFF
0396R	0070	0833	TF31	DC	%0070,%0FFF
0397R	0FFF	0833			
0398R	1000	0834		DC	%1000,%1000
0399R	1000	0834			
039AR	AA0C	0835		DC	%AA0C,0
039BR	0000	0835			
039CR	AAA8	0836		DC	%AAA8,%3E08
039DR	3E08	0836			
039ER	0470	0837	TF32	DC	%0470,%03FF
039FR	03FF	0837			
03A0R	1800	0838		DC	%1800,%0400
03A1R	0400	0838			
03A2R	550E	0839		DC	%550E,0
03A3R	0000	0839			
03A4R	AAC0	0840		DC	%AAC0,%0308
03A5R	0308	0840			
03A6R	1068	0841	TF85	DC	%1068,%1FFF

03A7R	1FFF	0841			
03A8R	1000	0842		DC	%1000,%1000
03A9R	1000	0842			
03AAR	FF0E	0843		DC	%FF0E,0
03ABR	0000	0843			
03ACR	AAAB	0844		DC	%AAAB,%00F8
03ADR	00F8	0844			
03AER	0C74	0845	TF106	DC	%0C74,%0FFF
03AFR	0FFF	0845			
03B0R	0666	0846		DC	%0666,%019A
03B1R	019A	0846			
03B2R	000C	0847		DC	%000C,0
03B3R	0000	0847			
03B4R	AA80	0848		DC	%AA80,%21F8
03B5R	21F8	0848			
03B6R	0000	0849	TFNULL	DC	0,0,0,0
03B7R	0000	0849			
03B8R	0000	0849			
03B9R	0000	0849			
03BAR	0000	0850	PDWNULL	DC	0,0,0,0
03BBR	0000	0850			
03BCR	0000	0850			
03BDR	0000	0850			
03BER	AAA0	0851	CF1	DC	%AAA0,%0072
03BFR	0072	0851			
03C0R	0000	0852		DC	0,0
03C1R	0000	0852			
03C2R	AAAB	0853	BPDW1	DC	%AAAB,0
03C3R	0000	0853			
03C4R	0072	0854		DC	%0072,0
03C5R	0000	0854			
03C6R	780C	0855		DC	%780C,0
03C7R	0000	0855			
03C8R	1FFF	0856		DC	%1FFF,0
03C9R	0000	0856			
03CAR	0000	0857	CF2	DC	0,0
03CBR	0000	0857			
03CCR	0000	0858		DC	0,%F000
03CDR	F000	0858			
03CER	AAAB	0859	REPDW1	DC	%AAAB,0
03CFR	0000	0859			
03D0R	0000	0860		DC	0,0
03D1R	0000	0860			
03D2R	0000	0861		DC	0,0
03D3R	0000	0861			
03D4R	0072	0862		DC	%0072,0
03D5R	0000	0862			
	03D6R	0863	TFCS31	EQU	#
03D6R	7FE9	0864		DC	%7FE9,%0004,0,0,0,0,0
03D7R	0004	0864			
03D8R	0000	0864			
03D9R	0000	0864			
03DAR	0000	0864			
03DBR	0000	0864			

