

MAY 01 1981

BELL TELEPHONE LABORATORIES, INCORPORATED

7-187

COMMON SYSTEMS  
FOR USE WITH NO. 3 ESS  
ARRANGED WITH 2-WIRE FEATURES  
COMMON TAPE MAINTENANCE  
(CTAPM)

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ISSUE 6  
02/07/81

AT&TCO  
SPCS

PR-1C958-50  
187 PAGES

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## SECTION DICTIONARY

NUMBER	NAME	MAXIMUM	ORIGIN	TYP	ADDRESS-MODIFICATION
01	CTAPM	0000073		C	
02	TAPEDGN	0002422		C	
03	CPATCH	0000425		C	
04	CPATCH1	0000000		C	
05	CPATCH2	0000000		C	
06	CPATCH3	0000167		C	
07	CPATCH7	0000000		C	
08	TFAPCH2	0001063		C	
09	TPATCH	0000000		C	

COMMON TAPE MAINTENANCE

PR-1C958-50

09:34:51 02/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE A1

VERSION W77D OF SWAP; VERSION OF EPL

9:34:51 2/07/81 \*\*\*\*

CTAPM W77D

0127526  
0127526  
0127526

```

01 DBNAM NO33E3I3.OFF.DATABASE
02 RELNAM NO3ESS
03 GETLIB LIBRARY, MEMBER=MOPTBL
04 GETLIB LIBRARY, MEMBER=SYSMAC
05 GETLIB LIBRARY, MEMBER=SYSSYM
06 GETLIB LIBRARY, MEMBER=PATCH2
07 FIRSTOPTSS
08 VERSION 3ACC, FIELD, ESS2E
09 PATCHINIT
10 NO33E3I3.OFF.OPMS(0) DECK
11 DSQUAL NO33E3I3
12 LISTING N, CRUNCH=Y, SYSOUT=N
13 #####
14 ##
15 ## UNIX ID = NO3PAG
16 ##
17 #####
18 #####
19 ###
20 ### pid date time rel
21 ###
22 ### ctapm 1/24/81 18:19:42 7.1.1.1
23 ###
24 #####
25 NAME CTAPM

```

0127526  
0127621

29 ## The following is a list of the valid csects for program CTAPM

```

31 CTAPM CSECT
32 TAPEDGN CSECT

```

0111432  
0112562  
0114107  
0115073  
0121236

35 ## The following csects are necessary for patching

```

37 CPATCH CSECT
38 CPATCH1 CSECT
39 CPATCH2 CSECT
40 CPATCH3 CSECT
41 CPATCH7 CSECT

```

0116774

43 TFAPCH2 CSECT

0600000

45 TPATCH CSECT

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CTAPM W77D

0127526

01 OREF ON  
02 CTAPM CSECT  
03 # This data set was modified by QED on P03/30/77

COMMON TAPE MAINTENANCE

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9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 2

E01

9:34:51 2/07/81 \*\*\*\*

CTAPM W77D

01	GETLIB	MEMBER=GPMAC
02	GETLIB	MEMBER=BSAIMAC
03	GETLIB	MEMBER=CCSYM
04	GETLIB	MEMBER=CTVTAB
05	GETLIB	MEMBER=TAPMAC
06	GETLIB	MEMBER=TAPSYM
07	GETLIB	MEMBER=TTYMAC
08	GETLIB	MEMBER=TTYSYM

COMMON TAPE MAINTENANCE

PR-10958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 3

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPH

W77D

01 TTYTBL EXTERN AXBT  
02 TTYTBL EXTERN RPT  
03 TTYTBL EXTERN STEP  
04 TTYTBL EXTERN UCL  
05 TTYTBL EXTERN TTY\_NG  
06 TTYTBL EXTERN TTY\_RL  
07 TTYTBL EXTERN TTY\_IP

11 TTYAPP EXTERN MFAD

15 BLMMA EXTERN DGNTAPE  
16 BLMMA EXTERN TEMPINH\_

#Interface to CMMON TEMPINH, for real time  
break.

21 CSYSUB EXTERN CLR\_WRDS  
22 CSYSUB EXTERN SENDMIO  
23 CSYSUB EXTERN SENDIO  
24 CSYSUB EXTERN ST2\_11

28 CBLM EXTERN ACTMSF  
29 CBLM EXTERN MSFREQ  
30 CBLM EXTERN MSFABT  
31 CBLM EXTERN WAIT

35 LAYOUT EXTERN TTY\_MFA

39 CTSD EXTERN TDCO  
40 CTSD EXTERN TCBADR  
41 LAYOUT EXTERN I\_OBUF  
42 CTSD EXTERN TUSTAT  
43 CTSD EXTERN PAGSCR  
44 CTSD EXTERN MSFPROG  
45 CTSD EXTERN YEARS

COMMON TAPE MAINTENANCE

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9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 4

E01

9:34:51 2/07/81 \*\*\*\*

CTAPM W77D

01	GETLIB	MEMBER=GPHAC
02	GETLIB	MEMBER=BSAIMAC
03	GETLIB	MEMBER=CCSYM
04	GETLIB	MEMBER=CTVTAB
05	GETLIB	MEMBER=TAPMAC
06	GETLIB	MEMBER=TAPSYM
07	GETLIB	MEMBER=TTYMAC
08	GETLIB	MEMBER=TTYSYM

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPM

W77D

01 TTYTBL EXTERN AXBT  
 02 TTYTBL EXTERN RPT  
 03 TTYTBL EXTERN STEP  
 04 TTYTBL EXTERN UCL  
 05 TTYTBL EXTERN TTY\_NG  
 06 TTYTBL EXTERN TTY\_RL  
 07 TTYTBL EXTERN TTY\_IP

11 TTYAPP EXTERN MFAD

15 BLMMA EXTERN DGNTAPE  
 16 BLMMA EXTERN TEMPINH\_

#Interface to CMON TEMPINH, for real time  
 break.

21 CSYSUB EXTERN CLR\_WRDS  
 22 CSYSUB EXTERN SENDMIO  
 23 CSYSUB EXTERN SENDIO  
 24 CSYSUB EXTERN ST2\_11

28 CBLM EXTERN ACTMSF  
 29 CBLM EXTERN MSFREQ  
 30 CBLM EXTERN MSFABT  
 31 CBLM EXTERN WAIT

35 LAYOUT EXTERN TTY\_MFA

39 CTSD EXTERN TDCO  
 40 CTSD EXTERN TCBADR  
 41 LAYOUT EXTERN I\_OBUF  
 42 CTSD EXTERN TUSTAT  
 43 CTSD EXTERN PAGSCR  
 44 CTSD EXTERN MSFPROG  
 45 CTSD EXTERN YEARS

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPH W77D

01 TDATA EXTERN TAPETBL

05 CTAPH EXTERN DGRRMV  
06 CTAPH EXTERN DIAGST  
07 CTAPH EXTERN INITTAPE  
08 CTAPH EXTERN REQSTP  
09 CTAPH EXTERN POSST

13 MASACS EXTERN BLKMAX  
14 MASACS EXTERN BUFLN  
15 MASACS EXTERN DIRLOC  
16 MASACS EXTERN REDKON  
17 MASACS EXTERN DIRTRK

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPH W77D

01 PUBLIC TAPEDGN

COMMON TAPE MAINTENANCE

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9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 6

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPH W77D

```

SEGADDI
01 MACRO
02 XYZ SEGADDI
03 CHKPOINT SET 0
04 STL R7,MSFPROG #DISPLAY NUMBER ON LOW 4 BITS OF SSP.
05 PMC SAVE,ON
06 #-----SEG. NUMBER=DEC(CHKPOINT).
07 PMC RESTORE
08 MEND

```

```

SEGADD
12 MACRO
13 XQR SEGADD
14 CHKPOINT SET CHKPOINT+1
15 IS(DEC(CHKPOINT))>15,LI R8,CHKPOINT)IFNOT(LN R8,CHKPOINT)
16 RLN R8,4
17 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
18 STL R7,MSFPROG
19 PMC SAVE,ON
20 #-----SEG. NUMBER=DEC(CHKPOINT).
21 PMC RESTORE
22 MEND

```

```

26 JK00 TEXT 'MTC 68-15 MINI-RECORDER 0'
27 JK01 TEXT 'MTC 60-15 MINI-RECORDER 1'
28 JK50 TEXT 'MTC 68-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT'
29 JK51 TEXT 'MTC 60-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT'
30 JK60 TEXT 'MTC 68-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT'
31 JK61 TEXT 'MTC 60-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT'
32 JK70 TEXT 'MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT'
33 JK71 TEXT 'MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT'
34 JK80 TEXT 'MTC 68-17 JK8 BUS TERMINATOR CIRCUIT'
35 JK81 TEXT 'MTC 60-17 JK8 BUS TERMINATOR CIRCUIT'
36 JK90 TEXT 'MTC 68-16 JK9 BUS TERMINATOR CIRCUIT'
37 JK91 TEXT 'MTC 60-16 JK9 BUS TERMINATOR CIRCUIT'
38 JK100 TEXT 'MTC 68-31 JK10 BUFFER UNIT CIRCUIT'
39 JK101 TEXT 'MTC 60-31 JK10 BUFFER UNIT CIRCUIT'
40 JK110 TEXT 'MTC 68-29 JK11 BUFFER UNIT CIRCUIT'
41 JK111 TEXT 'MTC 60-29 JK11 BUFFER UNIT CIRCUIT'
42 JK120 TEXT 'MTC 68-28 JK12 BUFFER UNIT CIRCUIT'
43 JK121 TEXT 'MTC 60-28 JK12 BUFFER UNIT CIRCUIT'
44 JK130 TEXT 'MTC 68-27 JK13 BUFFER UNIT CIRCUIT'
45 JK131 TEXT 'MTC 60-27 JK13 BUFFER UNIT CIRCUIT'
46 JK160 TEXT 'MTC 68-22 JK16 TAPE UNIT CONTROLLER'
47 JK161 TEXT 'MTC 60-22 JK16 TAPE UNIT CONTROLLER'
48 JK170 TEXT 'MTC 68-21 JK17 TAPE UNIT CONTROLLER'
49 JK171 TEXT 'MTC 60-21 JK17 TAPE UNIT CONTROLLER'

```

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPH

W77D

01	JK180	TEXT	'MTC 68-20 JK18 TAPE UNIT CONTROLLER'
02	JK181	TEXT	'MTC 60-20 JK18 TAPE UNIT CONTROLLER'
03	JK190	TEXT	'MTC 68-19 JK19 TAPE UNIT CONTROLLER'
04	JK191	TEXT	'MTC 60-19 JK19 TAPE UNIT CONTROLLER'

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPH W77D

	01 # SPECIAL ORDERS TO TDC NOT ON LIBRARY.
0050013	02 BSTFON EQU 0(50013)
0060013	03 BFILL EQU 0(60013)
0000215	04 TMSTOP EQU 0(215)
0001015	05 TSCRC EQU 0(1015)
0007215	06 TINIT EQU 0(7215)

	10 # NUMBER OF TAPE TESTS.
0000006	11 MAXNO EQU 6
0000013	12 BUFDEV EQU 11
0000015	13 TUCDEV EQU 13

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPM

W77D

```

01 TAPSTAT LAYOUT 1,FLTBLK
02 DEVICODE ITEM 6
03 WENBL ITEM 1
04 TUR ITEM 1
05 EOT ITEM 1
06 TOR ITEM 1
07 TIM ITEM 1
08 DDT ITEM 1
09 MTCE ITEM 1
10 REWND ITEM 1
11 BOT ITEM 1
12 MOP ITEM 1
13 LOEND
14 #

```

```

TAPSTAT
001 MOP BOT REWND MTCE DDT TIM TOR EOT TUR WENBL DEVICODE
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

```

```

23 BUFSTAT LAYOUT 1,FLTBLK
24 ITEM 6 #DEVICE CODE
25 PPE ITEM 1
26 BR ITEM 1
27 RDY ITEM 1
28 INTOFF ITEM 1
29 LODST ITEM 1
30 UNST ITEM 1
31 STUFF ITEM 1
32 ACTIV ITEM 1
33 BOFL ITEM 1
34 FILL ITEM 1
35 LOEND
36 #

```

```

BUFSTAT
001 FILL BOFL ACTIV STUFF UNST LODST INTOFF RDY BR PPE DEVICODE
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

```

```

45 TAPPRI LAYOUT 1,FLTBLK
46 ITEM 6 # DEVICE CODE (0(15))
47 MSTP ITEM 1 # MAINTENANCE STOP ENABLE
48 TPR ITEM 1 # TRANSPORT READY
49 COMD ITEM 4 # COMMAND DECODER
50 TRKL ITEM 2 # TRACK BITS
51 TRKH ITEM 2 # TRACK BITS
52 LOEND

```

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TLM-B SECTION COMMENTS.

CTAPH W770

01 # TBL  
 02 # B SECTION  
 03 # PR CTAPH  
 04 # TDC DIAGNOSTICS MAY BE RUN UNDER 7 MODES.  
 05  
 06 # 1. DGN:TAPE X!  
 07 # ALL TESTS ARE REQUESTED. TESTING TERMINATES AT FIRST FAILURE.  
 08  
 09 # 2. DGN:TAPE X;UCL!  
 10 # ALL TESTS ARE REQUESTED AND ALL FAILURES ARE REPORTED.  
 11  
 12 # 3. DGN:TAPE X;RPT!  
 13 # SAME AS 1 BUT SEQUENCE IS RESTARTED AT FAILURE.  
 14  
 15 # 4. DGN:TAPE X,TST Y!  
 16 # RUN A SPECIFIC TEST(Y) ONCE.  
 17  
 18 # 5. DGN:TAPE X,TST Y;RPT!  
 19 # RUN A SPECIFIC TEST REPEATEDLY.  
 20  
 21 # 6. DGN:TAPE X;STEP!  
 22 # RUN ALL TESTS UNDER STEP MODE. FIRST FAILURE STOPS SEQUENCE.  
 23  
 24 # 7. DGN:TAPE X,TST Y;STEP!  
 25 # RUN A SPECIFIC TEST UNDER STEP MODE.

29 # CRASTSPERSON MUST BE FAMILIAR WITH TAPE OPERATING PROCEDURES.  
 30 # -----

34 # THERE ARE 6 DIAGNOSTIC TESTS FOR THE TDC AND MINI-RECORDER. EACH  
 35 # TEST SERVES AS A BUILDING BLOCK TO THE NEXT. EACH SUBSEQUENT TEST  
 36 # MAKES CERTAIN ASSUMPTIONS ABOUT THE HEALTH OF THE HARDWARE BASED  
 37 # UPON ITS POSITION IN THE DIAGNOSTIC SEQUENCE. THEREFORE NO TEST  
 38 # SHOULD BE RUN INDIVIDUALLY UNTIL ALL PREVIOUS TESTS ATP. NO HARM  
 39 # WILL BE DONE TO THE HARDWARE IF THIS RULE IS NOT ADHERED TO BUT  
 40 # ERRONEOUS ASSUMPTIONS ABOUT THE FAULTY EQUIPMENT MAY BE MADE.

44 # THE 6 TESTS ARE

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TLM B SECTION COMMENTS.

CTAPM W77D

01 # 1. SPI INTERFACE TEST.  
 03 # 2. BUFFER UNIT TEST.  
 05 # 3. CARTRIDGE TAPE TRANSPORT CONTROLLER TEST.  
 07 # 4. MINI-RECORDER READ TEST.  
 09 # 5. MINI-RECORDER MISCELLANEOUS FUNCTION TEST.  
 11 # 6. MINI-RECORDER WRITE TEST.

15 # REPAIR PROCEDURES

16 # -----

18 # FORMULATION OF TLM NUMBER

19 # -----

22 # THE DIAGNOSTIC MESSAGE CONTAINS THE NUMBERS COMPRISING THE TLM  
 23 # INDEX TO THE RELATED FAULTY EQUIPMENT.

25 # DGN TAPE X Y ZZ R9 R10 R11

27 # THE TROUBLE NUMBER IS FORMED BY CONCATENATION OF THE X, Y AND ZZ  
 28 # FIELDS. EG. DGN TAPE 1 5 04 R9 R10 R11 IS TBL 1504

29 #

30 #

31 #

32 #

33 #


TAPE NO. TEST SEGMENT NO.

37 # LOOK UP THE TRBL NUMBER IN THE TLM AND BEGIN CIRCUIT PACK REPLACEMENT  
 38 # PROCEDURE. EACH TRBL NUMBER ENTRY HAS THE EXPECTED DIAGNOSTIC OUTPUT  
 39 # MESSAGE AS PART OF THE ENTRY FOR VERIFICATION PURPOSES.

43 # TDC CONFIGURATION

44 # -----

45

46 # THE USERS OF THE TAPE DATA CONTROLLERS (ESPECIALLY CENTRAL OFFICES)  
 47 # SHOULD STRIVE TO KEEP BOTH TDCS IN-SERVICE AT ALL TIMES (EXCEPT  
 48 # PER PROCEDURAL DIRECTIVES). IF BOTH TDCS OF A MATED PAIR ARE REMOVED  
 49 # FROM SERVICE BY A HARDWARE FAILURE, THE SYSTEM IS PLACED IN A

0127526

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TLM B SECTION COMMENTS.

CTAPH

W77D

01 # PRECARIOUS SITUATION.

05 # ALL TDC MINI-RECORDERS MUST HAVE TAPE DATA CARTRIDGES INPLACE BEFORE  
06 # DIAGNOSTICS ARE ATTEMPTED. ALSO THE MATED UNIT TO THE TDC UNDER TEST  
07 # MUST BE INSERVICE. IF THE ABNORMAL SITUATION ARISES THAT BOTH MATED  
08 # TDCS ARE OUT OF SERVICE, PERFORM THE FOLLOWING PROCEDURE.

10 # 1. RUN DIAGNOSTICS ON TDC 0. USE THE FOLLOWING MESSAGE.

12 # DGN:TAPE 0!

15 # 2. ASSURE THAT AT LEAST THE FIRST 5 TESTS PASS.

16 # (SEE CIRCUIT PACK REPLACEMENT PROCEEDURES TO EFFECT FIX)

19 # 3. RESTORE TDC 0 TO SERVICE. USE THE FOLLOWING MESSAGE.

21 # RST:TAPE 0;UCL!

24 # 4. RUN DIAGNOSTICS ON TDC 1 AND REPAIR FAULTY EQUIPMENT.

27 # 5. RUN TAPE TO TAPE AUDIT USING THE FOLLOWING MESSAGES.

29 # ALW:TAPEUTIL!

31 # AUDIT:TAPE(0,1);DETL!

34 # 6. RESOLVE MISMATCHES IF ANY ARE DETECTED BY THE AUDIT. IT  
35 # MUST BE DETERMINED WHICH TAPE CONTAINS THE MOST CURRENT  
36 # INFORMATION.(ESPECIALLY IN THE PATCH FILE AND TRANSLATION  
37 # FILE)

40 # 7. PLACE THE MOST CURRENT TAPE CARTRIDGE IN TAPE UNIT 1 AND  
41 # REMOVE TAPE 0 FROM SERVICE.

44 # 8. RESTORE TDC 1 TO SERVICE IF REQUIRED. USE THE FOLLOWING MESSAGE.

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.  
TLM B SECTION COMMENTS.

9:34:51 2/07/81 \*\*\*\*

CTAPM W77D

01 # RST:TAPE 1;UCL!

04 # 9. DIAGNOSE TDC 0 AND REPAIR FAULTY EQUIPMENT. BRING TDC 0 BACK  
05 # INTO SERVICE PER TAPE RESTORAL PROCEDURE.

09 # CIRCUIT PACK REPLACEMENT  
10 # -----

13 # 1.  
14 # RUN FAILING TEST UNDER REPEAT MODE.

16 # DGN:TAPE X,TST Y;RPT!

19 # 2.  
20 # VERIFY THAT TEST STILL FAILS THEN DEPRESS PF BUTTON TO STOP TEST.

23 # 3.  
24 # DEPRESS UNLD BUTTON. WHEN TAPE MOTION STOPS, REMOVE CARTRIDGE.

27 # 4.  
28 # POWER UNIT DOWN AND REPLACE NEXT ENTRY IN CIRCUIT LIST.

31 # 5.  
32 # POWER UNIT BACK UP.

35 # 6.  
36 # INSERT CARTRIDGE AND TYPE

38 # INIT:TAPE!

40 # WAIT FOR THE FOLLOWING MESSAGE.

42 # INIT TAPE COMPL

45 # 7.  
46 # DEPRESS PF BUTTON TO RESTART TEST AND WAIT FOR PASS OR FAIL  
47 # INDICATION.

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TLM B SECTION COMMENTS.

CTAPH

W77D

01 # IF TEST PASSES, TYPE

03 # CLR:RPT!

05 # WHEN PF LIGHT TURNS OFF, FOLLOW RESTORAL PROCEDURE.

08 # IF TEST FAILS, GET NEXT CIRCUIT PACK LISTED IN TLM AND  
09 # REPEAT AT 2 UNTIL TEST ATPS.

11 # NOTE:

12 # THE MINI-RECORDER IS NOT A FIELD REPAIRABLE

13 # ITEM. IT SHOULD BE CHANGED OUT AS A UNIT,

14 # CIRCUIT PACKS INSIDE OF IT MUST NOT BE CHANGED.

18 # IF THE TEST FAILURE CHANGES DURING REPLACEMENT OF THE  
19 # CIRCUIT PACKS, UTILIZE THE NEW TRBL NUMBER TO CONTINUE  
20 # REPLACEMENT.  
21 # TBLEND

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC TTY MESSAGE HANDLER.

CTAPM W77D

```

0127526
0127526 01 000000 103000 -----
0127527 01 000001 024220 ----- TTYTBL
0127530 01 000002 055003 ----- 0127533
0127531 01 000003 003002 -----
0127532 01 000004 053013 ----- 0127545
0127533
0127533 01 000005 124222 ----- TTYTBL
0127534 01 000006 055003 ----- 0127537
0127535 01 000007 003001 -----
0127536 01 000010 053007 ----- 0127545
0127537
0127537 01 000011 114231 -----
0127540 01 000012 054005 ----- 0127545
0127541 01 000013 024234 ----- TTYTBL
0127542 01 000014 055025 ----- 0127567
0127543 01 000015 014167 -----

0127544 01 000016 055023 ----- 0127567
0127545
0127545 01 000017 130422 020006 TDATA
0127547 01 000021 004037 -----
0127550 01 000022 005026 -----
0127551 01 000023 055016 ----- 0127567
0127552 01 000024 003026 -----
0127553 01 000025 005030 -----
0127554 01 000026 055013 ----- 0127567
0127555 01 000027 003020 -----
0127556 01 000030 014167 -----
0127557 01 000031 030022 -----
0127560 01 000032 014210 -----
0127561 01 000033 030021 -----
0127562 01 000034 014231 -----
0127563 01 000035 030020 -----
0127564 01 000036 056001 -----
0127565 01 000037 153007 ----- 0127574
0127566 01 000040 153006 ----- 0127574
0127567
0127567
0127567 01 000041 156467 ----- TTYTBL -001-
0127570
0127570 01 000042 156467 ----- TTYTBL -001-
0127571
0127571 01 000043 156467 ----- TTYTBL -001-
0127572
0127572 01 000044 156467 ----- TTYTBL -001-

01 CTAPM
02 # THIS IS THE TAPE DIAGNOSTICS TTY MESSAGE HANDLING PROGRAM SEGMENT.
03 # THIS CSECT MUST BE RESIDENT AT ALL TIMES.
04 BEGIN ( )
05 ZR RD
06 TBN R9,S(RPT) # CHECK IF REPEAT IS REQUIRED.
07 BNC NEX
08 LN RD,2
09 B SETREQ
10 NEX
11 TBN R9,S(STEP) #WAS STEP MODE REQUESTED?
12 BNC NEXT
13 LN RD,1 #SET UP REQUEST FOR STEP TO CBLM
14 B SETREQ
15 NEXT
16 TZ R9 # CHECK FOR NO ACTION OPTION
17 BC SETREQ
18 TBN R9,S(UCL) # HAVE ALL TESTS BEEN REQUESTED TO RUN UCL.
19 BNC BADRTN
20 TZ R7 # ASSURE NO TST KEYWORD WAS INPUTTED ON UCL
REQUEST.

22 BNC BADRTN
23 SETREQ
24 LL R1,TAPETBL
25 SN R1,1
26 SR R1,R6 # CHECK IF TAPE IS DEFINED.
27 BNC BADRTN
28 LN R1,MAXNO
29 SR R1,R8 # CHECK IF TEST IS WITHIN RANGE.
30 BNC BADRTN
31 ZR R1
32 TZ R7
33 ICF R1,2
34 TZ R8
35 ICF R1,1
36 TZ R9
37 ICF R1,0
38 BPAX R1
39 B CONTI
40 B CONTI
41 BADRTN
42 RETURN TTY_NG
43 BTSAN TTY_NG
44 RETURN TTY_NG
45 BTSAN TTY_NG
46 RETURN TTY_NG
47 BTSAN TTY_NG
48 RETURN TTY_NG
49 BTSAN TTY_NG

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 18

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC TTY MESSAGE HANDLER.

CTAPH W77D