03DCR	0000	0864			
03DDR	0000	0864			
	03DER	0865	TFCS32	EQU #	
03DER	7FC9	0866		DC	%7FC9,%0004,0,0,0,0,0
03DFR	0004	0866			
03E0R	0000	0866			
03E1R	0000	0866			
03E2R	0000	0866			
03E3R	0000	0866			
03E4R	0000	0866			
03E5R	0000	0866			
	03E6R	0867	TFCS85	EQU #	
03E6R	7FEB	0868		DC	%7FEB,%0004,0,0,0,0,0
03E7R	0004	0868			
03E8R	0000	0868			
03E9R	0000	0868			
03EAR	0000	0868			
03EBR	0000	0868			
03ECR	0000	0868			
03EDR	0000	0868			
	03EER	0869	TFCS106	EQU #	
03EER	7FE9	0870		DC	%7FE9,%0004,0,0,0,0,0
03EFR	0004	0870			
03F0R	0000	0870			
03F1R	0000	0870			
03F2R	0000	0870			
03F3R	0000	0870			
03F4R	0000	0870			
03F5R	0000	0870			
	03F6R	0871	TFFS31	EQU #	
03F6R	0070	0872		DC	%0070,%1FFF
03F7R	1FFF	0872			
03F8R	0000	0873		DC	0,0
03F9R	0000	0873			
03FAR	AA0C	0874		DC	%AA0C,0
03FBR	0000	0874			
03FCR	AAA8	0875		DC	%AAA8,%3E0B
03FDR	3E08	0875			
	03FER	0876	TFFS32	EQU #	
03FER	0470	0877		DC	%0470,%1FFF
03FFR	1FFF	0877			
0400R	0000	0878		DC	0,0
0401R	0000	0878			
0402R	550E	0879		DC	%550E,0
0403R	0000	0879			
0404R	AAC0	0880		DC	%AAC0,%0308
0405R	0308	0880			
	0406R	0881	TFFS85	EQU #	
0406R	1068	0882		DC	%1068,%1FFF
0407R	1FFF	0882			
0408R	0000	0883		DC	0,0
0409R	0000	0883			
040AR	FF0E	0884		DC	%FF0E,0
040BR	0000	0884			

TEST TABLE

040CR	AAAA	0885	DC	%AAAA,%00FB
040DR	00FB	0885		
	040ER	0886	TFPS106	EQU
040ER	0C74	0887	DC	%0C74,%1FFF
040FR	1FFF	0887		
0410R	0000	0888	DC	0,0
0411R	0000	0888		
0412R	000C	0889	DC	%000C,0
0413R	0000	0889		
0414R	AAB0	0890	DC	%AAB0,%21FB
0415R	21FB	0890		
0416R		0892	END	

0000 ERRS

0056	ACTUAL	0234S	0250S	0341S	0371S	0458S	0479S	0497S	0561S	0606S
004ER	BHRUPT	0619								
005ER	BHRUPT0	NO REFERENCES								
0066R	BHRUPT1	0193J								
0002R	BHTEST	0192	0194S	0634S	0642S					
03C2R	BPDW1	0760	0780	0819						
03BER	CF1	0737								
03CAR	CF2	0767								
0010	CFMSGHI	0120								
0252R	CKBHRU1	0644J								
023ER	CKBHRUPT	0709								
010CR	CKCSM	0727	0728	0729	0730					
0117R	CKCSM1	0363J								
011AR	CKCSM2	0365J								
011CR	CKCSM3	0368J								
0091R	CKIBST1	0238J								
0080R	CKIBSTAT	0711	0734							
00ECR	CKTCDB	0727	0728	0729	0730	0759	0779	0821	0822	0823 0824
00F3R	CKTCDB1	0338J								
00FAR	CKTCDB2	0336J								
01EBR	CKTCIR	0793	0798	0803	0808	0813				
01FCR	CKTCIR1	0565J								
021AR	CKTCISW	0706								
022BR	CKTCISW1	0612J								
00A4R	CKTCST1	0254J								
0093R	CKTCSTAT	0714	0721	0749	0753	0764				
00AER	CLRBMT	0718								
0086R	CLRPDW	0723								
0059	CMND	0104	0107	0689						
005A	CSTATUS	0106	0108							
005F	DIBSTAT	0170S								
005D	DTCISW	0166S								
005E	DTCSTAT	0168S								
022DR	ENBBHUNG	0700								
0267R	EOT1	0672J								
025AR	EOTEST	0825								
0028R	ERP1	0240J	0256J	0317J	0345J	0372J	0464J	0483J	0501J	0524J 0567J
		0614J	0646J							
0057	EXPECT	0236S	0252S	0343S	0367S	0369S	0445S	0476S	0493S	0563S 0610S
0017R	GETARG	0232J	0235J	0248J	0251J	0292J	0304J	0322J	0331J	0350J 0360J
		0383J	0395J	0405J	0412J	0439J	0441J	0443J	0472J	0475J 0489J
		0492J	0559J	0562J	0582J	0595J	0604J	0609J	0653J	
0059	IBIR	0399S	0420S	0536S						
0148R	IBSPDW	0751								
005A	IBSTATUS	0231S								
0058	INDEX	0344S	0446S	0473S	0490S					
0078R	INITFIFO	0702								
0074R	INITIB	0701								
01D1R	INITIB1	0540J								
01CDR	INITIBCF	0731								
007CR	INITTC	0703								
01AER	INITTD1	0522J								
01CBR	INITTD2	0512J	0519J							
01ACR	INITTDM	0726								