```

0127573 01 000045 153001 ----- 0127574      01      B      CONTI
0127574      ,      ,      ,      ,      ,      ,      02 CONTI
03 # CHECK TO SEE IF THE TCB IS IDLE. DIAGNOSTICS WILL NOT INTERRUPT
04 # A CLIENT THAT IS USING THE TAPE SYSTEM.
0127574 01 000046 131060 043317 CTSD          05      LAL      R3,TCBADR,RAO
0127576 01 000050 017472 017400          06      CIRM      R3,0,10,MSK(5)
0127600 01 000052 054005 ----- 0127605          07      BC      SETALL1
0127601          ,      ,      ,      ,      ,      ,      08      CALL      ACTMSF
0127601 01 000053 037020 003165 CBLM      -001- 09      BSA      ACTMSF
0127603 01 000055 154006 ----- 0127611          10      BC      RTN_RL
                                     # TCB IS IDLE SET UP FOR DGN.
                                     # ARE ANY MSF'S ACTIVE?
0127604          ,      ,      ,      ,      ,      ,      12      RETURN   TTY_RL
0127604 01 000056 056466 ----- TTYTBL      -001- 13      BTSAN   TTY_RL
0127605          ,      ,      ,      ,      ,      ,      14 SETALL1
0127605 01 000057 103043 ----- BLMA          15      LN      R2,DGNTAPE
0127606          ,      ,      ,      ,      ,      ,      16      CALL      MSFREQ
0127606 01 000060 037020 003032 CBLM      -001- 17      BSA      MSFREQ
0127610 01 000062 155002 ----- 0127612          18      BNC      OKREQ
0127611          ,      ,      ,      ,      ,      ,      19 RTN_RL
0127611          ,      ,      ,      ,      ,      ,      20      RETURN   TTY_RL
0127611 01 000063 156466 ----- TTYTBL      -001- 21      BTSAN   TTY_RL
0127612          ,      ,      ,      ,      ,      ,      22 OKREQ
                                     # REQUEST WAS DENIED.
0127612 01 000064 135140 043102 CTSD          23 # ALL INPUT PARAMETERS ARE CORRECT. SET UP THE DIAGNOSTIC
0127614 01 000066 044201 -----          24 # CONTROL BLOCK WITH TEST INFORMATION.
0127615 01 000067 044222 -----          25      STAL      R6,PAGSCR,RAO # SET UP CONTROL FOR DIAG. (TAPE NO.)
0127616 01 000070 003240 -----          26      ST      R8,N(TSTNO)(RAO) # STORE TEST NO.
0127617 01 000071 044243 -----          27      ST      R9,N(ATOP)(RAO) # STORE ACTION OPTIONS.
0127620          ,      ,      ,      ,      ,      ,      28      ZR      R10
0127620 01 000072 056465 ----- TTYTBL      -001- 29      ST      R10,N(CURTST)(RAO) # ZERO OUT CURRENT TEST NO.
0127620          ,      ,      ,      ,      ,      ,      30      RETURN   TTY_IP
0127620 01 000072 056465 ----- TTYTBL      -001- 31      BTSAN   TTY_IP

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 19

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC MONITOR

CTAPH

W77D

0127621

01 TAPEDGN CSECT  
 02 # START OF THE TAPE DIAGNOSTIC PROGRAM.  
 03 # THIS IS THE DIAGNOSTIC TAPE MONITOR. IT IS RESPONSIBLE FOR RUNNING  
 04 # ALL TESTS AND PRINTING OUT DIAGNOSTIC MESSAGES. TESTS WILL FLAG IF  
 05 # THEY HAVE PASSED OR FAILED OR NEED TO BE RUN.

0127621 02 000000 103200 -----  
 0127622 02 000001 024000 -----  
 0127623 02 000002 054137 ----- 0127762  
 0127624 02 000003 003121 -----  
 0127625

09 # FIRST CHECK IF CBLM WANTS TAPE DIAGNOSTICS TO ABORT.

10 ZR R8  
 11 TBN RO,0 #IS ABORT REQUESTED  
 12 BC ABORTDT  
 13 LN R5,1

14 DOLU

15 # THE TAPE SYSTEM WILL BE SECURED FOR THE DIAGNOSTICS. FIRST A

16 # CHECK WILL BE MADE TO ASSURE THAT THE TAPE SYSTEM HAS NOT

17 # BEEN SECURED BY ANOTHER CLIENT.

18 STATST IDLTST #IS TCB STILL IDLE  
 19 BSAI RXEQR # SUBROUTINE REQR IS IN PROGRAM CTAPH  
 20 VFD 5, IDLTST 4, STATST 1, 1, 0 5, 0

0127625 02 000004 173047 ----- -002-  
 0127626 02 000005 002300 ----- -001-  
 0127627 02 000006 154010 ----- 0127637

21 BC CONTINU

22 CALL WAIT

23 BSAI WXAIT # SUBROUTINE WAIT IS IN PROGRAM CBLM

0127630  
 0127630 02 000007 073025 ----- -001-  
 0127631 02 000010 136120 127625 0127625  
 0127633 02 000012 003000 -----  
 0127634 02 000013 026003 ----- BLMMA

24 BX R5, DOLU

25 ZR RO

26 SBN RO, DGN TAPE

27 CALL MSFABT #ABORT DGN DUE TO INTERFERENCE FROM TAPE USER

28 BSAI MXXFABT # SUBROUTINE MSFABT IS IN PROGRAM CBLM

0127635  
 0127635 02 000014 073050 ----- -001-  
 0127636  
 0127636 02 000015 156462 ----- -001-

29 RETURN 2  
30 BTSAN 2

34 # ALL INDICATIONS ARE THAT THE DIAGNOSTIC SEQUENCE MAY CONTINUE.

35 # THIS MONITOR RUNS UNDER TWO MODES. IT WILL EITHER INITIATE A TEST

36 # OR REPORT THE FINDINGS OF A TEST THAT HAS JUST BEEN RUN.

37

38 # THE FIRST SETUP IS FOR THE ANTICIPATION OF RUNNING A TEST.

39 # THE I/O ADDRESS OF THE TESTED UNIT IS PLACED IN R9. NEXT

40 # THE TCB IS ZEROED TO ASSURE A CLEAN START FOR A TEST AND TO

41 # CLEAN IT UP FOR THE SYSTEM UPON THE COMPLETION OF A TEST.

42

43 # RA0 WILL BE SET UP TO THE DIAGNOSTIC CONTROL BLOCK (PAGSCR)

44 # RA1 WILL BE SET UP TO THE TCB.

45 CONTINU

46 LAL RO, TAPETBL, RA1

47 LAL RO, PAGSCR, RA0

48 L R2, N(TPNO)(RA0)

49 AN R2, 1

0127637

0127637

0127637  
 0127637 02 000016 131402 020006 TDATA  
 0127641 02 000020 031000 043102 CTSD  
 0127643 02 000022 040040 -----  
 0127644 02 000023 004441 -----

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 20

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC MONITOR

CTAPH W770

```

0127645 02 000024 042622 ----- 01 LX R9,R2(RA1) #SET UP IO ADDRESS
0127646 02 000025 031400 043317 CTSD 02 LAL RO,TCBADR,RA1
03 # CLEAN UP THE TCB. FOLLOW BY WAITING FOR THE REPACK REQUEST WHICH
04 # FLOWS FROM THE CALL TO INITTAPE.
0127650 0127650 02 000027 037020 126162 CTAPH -001- 05 CALL INITTAPE
06 BSA INITTAPE
07 # ATTEMPT TO INITIALIZE THE TAPE DATA CONTROLLER UNDER TEST.
08 TAPEDGN 04 0(31) # 12002
-001- 09 NOTE ***** THE FIRST ADDRESS OVERWRITTEN IS 000031 *****

0127652 02 000031 137000 111644 0111644 -001- 12 CPATCH BGNP 0(212) # 12002
13 BL XXX133
-001- 14 NOTE CPATCH 'CSECT'
-001- 15 NOTE ***** PATCH AREA BEGINS AT 000212 *****

0111644 -001- 18 XXX133 PATCHAREA
0111644 03 000212 140003 ----- 19 L RO,N(CURTST)(RAD)
0111645 03 000213 014000 ----- 20 TZ RO
0111646 03 000214 050400 127654 0127654 21 BNCL SNDINIT
22 DEPATCH NOTE DELETE 'L' IN ABOVE LINE.
23 REPAKWT
0111650 24 CALL WAIT
0111650 25 BSAI WXAII # SUBROUTINE WAIT IS IN PROGRAM CBLM
0111651 03 000217 151500 ----- CTAPH 26 TBS N(REQSTP)(RA1),S(REQSTP)
0111652 03 000220 054776 ----- 0111650 27 BC REPAKWT
0111653 28 ENDP # 12002
0111653 03 000221 037000 127654 0127654 -001- 29 BL XXX136
-001- 30 NOTE ***** LAST PATCH ADDRESS USED IS 000222 *****
-001- 31 NOTE ***** NUMBER OF PATCH WORDS USED IS 9 (DECIMAL) *****

0127654 -001- 34 XXX136 OMCONTINUE
0127654 35 SNDINIT
0127654 02 000033 162727 ----- 36 ZBS N(REPK)(RA1),S(REPK)
0127655 37 EOW # 12002
-001- 38 NOTE ***** THE LAST ADDRESS OVERWRITTEN IS 000033 *****

0127655 02 000034 003641 040007 41 LI R10,INIT
0127657 02 000036 023440 ----- 42 SMIO
43 #DO NOT CHECK FOR REPLY SINCE UNIT IS UNDER TEST.
44 TAPEDGN 0W 0(37) # 12002
-001- 45 NOTE ***** THE FIRST ADDRESS OVERWRITTEN IS 000037 *****

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH , ISSUE 06 PAGE 21

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC MONITOR

CTAPH W77D

```

0127660          01      CALL  WAIT1S
0127660 02 000037 037020 132227 0132227 -001- 02      BSA  WAIT1S
0127662          03      EOW          # 12002
                                -001- 04      NOTE ***** THE LAST ADDRESS OVERWRITTEN IS 000040 *****

```

```

10 # THE TAPE HANDLER (CTAPH) MUST BE TOLD THAT DIAGNOSTICS IS RUNNING.
11 # SOME OF THE TAPE HANDLER BASE LEVEL FUNCTIONS MUST BE STOPPED
12 # IN ORDER TO AVOID I/O ORDERS SET FROM THESE FUNCTIONS FROM
13 # INTERFERRING WITH THE TESTED UNIT. ALSO TAPE INTERRUPT LEVEL
14 # PROGRAMS ARE TOLD WHEN AND WHEN NOT TO SERVICE BUFFER INTERRUPTS.
15 # THIS IS A 2 BIT INTERFACE TO THE CTAPH PROGRAM. THIS FIRST BIT IS
16 # TO TELL CTAPH THAT BOTH THE BASE AND INTERRUPT LEVEL PROGRAMS ARE
17 # TO REMAIN DORMANT REGARDLESS OF EXTERNAL SYMULATION RECEIVED.
18      SBS      N(DIAGBITS)(RA1),S(DIAGBITS) #FLAG TO CTAPH DIAG IP.

```

0127662 02 000041 161747 -----

```

22 # THIS IS THE POINT WHERE THE MONITOR DIFFERENTIATES BETWEEN THE
23 # TWO MODES IT RUNS UNDER. THE PASS-FAIL FLAGS IN ITS DIAGNOSTIC
24 # CONTROL BLOCK ARE CHECKED. IF BOTH ARE RESET, THE INITIATION OF
25 # A TEST MAY BE REQUIRED.
26      TBS      N(PASS)(RAO),S(PASS) # IS THIS A PASS REPORT
27      BNC      FAILOK

```

```

0127663 02 000042 051045 -----
0127664 02 000043 055111 ----- 0127775

```

```

31 # A TEST HAS REPORTED A PASS INDICATOR. THE MODE UNDER WHICH THE
32 # DIAGNOSTICS HAVE BEEN REQUESTED WILL DETERMINE IF A PRINTOUT
33 # SHOULD BE GENERATED OR NOT.
34

```

0127665

```

35 # THE 'TSTNO' ENTRY IN THE DIAGNOSTIC CONTROL BLOCK (DCB) WILL BE
36 # NON ZERO IF A SPECIFIC TEST WAS REQUESTED. A ALL ZERO ENTRY INDICATES
37 # ALL TESTS ARE INVOLVED IN THE DIAGNOSTIC REQUEST.
38      ZBS      N(PASS)(RAO),S(PASS) # CLEAR FLAG
39      L        RO,N(TSTNO)(RAO)
40      TZ      RO          # CHECK IF ALL TESTS ARE BEING RUN.
41      BC      CURRENT
42      ZR      RO
43      ST      RO,N(DIAGBITS)(RA1)
44 # SINGLE TEST WAS REQUESTED. PRINT OUT ATP MESSAGE.
45 COMPO

```

```

0127665 02 000044 062045 -----
0127666 02 000045 040001 -----
0127667 02 000046 014000 -----
0127670 02 000047 054027 ----- 0127717
0127671 02 000050 003000 -----
0127672 02 000051 044407 -----

```

```

0127673
0127673 02 000052 131420 043337 CTSD
0127675 02 000054 040064 -----
0127676
0127676 02 000055 140140 -----

```

```

46      LAL     R1,TUSTAT,RA1  # SINGLE TEST PASSED. JUST RESTORE STATUS.
47      L       R3,N(STATSV)(RAO)
48 NOFLG
49      L       R6,N(TPNO)(RAO)

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 22

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC MONITOR

CTAPH W77D

```

0127677 02 000056 046466 ----- 01 STX R3,R6(RA1)
0127700 02 000057 003421 000000 -001- 02 TTYCTL SOURCE=MFA
0127702 02 000061 003441 021004 -001- 03 LI R1,0*(E(13)+0*(E(12)+0*(E(9)+0*(E(8)+0*(E(6)+0*(E(4)+0*(E(3)+0
0127704 02 000063 003461 021042 -001- 04 TTYFMT FMT=(WRD,WRD,DEC,WRD)
0127706 02 000065 003561 001011 TTYTBL -001- 05 LI R2,0ITTYO *(E((10-7)*4)ITTYO *(E((9-7)*4)ITTYO_WRD*(E((8-7)*4)ITTYO_
0127710 02 000067 051302 ----- 09 SPELL R7,(A,T,P)
0127711 02 000070 055003 ----- 0127714 -001- 10 LI R7,AXTP
11 # THIS COMMON BRANCH IS USE BY DIAGNOSTICS RUN UNDER THE UNCONDITIONAL
12 # MODE. IF UCL IS ACTIVE A 'COMPL' MESSAGE IS OUTPUTTED INSTEAD OF 'ATP'.
13 TBS N(ATOP)(RAO),S(UCL) # WAS TESTS RUN UNCONDITIONAL.
14 BNC ATPIT
15 SPELL R7,(C,O,M,P,L) # USE COMPLETE MESSAGE.
16 LI R7,CXOMPL
17 ATPIT
18 CALL PUTAWAY # STORE MESSAGE. SUBENTRY OF ERRMSGPO.
19 BSA PUTAWAY
20 RETURN 5
21 BTSAN 5

```

```

25 # AT THIS POINT IT IS KNOWN THAT ALL TESTS HAVE BEEN REQUESTED. IT
26 # MUST BE DETERMINED IF ALL TESTS HAVE BEEN RUN BY INTERROGATING
27 # THE CURRENT TEST COUNTER (CURTST).
28 CURRENT
29 L RO,N(CURTST)(RAO) # GET NEXT TEST TO BE RUN.
30 A1S PAGSCR+N(CURTST) # BUMP TEST NUMBER TO NEXT LEVEL.
31 CI RO,MAXNO # HAVE ALL TESTS BEEN RUN.
32 BNC BPAXTOTST

```

```

0127717
0127717 02 000076 140003 ----- 29
0127720 02 000077 037040 043105 CTSD 30
0127722 02 000101 003405 000006 31
0127724 02 000103 055012 ----- 0127736 32

```

```

36 # ALL TESTS HAVE BEEN EXECUTED. THE MODE OF EXECUTION MUST BE DETERMINED
37 # BEFORE OTHER ACTIONS ARE TAKEN. ALSO THE DCB HAS TO BE CLEARED AND THE
38 # TAPE HANDLER RELEASED FROM DIAGNOSTIC CONTROL.
39 RETFAIL
40 ZR RO
41 ST RO,N(DIAGBITS)(RA1) #CLEAR CTAPH FLAG OF DIAG IP.
42 ST RO,N(CURTST)(RAO) # CLEAR OUT TEST COUNTER. SEQUENCE OVER.
43 TBS N(ERGOT)(RAO),S(ERGOT) # WAS ERROR DETECTED BY ANY TEST?
44 ZBS N(ERGOT)(RAO),S(ERGOT) # CLEAR FLAG
45 BNC RESETAT
46 # ALL TESTS HAVE BEEN RUN AND AN ERROR WAS DETECTED. IF TEST WERE RUN
47 # UCL THE OUTPUT FOR THE FAILURE WAS ALREADY OUTPUTTED, JUST OUTPUT A
48 # COMPLETION MESSAGE. IF NOT UCL, RETURN TO MULTI-SCAN CONTROL TO PRINT
49 # OUT PREPARED FAILURE MESSAGE.

```

```

0127725
0127725 02 000104 103000 ----- 40
0127726 02 000105 044407 ----- 41
0127727 02 000106 044003 ----- 42
0127730 02 000107 051025 ----- 43
0127731 02 000110 062025 ----- 44
0127732 02 000111 055104 ----- 0130036 45

```

COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC MONITOR

CTAPH W77D

0127733 02 000112 051302 ----- 01 TBS N(ATOP)(RAD),S(UCL) # WAS TEST RUN UNCONDITIONALLY?  
 0127734 02 000113 054737 ----- 0127673 02 BC COMPO  
 0127735 03 RETURN 4 # INDICATE FAILURE TO MULTI FUNCTION CONTROL.  
 0127735 02 000114 056464 ----- -001- 04 BTSAN 4

08 # A TEST MUST BE RUN. RD CONTAINS INDICATOR OF WHICH TEST IS TO BE  
 09 # RUN. SET UP NULL STATE IN CTAPH TCB AN BRANCH TO TEST.

0127736  
 0127736 02 000115 103033 ----- CTAPH  
 0127737 02 000116 044432 -----  
 0127740 02 000117 040100 -----  
 0127741 02 000120 044510 -----  
 0127742 02 000121 010417 -----  
 0127743 02 000122 056000 -----  
 F0127744 02 000123 137000 130046 0130046  
 F0127746 02 000125 137000 130225 0130225  
 0127750 02 000127 137000 130572 0130572  
 0127752 02 000131 137000 131041 0131041  
 0127754 02 000133 137000 131255 0131255  
 0127756 02 000135 103000 -----  
 0127757 02 000136 044412 -----  
 0127760 02 000137 037000 131537 0131537

10 BPAXTOTST  
 11 LN R1,DIAGST  
 12 ST R1,N(STATEWRD)(RA1) # SET UP DIAG. NULL STATE.  
 13 L R4,N(TPNO)(RAO)  
 14 ST R4,N(TAPNO)(RA1) # SET UP TAPE UNIT BEING TESTED.  
 15 RLN RO,1  
 16 BPAX RO  
 17 BL SPIBT  
 18 BL BUFFER  
 19 BL CONTROL  
 20 BL C'CKREAD  
 21 BL MISCT  
 22 ZR RO  
 23 ST RO,N(STATEWRD)(RA1) #CLEAR DIAG STATE IN TCB.  
 24 BL TWRITE

28 # ABORT PRINTOUT CONTROL FOR TAPE DIAGNOSTICS.

0127762  
 29 ABORTDT  
 30 TAPEDGN OW 0(141) # 790117  
 -001- 31 NOTE \*\*\*\*\* THE FIRST ADDRESS OVERWRITTEN IS 000141 \*\*\*\*\*

0127762  
 34 ABORTDT  
 35 CPATCH BGNP 0(417) # 790117  
 0127762 02 000141 137000 112051 0112051 -001- 36 BL XXX158  
 -001- 37 NOTE CPATCH 'CSECT'  
 -001- 38 NOTE \*\*\*\*\* PATCH AREA BEGINS AT 000417 \*\*\*\*\*

0112051  
 0112051  
 0112051 03 000417 137020 117754 0117754 -001- 43 BSA SYSCLOSE  
 0112053 03 000421 103541 043102 CTSD 44 LI R6,PAGSCR  
 0112055 45 ENDP # 790117  
 0112055 03 000423 037000 127764 0127764 -001- 46 BL XXX161  
 -001- 47 NOTE \*\*\*\*\* LAST PATCH ADDRESS USED IS 000424 \*\*\*\*\*  
 -001- 48 NOTE \*\*\*\*\* NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) \*\*\*\*\*