0029	SFSSSIR	NO REFERENCES									
0028	SFSTEPB	NO REFERENCES									
0008	SFTCBPDD	0280S									
0009	SFTCBPDE	0260S									
000C	SFTCBUFD	0270S									
000D	SFTCBUFE	0285S									
0007	SFTCINIT	0223S									
000E	SFTCRUN	0275S									
000F	SFTCSTEP	NO REFERENCES									
000A	SKDUPDW	NO REFERENCES									
000B	SKEUPDW	0265S									
002C	SKI0DB	0382	0531S								
5400	SKRDTF	0324									
C400	SKTCDB	0291	0330	0359	0509S						
7E00	SKTCHALT	NO REFERENCES									
0000	SKTCIR	0307S	0448S	0511S	0557						
0001	SKTCISW	0165	0596S	0605	0624S						
0003	SKTCSEQ1	NO REFERENCES									
0004	SKTCSEQ2	NO REFERENCES									
0005	SKTCSEQ3	NO REFERENCES									
0002	SKTCSTAT	0167	0246	0312	0453	0516					
4800	SKWRTF	0306	0510								
02B1R	SORTTEST	0125									
0140	STACK	0121									
0005R	START	0002J									
0154R	TCFLSHBP	0762									
0059	TCIR	0309S	0450S	0513S	0558S						
005B	TCISW	0597S	0606S	0625S							
0163R	TCPBP1	0462J									
0180R	TCPBP2	0449J	0456J	0460J							
0158R	TCPBPDW	0771	0774								
0206R	TCPSTF	0821	0822	0823	0824						
0150R	TCRDBPDW	0757	0777								
005A	TCSTATUS	0247S	0313S	0454S	0517S						
026FR	TEST....	0705	0708	0710	0713	0720	0725	0727	0727	0727	0727
		0727	0728	0728	0728	0728	0728	0729	0729	0729	0729
		0729	0730	0730	0730	0730	0730	0733	0743	0745	0748
		0752	0756	0758	0761	0763	0770	0773	0776	0778	0788
		0790	0792	0795	0797	0800	0802	0805	0807	0810	0812
		0821	0821	0821	0821	0822	0822	0822	0822	0823	0823
		0823	0823	0824	0824	0824	0824				
0003R	TESTND	0123S	0171	0679S							
03AER	TF106	0730	0730	0824							
0396R	TF31	0727	0727	0821							
039ER	TF32	0728	0728	0822							
03A6R	TF85	0729	0729	0823							
03EER	TFCS106	0730									
03D6R	TFCS31	0727									
03DER	TFCS32	0728									
03E6R	TFCS85	0729									
040ER	TFFS106	0824									
03F6R	TFFS31	0821									
03FER	TFFS32	0822									
0406R	TFFS85	0823									

03B6R	TFNULL	0727	0728	0729	0730	0755	0821	0822	0823	0824	
0053	TRACK	0305S	0323S	0351S	0508S	0583S	0668				
0054	TTND	0172S									
0055	TTPTR	0174S									
0273R	UNIT....	0699	0785								
027CR	UNIT1	0692J									
2004R	UNITND	0124S	0176	0685S	0686S						
001CR	WAIT	0146J	0311J	0452J	0515J						
2710	WAITCT	0310	0451	0514							
0136F	WRIBF1	0407J	0414J								
0132R	WRIBFREQ	0738									
0143R	WRIBRF	0740	0768								
013ER	WRIBVAZ	0739									
0001R	WRTRAC0	0325J	0353J	0426J	0431J	0546J	0551J	0572J	0577J	0585J	0590J
		0654J									
00E3R	WRTRAC1	0308J	0315J								
00C8R	WRTRACK	0727	0728	0729	0730						