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 24

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC MONITOR

CTAPH W77D

```

0127764 -001- 01 XXX161 OMCONTINUE
0127764 02 000143 103561 000001 TTYTBL 02 LI R7,AXBT
0127766 03 EOW # 790117
-001- 04 NOTE ***** THE LAST ADDRESS OVERWRITTEN IS 000144 *****

0127766 07 PRINT FMT=(WRD(D,G,N),WRD(T,A,P,E),DEC,WRD,DEC) #PRINT DIAGNOSTIC ABORT

-001- 09 # MESSAGE PROTOTYPE
-001- 10 # mm DGN TAPE dddd WRD dddd
-002- 11 BSAI PXMRY # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
-002- 12 VFD 1,1 2,0 1,0 3,0 1,0 1,1 1,0 2,0 1,0 3,0
0127767 02 000146 100200 ----- -002- 13 VFD 4,TTYO_4,TTYO_DEC 4,TTYO_WRD 4,TTYO_DEC
0127770 02 000147 022004 ----- -002- 14 VFD 4,TTYO_4,TTYO_4,TTYO_4,TTYO_4
0127771 02 000150 021042 ----- -002- 15 VFD 5,2 11,D%GN
0127772 02 000151 010014 ----- TTYTBL -002- 16 VFD 5, 11, TXAPE
0127773 02 000152 000242 ----- TTYTBL -001- 17 NOTE THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
CONTAINED IN GENERAL REGISTERS R6,R7,R8,

0127774 19 RETURN 3
0127774 02 000153 156463 ----- -001- 20 BTSAN 3

0127775 24 FAILOK
25 # THE MONITOR HAS BEEN ENTERED AND THE REASON IS NOT THAT A TEST IS
26 # REPORTING A PASS CONDITION. CHECK HERE IS MADE FOR A FAILURE REPORT.
27 # CHECK HERE FOR FAILURE REPORT FROM TEST.
0127775 02 000154 151065 ----- 28 TBS N(FAIL)(RAD),S(FAIL) # HAS A TEST REPORTED FAILURE.
0127776 02 000155 054017 ----- 0130015 29 BC OPTLOK # YES. CHECK MODE OF OPERATION.
30 # THE MONITOR NOW KNOWS THAT A NEW TEST MUST BE INITIATED. THE
31 # 'TSTNO' WORD WILL BE CHECKED TO SEE IF ALL TESTS ARE REQUESTED
32 # OR JUST A SINGLE DIAGNOSTIC.
0127777 33 SEQU
0127777 02 000156 131400 043337 CTSD 34 LAL RD,TUSTAT,RA1 #SAVE TAPE STATUS.
0130001 02 000160 040040 ----- 35 L R2,N(TPNO)(RAD)
0130002 02 000161 042422 ----- 36 LX R1,R2(RA1)
0130003 02 000162 044024 ----- 37 ST R1,N(STATSV)(RAD)
0130004 02 000163 003000 ----- 38 ZR RO
0130005 02 000164 046402 ----- 39 STX RD,R2(RA1)
0130006 02 000165 031400 043317 CTSD 40 LAL RD,TCBADR,RA1
0130010 02 000167 040001 ----- 41 L RD,N(TSTNO)(RAD) # GET REQUESTED TEST NUMBER.
0130011 02 000170 014000 ----- 42 TZ RO # WAS IT A SINGLE SHOT REQUEST. RO=0
INDICATES RUN ALL OR UNCOND.

0130012 02 000171 054705 ----- 0127717 44 BC CURRENT # PROCESS NEXT TEST.
0130013 02 000172 004017 ----- 45 SN RD,1 # PREPARE FOR BPAX.

0130014 02 000173 053722 ----- 0127736 46 # A SINGLE TEST HAS BEEN REQUESTED. ADJUST IT FOR BPAX AND GC TO
47 # TEST TRANSFER VECTOR TABLE.
48 B BPAXTOTST

```

COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

DIAGNOSTIC MONITOR

CTAPM

W77D

0130015

01 OPTLOK  
 02 # A TDC TEST HAS REPORTED A FAILURE. THE TDC MUST BE REMOVED FROM SERVICE.  
 03 # NEXT A CHECK IS MADE TO DETERMINE IF THE REQUEST WAS FOR UCL MODE.  
 04 # UNDER UCL THIS MONITOR MUST PRINTOUT THE PREPARED FAILURE MESSAGE  
 05 # AND THEN SEQUENCE TO THE NEXT TEST. IF NO UCL WAS REQUESTED, THE  
 06 # MULTISCAN CONTROLLER WILL OUTPUT THE MESSAGE.

0130015 02 000174 131400 043337 CTSD

07 LAL RD,TUSTAT,RA1 # A TEST FAILED. MARK UNIT OOS.

0130017 02 000176 040040 -----

08 L R2,N(TPNO)(RAO)

0130020 02 000177 003401 004000

09 LI RD,M(TSTATE)

0130022 02 000201 046402 -----

10 STX RD,R2(RA1)

0130023 02 000202 044004 -----

11 ST RD,N(STATSV)(RAO)

0130024 02 000203 031400 043317 CTSD

12 LAL RD,TCBADR,RA1

0130026 02 000205 061025 -----

13 SBS N(ERGOT)(RAO),S(ERGOT) # FLAG ERROR FOUND.

0130027 02 000206 062065 -----

14 ZBS N(FAIL)(RAO),S(FAIL) # CLEAR TEST REPORT FLAG.

0130030 02 000207 051302 -----

15 TBS N(ATOP)(RAO),S(UCL) # WAS UNCONDITIONAL OPTION USED.

0130031 02 000210 055674 ----- 0127725

16 BNC RETFAIL

0130032 02 000211 003000 -----

17 ZR RD

0130033

18 CALL MFAD # PRINT OUT PREPARED FAILURE DIAG. MESSAGE.

0130033 02 000212 037021 124655 TTYAPP -001-

19 BSA MFAD

0130035 02 000214 153742 ----- 0127777

20 B SEQU # CONTINUE SEQUENCE.

0130036

24 RESETAT

0130036 02 000215 131400 043337 CTSD

25 LAL RD,TUSTAT,RA1 # TESTS ALL PASS. MARK RESULT IN STATUS WORD

0130040 02 000217 040040 -----

26 L R2,N(TPNO)(RAO)

0130041 02 000220 040064 -----

27 L R3,N(STATSV)(RAO)

0130042 02 000221 024073 -----

28 TBN R3,S(TSTATE) # WAS UNIT OOS. IF SO, FLAG ATP OF DIAG.

0130043 02 000222 055633 ----- 0127676

29 BNC NOFLG

0130044 02 000223 026076 -----

30 SBN R3,S(REDON)

0130045 02 000224 053631 ----- 0127676

31 B NOFLG

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81

TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM

ISSUE 06

PAGE 26

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPM W77D

```

0130046          01 SPIBT
0130046 02 000225 103161 ----- 0000001 02 TEST SET 1
0130047 02 000226 034560 043463 CTSD 03 LN R7,1 # TEST NUMBER FOR PRINTOUTS.
-001- 04 SEGADDI #DISPLAY NUMBER ON LOW 4 BITS OF SSP.
-001- 05 STL R7,MSFPROG #SEG. NUMBER=0.
-001- 06 # -----

```

```

10 # THE SCOPE OF THE TEST INVOLVES THE SERIAL PERIPHERAL INTERFACE (SPI)
11 # AND THE BUS TERMINATOR. THE I/O CHANNEL TO THE TDC UNDER TEST IS
12 # IMPLICITLY TESTED AND SHOULD BE SUSPECT IF SEG 0 FAILS.

```

0130051

```

16 TRBL JK5,JK6,JK7
-001- 17 #& TBL 0100
-001- 18 #& TEST 1
-001- 19 #& SEGMENT 0
-001- 20 #& PR CTAPM
-001- 21 #
-001- 22 # EXPECTED OUTPUT MESSAGE.
-001- 23 # DGN TAPE 0 1 00 R9 R10 R11
-001- 24 #
-001- 25 # MTC 68-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 26 # MTC 68-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 27 # MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 28 #
-001- 29 #
-001- 30 #
-001- 31 #& TBL 1100
-001- 32 #& TEST 1
-001- 33 #& SEGMENT 0
-001- 34 #& PR CTAPM
-001- 35 #
-001- 36 # EXPECTED OUTPUT MESSAGE.
-001- 37 # DGN TAPE 1 1 00 R9 R10 R11
-001- 38 #
-002- 39 # MTC 60-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 40 # MTC 60-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 41 # MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 42 #
-001- 43 # SEGMENT 0 DESCRIPTION.
-001- 44 #

```

0130051

```

45
46 # SEGMENT DESCRIPTION
47 # THIS SEGMENT OF THE TEST WILL ATTEMPT TO GAIN ACCESS TO THE SPI. TO
48 # ISOLATE THE SPI FROM THE REMAINDER OF THE TDC, A BAD PARITY MESSAGE
49 # IS SENT TO THE TDC. BAD SERIAL PARITY IS HANDLED SOLELY BY THE SPI.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 27

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPM W77D

01 # IF EITHER THE INCORRECT RESPONSE IS SENT BACK BY THE SPI OR NO RESPONSE  
 02 # THIS SEGMENT WILL FAIL. I/O CHANNEL AND CABLING AND CONNECTORS  
 03 # MAY ALSO BE SUSPECT ALONG WITH POWER PROBLEMS.  
 04 # & TBLEND

08 # THIS TEST WILL CHECK OUT THE ACCESS TO THE TDC AND ASSURE A  
 09 # WORKING COMMUNICATION LINK TO THE INDIVIDUAL UNITS. THE BUS TERMINATOR  
 10 # IS UTILIZED AS THE TESTING MEDIUM.  
 11 # FIRST TEST INVOLVES THE SENDING OF BAD PARITY OUT TO THE SPI.  
 12 # IT SHOULD DETECT BAD SERIAL PARITY AND RETURN THE CORRECT ERROR  
 13 # RESPONSE.

```

0130051
0130051 02 000230 013002 ----- -001- 16 MIS 2
0130052 02 000231 105722 ----- -001- 17 DATA 35794
0130053 02 000232 013001 ----- -001- 18 MIMODE L SS_S, YT, DATA=S(BHC) # INHIBIT HARDWARE CHECKS DURING GENERATION
0130054 02 000233 105722 ----- -002- 19 MIS S(BHC)
0130055 02 000234 003001 ----- -002- 20 VFD 8, SS_SXT 8, YTXF
0130056 02 000235 013400 ----- -001- 21 # OF BAD PARITY INTERNAL TO THE PROCESSOR.
0130057 02 000236 025712 ----- -001- 22 LN RO,1 # SET UP FOR SINGLE BIT BAD PARITY.
0130060 02 000237 070523 ----- -001- 23 MIMODE
0130061 02 000240 025730 ----- -001- 24 MI 0
0130062 02 000241 026472 ----- -001- 25 ZBR
0130063 02 000242 065231 ----- -001- 26 DATA ZBRX
0130064 02 000243 026750 ----- -001- 27 L BR,RO # PLACE BAD PARITY IN BR
0130065 02 000244 023440 ----- -001- 28 VFD 8, BRXT 8, ROXF # GATE BAD PARITY TO MCHB
0130066 02 000245 003013 ----- -001- 29 LDPAR # PLACE BAD CONSTANT INTO R10.
0130067 02 000246 136000 130067 0130067 30 DATA LDPARX
0130071 02 000250 023500 ----- 31 MCHTRXMCHB
0130072 02 000251 054003 ----- 32 DATA MCHTRXMCHB
0130073 02 000252 023520 ----- 33 L R10, MCHB # PLACE BAD CONSTANT INTO R10.
0130074 02 000253 054016 ----- 34 VFD 8, R10XT 8, MCHBXF
0130075 02 000254 103260 ----- 35 ZMINT
0130076 02 000255 003240 ----- 36 DATA ZMINTX
0130077 02 000255 003240 ----- 37 SMIO
38 LN RO,11
39 MYSLF
40 BX RO,MYSLF # WAIT FOR RESPONSE.
41 TIO # CHECK IF PARITY ERROR WAS IGNORED.
42 BC ERRMSGCL # THE TEST SHOULD FAIL.
43 TMIO # CHECK IF PARITY ERROR WAS DETECTED.
44 BC ERRESPCK # THIS TEST SHOULD PASS.
45 # THIS FIRST SEGMENT REQUIRES SPECIAL CLEAN UP. (BOTH PASS&FAIL BRANCHES)
46 ERRMSGCL
47 ZR R11 # CLEAN UP POTENTIAL BAD PARITY.
48 ZR R10 # CLEAN UP BAD PARITY
49 MIMODE
  
```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 28

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPH

W77D

```

0130077 02 000256 013400 ----- -001- 01      MI      0
0130100                                02      L      MCHTR,NOP      # CLEAN UP MCHTR
0130100 02 000257 111760 ----- -001- 03      VFD      8,MCHTRXT 8,NOPXF
0130101                                04      ZER      DATA      ZERX      # CLEAN UP ERROR REGISTER
0130101 02 000260 025750 ----- -001- 05      ZMINT
0130102                                06      DATA      ZMINTX
0130102 02 000261 026750 ----- -001- 07      ZBIN
0130103                                08      MIS      2      # ALLOW INTERRUPTS
0130103 02 000262 013002 ----- -001- 09      DATA      36562
0130104 02 000263 107322 ----- -001- 10      MIMODE L SS_R,YT,DATA=S(BHC) # ALLOW HARDWARE CHECKS.
0130105                                11      MIS      S(BHC)
0130105 02 000264 013001 ----- -001- 12      VFD      8,SS_RXT 8,YTXF
0130106 02 000265 107322 ----- -002- 13      TZ      R8      # DID FIRST SEGMENT FAIL (R8=0)
0130107 02 000266 014210 -----                                14      BC      ERRMSGPOX      # YES
0130110 02 000267 054111 ----- 0130221                                15      B      CONTEST
0130111 02 000270 053014 ----- 0130125                                16

0130112                                18 ERRESPCK
0130112 02 000271 103401 000407                                19      LI      R0,0(407)      # CHECK FOR CORRECT RESPONSE FROM SPI.
0130114 02 000273 020013 -----                                20      CR      R0,R11
0130115 02 000274 055760 ----- 0130075                                21      BNC      ERRMSGCL
0130116 02 000275 003201 ----- -001- 23      SEGADD
0130117 02 000276 010614 ----- -001- 24      LN      R8,CHKPOINT
0130120 02 000277 016170 000360 -001- 25      RLN      R8,4      #DISPLAY SEGMENT IN BITS 4-7.
0130122 02 000301 034560 043463 CTSD -001- 26      IRM      R7,R8,0(360)
0130124 02 000303 053751 ----- 0130075 -001- 27      STL      R7,MSFPROG
0130125                                28      # ----- SEG. NUMBER=1.
0130125                                29      B      ERRMSGCL      # CLEAN UP CORRECTLY AND CONTINUE TESTING.
0130125                                30 CONTEST
0130125                                31 # NEXT SEGMENT WILL PROBE FURTHER INTO THE SPI. ACTIVATION OF IT'S
0130125                                32 # TIMING CHAIN AND COMMUNICATION TO THE BUS TERMINATOR ARE CHECKED.

0130125                                35 # THIS SEGMENT WILL VERIFY THAT THE SPI CAN INTERPRET THE SPI INIT.
0130125                                36 # ORDER AND PASS THE INIT SIGNAL DOWN TO THE OTHER UNITS TO DESELECT
0130125                                37 # THEM. AN ALL ZERO RESPONSE SHOULD BE RECEIVED BY THE PROCESSOR.

0130125                                41      TRBL      JK5,JK6,JK7
-001- 42 #& TBL 0101
-001- 43 #& TEST 1
-001- 44 #& SEGMENT 1
-001- 45 #& PR CTAPH
-001- 46 #
-001- 47 # EXPECTED OUTPUT MESSAGE.
-001- 48 # DGN TAPE 0 1 01 R9 R10 R11
-001- 49 #

```

COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPH W77D

```

-001- 01 # MTC 68-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 02 # MTC 68-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 03 # MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 04 #
-001- 05 #
-001- 06 #
-001- 07 #& TBL 1101
-001- 08 #& TEST 1
-001- 09 #& SEGMENT 1
-001- 10 #& PR CTAPH
-001- 11 #
-001- 12 # EXPECTED OUTPUT MESSAGE.
-001- 13 # DGN TAPE 1 1 01 R9 R10 R11
-001- 14 #
-002- 15 # MTC 60-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 16 # MTC 60-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 17 # MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 18 #
-001- 19 # SEGMENT 1 DESCRIPTION.
-001- 20 #
21 # A SPECIAL INITIALIZATION ORDER SENT TO THE SPI SHOULD DESELECT ALL
22 # UNITS IN THE TDC AND SET THEM TO AN INIT STATE.
23 #& TBLEND

```

```

0130125 02 000304 103641 040007 27 LI R10,INIT
0130127 28 CALL SENDMIOM # SEND INIT TO TDC AND UTILIZE
0130127 02 000306 037020 132064 0132064 -001- 29 BSA SENDMIOM
0130131 02 000310 114273 ----- 30 TZ R11 # WAS RESPONSE CORRECT (ALL ZERO)
0130132 02 000311 055067 ----- 0130221 31 BNC ERRMSGPOX # MESSAGE ACCEPTED BY INCORRECT RESPONSE.

```

```

33 # ALL UNITS SHOULD BE NOW INITIALIZED AND NONE SHOULD BE RESPONDING
34 # TO A STATUS REQUEST.

```

```

0130133 02 000312 003202 ----- -001- 35 SEGADD
0130134 02 000313 010614 ----- -001- 36 LN R8,CHKPOINT
0130135 02 000314 016170 000360 -001- 37 RLN R8,4
0130137 02 000316 034560 043463 CTSD -001- 38 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
-001- 39 STL R7,MSFPROG
-001- 40 # ----- SEG. NUMBER=2.

```

```

0130141 44 TRBL JK8,JK10,JK11,JK12,JK13,JK16,JK17
-001- 45 #& TBL 0102
-001- 46 #& TEST 1
-001- 47 #& SEGMENT 2
-001- 48 #& PR CTAPH
-001- 49 #

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 30

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPH

W77D

```

-001- 01 # EXPECTED OUTPUT MESSAGE.
-001- 02 # DGN TAPE 0 1 02 R9 R10 R11
-001- 03 #
-001- 04 # MTC 68-17 JK8 BUS TERMINATOR CIRCUIT
-001- 05 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 06 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT
-001- 07 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT
-001- 08 # MTC 68-27 JK13 BUFFER UNIT CIRCUIT
-001- 09 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 10 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 11 #
-001- 12 #
-001- 13 #
-001- 14 #& TBL 1102
-001- 15 #& TEST 1
-001- 16 #& SEGMENT 2
-001- 17 #& PR CTAPH
-001- 18 #
-001- 19 # EXPECTED OUTPUT MESSAGE.
-001- 20 # DGN TAPE 1 1 02 R9 R10 R11
-001- 21 #
-002- 22 # MTC 60-17 JK8 BUS TERMINATOR CIRCUIT
-002- 23 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-002- 24 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-002- 25 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT
-002- 26 # MTC 60-27 JK13 BUFFER UNIT CIRCUIT
-002- 27 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 28 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-001- 29 #
-001- 30 # SEGMENT 2 DESCRIPTION.
-001- 31 #
32 # THIS SEGMENT CHECKS THAT THE SPI INIT ORDER WOULD DESELECT AND REMOVE
33 # ANY ERROR SIGNAL PRESENT IN THE TDC. AN INIT ORDER HAS BEEN SENT
34 # AND NOW A SEND STATUS ORDER IS ISSUED TO THE TDC. IF ANY ERROR EXISTS
35 # IN THE TDC AND THE INIT FAILED TO WORK IN AN INDIVIDUAL UNIT A MAINTENANCE
36 # RESPONSE WILL BE RECEIVED.
37 #& TBLEND

```

```

0130141 02 000320 003641 010007 41 LI R10,SST
0130143 42 CALL SENDMIO # ISSUE STATUS COMMAND TO THE SPI.
0130143 02 000322 037020 111050 CSYSUB -001- 43 BSA SENDMIO
0130145 02 000324 124001 ----- 44 TBN RO,1
0130146 02 000325 055053 ----- 0130221 45 BNC ERRMSGPOX # A MAINTENANCE RESPONSE WAS GIVEN.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 31

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPM

W77D

```

0130147 02 000326 003203 -----
0130150 02 000327 010614 -----
0130151 02 000330 016170 000360
0130153 02 000332 034560 04:463 CTSD
-001- 01          SEGADD
-001- 02          LN      R8,CHKPOINT
-001- 03          RLN     R8,4
-001- 04          IRM     R7,R8,0(360)      #DISPLAY SEGMENT IN BITS 4-7.
-001- 05          STL     R7,MSFPROG
-001- 06 #          SEG. NUMBER=3.
07 # NO UNIT IS PERMANENTLY ADDRESSED. BEGIN CHECK OUT OF
08 # THE PARRALLEL COMMUNICATION BUS VIA THE USE OF THE
09 # BUS TERMINATOR CIRCUIT. THIS WILL ALSO CHECK THE SPI'S
10 # ABILITY TO ACCEPT AND TRANSMIT GIVEN ORDER BIT CONFIGURATIONS.

```

0130155

```

-001- 15          TRBL    JK5,JK6,JK7,JK8,JK9
-001- 16 #& TBL 0103
-001- 17 #& TEST 1
-001- 18 #& SEGMENT 3
-001- 19 #& PR CTAPM
-001- 20 #
-001- 21 # EXPECTED OUTPUT MESSAGE.
-001- 22 # DGN TAPE 0 1 03 R9 R10 R11
-001- 23 #
-001- 24 #          MTC 68-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 25 #          MTC 68-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 26 #          MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 27 #          MTC 68-17 JK8 BUS TERMINATOR CIRCUIT
-001- 28 #          MTC 68-16 JK9 BUS TERMINATOR CIRCUIT
-001- 29 #
-001- 30 #
-001- 31 #
-001- 32 #& TBL 1103
-001- 33 #& TEST 1
-001- 34 #& SEGMENT 3
-001- 35 #& PR CTAPM
-001- 36 #
-001- 37 # EXPECTED OUTPUT MESSAGE.
-001- 38 # DGN TAPE 1 1 03 R9 R10 R11
-001- 39 #
-002- 40 #          MTC 60-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 41 #          MTC 60-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 42 #          MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 43 #          MTC 60-17 JK8 BUS TERMINATOR CIRCUIT
-002- 44 #          MTC 60-16 JK9 BUS TERMINATOR CIRCUIT
-001- 45 #
-001- 46 # SEGMENT 3 DESCRIPTION.
-001- 47 #
48 # THIS SEGMENT WILL ADDRESS THE BUS TERMINATOR THROUGH THE ALL ZERO-
49 # ALL ONES ORDERS. THE BUS TERMINATOR UNIT WILL MIMIC ANY ORDER SEND

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 32

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPM W77D

0130155

0130155 02 000334 003240 -----  
 0130156  
 0130156 02 000335 013002 -----  
 0130157 02 000336 105722 037020  
 0130160  
 0130160 02 000337 037020 132056 0132056  
 0130162 02 000341 155037 ----- 0130221  
 0130163 02 000342 014273 -----  
 0130164 02 000343 055035 ----- 0130221  
 0130165 02 000344 015652 -----  
 0130166  
 0130166 02 000345 037020 132056 0132056  
 0130170 02 000347 155031 ----- 0130221  
 0130171 02 000350 020660 -----  
 0130172 02 000351 054027 ----- 0130221  
 0130173 02 000352 003204 -----  
 0130174 02 000353 010614 -----  
 0130175 02 000354 016170 000360  
 0130177 02 000356 034560 043463 CTSD

01 # TO IT AFTER IT HAS BEEN ADDRESSED.  
 02  
 03 # THE DATA WORDS IN THE FAILURE MESSAGE ARE:  
 04 # R9=TDC I/O ADDRESS  
 05 # R10=ORDER SENT TO BUS TERMINATOR (ALL ZERO OR ALL ONES)  
 06 # R11=BUS TERMINATOR RESPONSE (OR LACK OF RESPONSE),  
 07 #& TBLEND  
 08 ZR R10 # PREPARE BUS TERMINATOR ALL ZERO COMMAND.  
 09 SBIN  
 -001- 10 MIS 2  
 -001- 11 DATA 35794  
 12 CALL SMTM # SEND ORDER  
 -001- 13 BSA SMTM  
 14 BNC ERRMSGPOX  
 15 TZ R11  
 16 BNC ERRMSGPOX  
 17 COM R10 # CHANGE TEST PATTERN.  
 18 CALL SMTM # SEND ORDER  
 -001- 19 BSA SMTM  
 20 BNC ERRMSGPOX  
 21 FLZ R11,R0 # WAS THE REPLY CORRECT.  
 22 BC ERRMSGPOX  
 23 SEGADD  
 -001- 24 LN R8,CHKPOINT  
 -001- 25 RLN R8,4  
 -001- 26 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.  
 -001- 27 STL R7,MSFPROG  
 -001- 28 # SEG. NUMBER=4.  
 29 # THE BUS TERMINATOR CAN BE ADDRESSED. NOW CHECK VARIOUS  
 30 # CONSTANTS TO VERIFY THE SPI SHIFT REGISTER AND BT PARITY TREES.

0130201

34 TRBL JK5,JK6,JK7,JK8,JK9  
 -001- 35 #& TBL 0104  
 -001- 36 #& TEST 1  
 -001- 37 #& SEGMENT 4  
 -001- 38 #& PR CTAPM  
 -001- 39 #  
 -001- 40 # EXPECTED OUTPUT MESSAGE.  
 -001- 41 # DGN TAPE 0 1 04 R9 R10 R11  
 -001- 42 #  
 -001- 43 # MTC 68-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT  
 -001- 44 # MTC 68-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT  
 -001- 45 # MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT  
 -001- 46 # MTC 68-17 JK8 BUS TERMINATOR CIRCUIT  
 -001- 47 # MTC 68-16 JK9 BUS TERMINATOR CIRCUIT  
 -001- 48 #  
 -001- 49 #

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 33

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPM

W77D

```

-001- 01 #
-001- 02 #& TBL 1104
-001- 03 #& TEST 1
-001- 04 #& SEGMENT 4
-001- 05 #& PR CTAPM
-001- 06 #
-001- 07 # EXPECTED OUTPUT MESSAGE.
-001- 08 # DGN TAPE 1 1 04 R9 R10 R11
-001- 09 #
-002- 10 # MTC 60-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 11 # MTC 60-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 12 # MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 13 # MTC 60-17 JK8 BUS TERMINATOR CIRCUIT
-002- 14 # MTC 60-16 JK9 BUS TERMINATOR CIRCUIT
-001- 15 #
-001- 16 # SEGMENT 4 DESCRIPTION.
-001- 17 #
18 # THIS SEGMENT WILL SEND 16 PATTERNS TO THE BUS TERMINATOR. THE
19 # PATTERN WILL BE BASICALL ALL ZERO WITH A ONE ROTATING THROUGH
20 # THE ALL ZERO FIELD. THE DATA WORDS ARE:
21 # R9=I/O ADDRESS OF TDC
22 # R10=PATTERN SENT TO BUS TERMINATOR
23 # R11=BUS TERMINATOR RESPONSE AS SENT BY THE SPI.
24 #& TBLEND

```

```

0130201 02 000360 003241 ----- 28 LN R10,1 #SET UP STARTING CONSTANT. (ONE THRU FIELD OF
. ZEROES)
0130202 30 CALL SENDSFT
0130202 02 000361 037020 132042 0132042 -001- 31 BSA SENDSFT
0130204 02 000363 155015 ----- 0130221 32 BNC ERRMSGPOX
33 SEGADD
0130205 02 000364 003205 ----- -001- 34 LN R8,CHKPOINT
0130206 02 000365 010614 ----- -001- 35 RLN R8,4
0130207 02 000366 016170 000360 -001- 36 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0130211 02 000370 034560 043463 CTSD -001- 37 STL R7,MSFPROG
-001- 38 # ----- SEG. NUMBER=5.

```

```

0130213 42 TRBL JK5,JK6,JK7,JK8,JK9
-001- 43 #& TBL 0105
-001- 44 #& TEST 1
-001- 45 #& SEGMENT 5
-001- 46 #& PR CTAPM
-001- 47 #
-001- 48 # EXPECTED OUTPUT MESSAGE.
-001- 49 # DGN TAPE 0 1 05 R9 R10 R11

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 34

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 1 SPI INTERFACE TEST

CTAPH W77D

```

-001- 01 #
-001- 02 # MTC 68-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 03 # MTC 68-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 04 # MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 05 # MTC 68-17 JK8 BUS TERMINATOR CIRCUIT
-001- 06 # MTC 68-16 JK9 BUS TERMINATOR CIRCUIT
-001- 07 #
-001- 08 #
-001- 09 #
-001- 10 #& TBL 1105
-001- 11 #& TEST 1
-001- 12 #& SEGMENT 5
-001- 13 #& PR CTAPH
-001- 14 #
-001- 15 # EXPECTED OUTPUT MESSAGE,
-001- 16 # DGN TAPE 1 1 05 R9 R10 R11
-001- 17 #
-002- 18 # MTC 60-34 JK5 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 19 # MTC 60-33 JK6 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 20 # MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-002- 21 # MTC 60-17 JK8 BUS TERMINATOR CIRCUIT
-002- 22 # MTC 60-16 JK9 BUS TERMINATOR CIRCUIT
-001- 23 #
-001- 24 # SEGMENT 5 DESCRIPTION.
-001- 25 #
26 # THIS SEGMENT IS SAME AS PREVIOUS EXCEPT A ZERO IS ROTATED
27 # THROUGH A FIELD OF ONES.
28 #& TBLEND

```

```

0130213 02 000372 015652 ----- 32 COM R10 # SET UP ZERO THRU FIELD OF ONES.
0130214 33 CALL SENDSFT
0130214 02 000373 037020 132042 0132042 -001- 34 BSA SENDSFT
0130216 35 ZBIN
0130216 02 000375 113002 ----- -001- 36 MIS 2
0130217 02 000376 107322 ----- -001- 37 DATA 36562
0130220 02 000377 054350 ----- 0130570 38 BC CONTRTN
0130221 39 ERRMSGPOX
0130221 40 ZBIN
0130221 02 000400 113002 ----- -001- 41 MIS 2
0130222 02 000401 107322 037000 -001- 42 DATA 36562
0130223 02 000402 037000 132000 0132000 43 BL ERRMSGPO

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 35

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPM W77D

```

0130225          0000002          01 BUFFER
                                02 TEST SET TEST+1
                                03 # THIS IS THE BUFFER TEST FOR THE TDC. FIRST AN INITIALIZATION ORDER
                                04 # IS SENT TO ATTEMPT TO SET ALL STATES TO A KNOWN LEVEL.
0130225 02 000404 103162 ----- 05 LN R7,2 # TEST NUMBER FOR PRINTOUT.
                                06 SEGADDI
0130226 02 000405 034560 043463 CTSD -001- 07 STL R7,MSFPROG #DISPLAY NUMBER ON LOW 4 BITS OF SSP.
                                -001- 08 # ----- SEG. NUMBER=0.

```

```

0130230          -001- 12 TRBL JK10,JK11,JK12,JK13
                                -001- 13 #& TBL 0200
                                -001- 14 #& TEST 2
                                -001- 15 #& SEGMENT 0
                                -001- 16 #& PR CTAPM
                                -001- 17 #
                                -001- 18 # EXPECTED OUTPUT MESSAGE.
                                -001- 19 # DGN TAPE 0 2 00 R9 R10 R11
                                -001- 20 #
                                -001- 21 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT
                                -001- 22 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT
                                -001- 23 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT
                                -001- 24 # MTC 68-27 JK13 BUFFER UNIT CIRCUIT
                                -001- 25 #
                                -001- 26 #
                                -001- 27 #
                                -001- 28 #& TBL 1200
                                -001- 29 #& TEST 2
                                -001- 30 #& SEGMENT 0
                                -001- 31 #& PR CTAPM
                                -001- 32 #
                                -001- 33 # EXPECTED OUTPUT MESSAGE.
                                -001- 34 # DGN TAPE 1 2 00 R9 R10 R11
                                -001- 35 #
                                -002- 36 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT
                                -002- 37 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
                                -002- 38 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT
                                -002- 39 # MTC 60-27 JK13 BUFFER UNIT CIRCUIT
                                -001- 40 #
                                -001- 41 # SEGMENT 0 DESCRIPTION.
                                -001- 42 #
                                43 # A BUFFER INITIALIZATION ORDER WAS SENT AND THE EXPECTED REPLY
                                44 # SHOULD HAVE INDICATED AN IDLE BUFFER UNIT. THE R11 DATA WORD
                                45 # INDICATES THE LACK OF OR EXTRA BITS RETURNED BY THE BUFFER UNIT.
                                46 # THE CONSTANT LOOKED FOR IS 0(20413).
                                47 #& TBLEND

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 36

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPH

W77D

```

0130230 02,000407 003641 160013          01      LI      R10,BINIT      # SEND BUFFER INIT.
0130232          02      CALL     SENDMIOM
0130232 02 000411 037020 132064 0132064 -001- 03      BSA     SENDMIOM
0130234 02 000413 103665 020413          04      CI      R11,M(RDY)+M(ACTIV)+BUFDEV # CHECK RESPONSE FROM IDLE BUFFER.
0130236 02 000415 055763 ----- 0130221 05      BNC     ERRMSGPOX      # RESPONSE IS INCORRECT.
          06      SEGADD
0130237 02 000416 003201 ----- -001- 07      LN      R8,CHKPOINT
0130240 02 000417 010614 ----- -001- 08      RLN     R8,4
0130241 02 000420 016170 000360 -001- 09      IRM     R7,R8,0(360)      #DISPLAY SEGMENT IN BITS 4-7.
0130243 02 000422 034560 043463 CTSD -001- 10      STL     R7,MSFPROG
          -001- 11 # ----- SEG. NUMBER=1.

```

0130245

```

          15      TRBL     JK10
-001- 16 #& TBL D201
-001- 17 #& TEST 2
-001- 18 #& SEGMENT 1
-001- 19 #& PR CTAPH
-001- 20 #
-001- 21 # EXPECTED OUTPUT MESSAGE.
-001- 22 # DGN TAPE 0 2 01 R9 R10 R11
-001- 23 #
-001- 24 #           MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 25 #
-001- 26 #
-001- 27 #
-001- 28 #& TBL 1201
-001- 29 #& TEST 2
-001- 30 #& SEGMENT 1
-001- 31 #& PR CTAPH
-001- 32 #
-001- 33 # EXPECTED OUTPUT MESSAGE.
-001- 34 # DGN TAPE 1 2 01 R9 R10 R11
-001- 35 #
-002- 36 #           MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-001- 37 #
-001- 38 # SEGMENT 1 DESCRIPTION.
-001- 39 #
40 # IN PREPARATION FOR THE NEXT TEST, A BUFFER SET THE LOAD STATE ORDER
41 # IS SENT TO THE BUFFER UNIT. THE CORRECT RESPONSE SHOULD HAVE BEEN
42 # 0(22413) INDICATING A IDLE BUFFER UNIT PLACED INTO THE LOAD STATE
43 # READY TO ACCEPT DATA FROM THE CC'S. R11 DATA WORD INDICATES THE
44 # INCORRECT RESPONSE.
45 #& TBLEND

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 37

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## TEST 2 BUFFER UNIT TEST

CTAPM W77D

```

0130245 02 000424 003641 042013          01      LI      R10,BSLDON      # PREPARE FOR THE LOAD STATE.
0130247          02          02      CALL     SENDMIOM
0130247 02 000426 037020 132064 0132064 -001- 03      BSA     SENDMIOM
0130251 02 000430 103665 022413          04      CI      R11,M(ACTIV)+M(LODST)+M(RDY)+BUFDEV
0130253 02 000432 055746 ----- 0130221 05      BNC     ERRMSGPOX

```

```

0130254 02 000433 003202 -----          09      SEGADD
0130255 02 000434 010614 -----        -001- 10      LN      R8,CHKPOINT
0130256 02 000435 016170 000360        -001- 11      RLN     R8,4
0130260 02 000437 034560 043463 CTSD     -001- 12      IRM     R7,R8,0(360)      #DISPLAY SEGMENT IN BITS 4-7.
0130262 02 000441 003441 125252        -001- 13      STL     R7,MSFPROG
0130262 02 000441 003441 125252        -001- 14 # ----- SEG. NUMBER=2.
0130262 02 000441 003441 125252        -001- 15 # LI      R2,0(125252) # PREPARE A CHECKER PATTERN.
0130262 02 000441 003441 125252        -001- 16 # THE ABILITY TO CORRECTLY SHIFT INFORMATION THROUGH THE 1024
0130262 02 000441 003441 125252        -001- 17 # BIT BUFFERS IS NEXT TESTED. THIS WILL ASSURE THAT THE COUNTERS
0130262 02 000441 003441 125252        -001- 18 # WITHIN THE BUFFER UNIT FUNCTION CORRECTLY AND THAT THE STUFF
0130262 02 000441 003441 125252        -001- 19 # FUNCTION OPERATES CORRECTLY. THE TWO BUFFERS ARE LOADED WITH
0130262 02 000441 003441 125252        -001- 20 # A CHECKER PATTERN AND FILLED ONLY HALF WAY. THE STUFF FUNCTION
0130262 02 000441 003441 125252        -001- 21 # IS USED TO RIGHT ADJUST THE PATTERN IN THE BUFFERS. TO ASSURE
0130262 02 000441 003441 125252        -001- 22 # THAT THE BUFFERS SWITCH PROPERLY THE COMPLIMENT CHECKER
0130262 02 000441 003441 125252        -001- 23 # PATTERN IS LOADED IN THE OTHER BUFFER.

```

0130264

```

0130264          27      TRBL     JK10,JK11,JK12,JK13
-001- 28 #& TBL 0202
-001- 29 #& TEST 2
-001- 30 #& SEGMENT 2
-001- 31 #& PR CTAPM
-001- 32 #
-001- 33 # EXPECTED OUTPUT MESSAGE.
-001- 34 # DGN TAPE 0 2 02 R9 R10 R11
-001- 35 #
-001- 36 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 37 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT
-001- 38 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT
-001- 39 # MTC 68-27 JK13 BUFFER UNIT CIRCUIT
-001- 40 #
-001- 41 #
-001- 42 #
-001- 43 #& TBL 1202
-001- 44 #& TEST 2
-001- 45 #& SEGMENT 2
-001- 46 #& PR CTAPM
-001- 47 #
-001- 48 # EXPECTED OUTPUT MESSAGE.
-001- 49 # DGN TAPE 1 2 02 R9 R10 R11

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 38

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPM

W77D

```

-001- 01 #
-002- 02 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-002- 03 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-002- 04 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT
-002- 05 # MTC 60-27 JK13 BUFFER UNIT CIRCUIT
-001- 06 #
-001- 07 # SEGMENT 2 DESCRIPTION.
-001- 08 #
09 # THIS SEGMENT CHECKS OUT THE ABILITY OF BOTH BUFFERS TO ACCEPT
10 # LOAD COMMANDS AND DATA (NOT ITS CORRECT STORAGE). THE ACCEPTANCE
11 # AND APPARENT EXECUTION OF THE BUFFER STUFF COMMAND IS ALSO CHECKED.
12 # THE STUFF ORDER RIGHT ADJUSTS A PARTIALLY FILLED BUFFER. THE BUFFERS
13 # ARE SWITCHED USING THE BUFFER SWITCH ORDER. UPON EXIT, BOTH BUFFERS
14 # HAVE BEEN FILLED HALF WAY WITH A CHECKER PATTERN (EACH BUFFER CONTAINS
15 # THE COMPLEMENT CHECKER PATTERN OF ITS MATE BUFFER). THIS PARTIALLY
16 # FILLED BUFFER IS RIGHT ADJUSTED BY THE STUFF ORDER.
17 #& TBLEND

0130264 02 000443 003461 030013 21 LI R3,M(ACTIV)+M(STUFF)+BUFDEV # CONSTANTS USED IN LOAD LOOP.
0130266 02 000445 003501 010413 22 LI R4,M(RDY)+M(STUFF)+BUFDEV
0130270 23 NXTLOAD
0130270 24 CALL LOD1HLF # LOAD BUFFER ZERO.
0130270 02 000447 137020 132076 0132076 -001- 25 BSA LOD1HLF
0130272 02 000451 155727 ----- 0130221 26 BNC ERRMSGPOX # ERROR IN BUFFER LOADING WAS ENCOUNTERED.
0130273 02 000452 003641 050013 27 LI R10,BSTFON # SET STUFF FUNCTION
0130275 28 CALL SENDMIOM
0130275 02 000454 037020 132064 0132064 -001- 29 BSA SENDMIOM
0130277 02 000456 120263 ----- 30 CR R11,R3 # WAS STUFF FUNCTION REPLY CORRECT?
0130300 02 000457 022075 ----- 31 ZBN R3,S(ACTIV) # PREPARE FOR NEXT LOOP.
0130301 02 000460 055720 ----- 0130221 32 BNC ERRMSGPOX
0130302 33 CALL WAIT1 # WAIT FOR STUFF TO COMPLETE.
0130302 02 000461 037020 132224 0132224 -001- 34 BSA WAIT1
0130304 02 000463 103641 140013 35 LI R10,BSWB # SWITCH BUFFERS FOR NEXT STEP
0130306 36 CALL SENDMIOM
0130306 02 000465 037020 132064 0132064 -001- 37 BSA SENDMIOM
0130310 02 000467 120264 ----- 38 CR R11,R4 # WAS BUFFER SWITCH ACTIVATED.
0130311 02 000470 026115 ----- 39 SBN R4,S(ACTIV)
0130312 02 000471 055707 ----- 0130221 40 BNC ERRMSGPOX
0130313 02 000472 015442 ----- 41 COM R2 # PREPARE COMPLIMENT OF LAST LOAD FOR BUFFER
1.
0130314 02 000473 024275 ----- 43 TBN R11,S(ACTIV) # CHECK IF BOTH BUFFERS WERE USED.
0130315 02 000474 055753 ----- 0130270 44 BNC NXTLOAD
45 SEGADD
0130316 02 000475 003203 ----- -001- 46 LN R8,CHKPOINT
0130317 02 000476 010614 ----- -001- 47 RLN R8,4
0130320 02 000477 016170 000360 -001- 48 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0130322 02 000501 034560 043463 CTSD -001- 49 STL R7,MSFPROG

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 39

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPM

W770

0130324 02 000503 003461 024413

-001- 01 # ----- LI ----- R3,M(ACTIV)+M(UNST)+M(RDY)+BUFDEV # PREPARE FOR COMPARE.  
 02

SEG. NUMBER=3.

0130326

06 TRBL JK10,JK11,JK12,JK13  
 -001- 07 #& TBL 0203  
 -001- 08 #& TEST 2  
 -001- 09 #& SEGMENT 3  
 -001- 10 #& PR CTAPM  
 -001- 11 #  
 -001- 12 # EXPECTED OUTPUT MESSAGE.  
 -001- 13 # DGN TAPE 0 2 03 R9 R10 R11  
 -001- 14 #  
 -001- 15 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT  
 -001- 16 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT  
 -001- 17 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT  
 -001- 18 # MTC 68-27 JK13 BUFFER UNIT CIRCUIT  
 -001- 19 #  
 -001- 20 #  
 -001- 21 #  
 -001- 22 #& TBL 1203  
 -001- 23 #& TEST 2  
 -001- 24 #& SEGMENT 3  
 -001- 25 #& PR CTAPM  
 -001- 26 #  
 -001- 27 # EXPECTED OUTPUT MESSAGE.  
 -001- 28 # DGN TAPE 1 2 03 R9 R10 R11  
 -001- 29 #  
 -002- 30 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT  
 -002- 31 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT  
 -002- 32 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT  
 -002- 33 # MTC 60-27 JK13 BUFFER UNIT CIRCUIT  
 -001- 34 #  
 -001- 35 # SEGMENT 3 DESCRIPTION.  
 -001- 36 #  
 37 # THIS SEGMENT WILL DETERMINE IF THE PREVIOUS LOAD FUNCTION  
 38 # HAS SUCCESSFULLY TRANSFERRED DATA INTO THE TWO 1024 BIT  
 39 # BUFFER. EACH BUFFER WILL BE UNLOADED AND THE CHECKER PATTERN  
 40 # LOOKED AT FOR CORRECTNESS. ALSO THE TRAILING 32 ZERO WORDS  
 41 # THAT THE STUFF FUNCTION SHOULD HAVE LOADED DURING ITS EXECUTION.  
 42 # THE BUFFER COUNTER IS CHECKED TO ASSURE THAT THE CORRECT NUMBER  
 43 # OF SHIFTS CAN BE GENERATED FOR THE STUFF FUNCTION. IN OTHER WORDS,  
 44 # 32 CHECKER PATTERNS MUST BE FOLLOWED BY 32 ALL ZERO WORDS.  
 45 #& TBLEND

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 40

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPH W77D

```

0130326          01 NXTUNL
0130326 02 000505 103641 044013          02 LI R10,BSUNLDON # PREPARE FOR UNLOAD OPERATION
0130330          03 CALL SENDMIOM
0130330 02 000507 037020 132064 0132064 -001- 04 BSA SENDMIOM
0130332 02 000511 117263 024013          05 CRM R11,R3,M(ACTIV)+M(UNST)+BUFDEV # CHECK FOR ACTIVE UNLOAD STATE.
0130334 02 000513 055665 ----- 0130221 06 BNC ERRMSGPOX
0130335 02 000514 003641 120013          07 LI R10,BCLROCN # CLEAR THE OFF-LINE COUNTER
0130337          08 CALL SENDMIOM
0130337 02 000516 037020 132064 0132064 -001- 09 BSA SENDMIOM
0130341 02 000520 120263 -----          10 CR R11,R3 # CHECK STATE OF THE BUFFER UNIT.
0130342 02 000521 022075 -----          11 ZBN R3,S(ACTIV) # PREPARE FOR NEXT LOOP.
0130343 02 000522 055656 ----- 0130221 12 BNC ERRMSGPOX
0130344          13 CALL UNCHECK1 # UNLOAD BUFFER AND CHECK
0130344 02 000523 037020 132120 0132120 -001- 14 BSA UNCHECK1
0130346 02 000525 155653 ----- 0130221 15 BNC ERRMSGPOX
0130347 02 000526 003641 140013          16 LI R10,BSWB # SWITCH BUFFERS
0130351          17 CALL SENDMIOM #NO STATUS CHECK. ASSUME SWITCH WORKS.
0130351 02 000530 037020 132064 0132064 -001- 18 BSA SENDMIOM
0130353 02 000532 115442 -----          19 COM R2 # PREPARE PATTERN FOR CHECK.
0130354 02 000533 024275 -----          20 TBN R11,S(ACTIV) # HAVE BOTH BUFFERS BEEN USED.
0130355 02 000534 055751 ----- 0130326 21 BNC NXTUNL
          22 SEGADD
0130356 02 000535 003204 ----- -001- 23 LN R8,CHKPOINT
0130357 02 000536 010614 ----- -001- 24 RLN R8,4
0130360 02 000537 016170 000360 -001- 25 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0130362 02 000541 034560 043463 CTSD -001- 26 STL R7,MSFPROG
          -001- 27 # ----- SEG. NUMBER=4.

```

0130364

```

          31 TRBL JK10,JK11,JK12,JK13
-001- 32 #& TBL 0204
-001- 33 #& TEST 2
-001- 34 #& SEGMENT 4
-001- 35 #& PR CTAPH
-001- 36 #
-001- 37 # EXPECTED OUTPUT MESSAGE.
-001- 38 # DGN TAPE 0 2 04 R9 R10 R11
-001- 39 #
-001- 40 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 41 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT
-001- 42 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT
-001- 43 # MTC 68-27 JK13 BUFFER UNIT CIRCUIT
-001- 44 #
-001- 45 #
-001- 46 #
-001- 47 #& TBL 1204
-001- 48 #& TEST 2
-001- 49 #& SEGMENT 4

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 41

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPM W77D

```

-001- 01 #& PR CTAPM
-001- 02 #
-001- 03 # EXPECTED OUTPUT MESSAGE.
-001- 04 # DGN TAPE 1 2 04 R9 R10 R11
-001- 05 #
-002- 06 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-002- 07 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-002- 08 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT
-002- 09 # MTC 60-27 JK13 BUFFER UNIT CIRCUIT
-001- 10 #
-001- 11 # SEGMENT 4 DESCRIPTION.
-001- 12 #
13 # A PARTIALLY LOADED BUFFER RESULTING FROM DATA SHIFTING OFF
14 # OF A PERIPHERAL DEVICE INTO THE BUFFER RESULTS IN AN AUTOMATIC
15 # RIGHT ADJUSTMENT OF THE DATA BY THE STUFF FUNCTION. THE STUFF
16 # FUNCTION WILL ALSO RAISE THE BR FLAG TO INDICATE THAT A BUFFER
17 # REQUIRES SERVICING. AN ALL ONES PATTERN IS SHIFTED INTO THE 1ST
18 # 32 WORDS OF EACH BUFFER FOR THIS TEST. THE BUFFER IS SWITCHED
19 # ON-LINE (CONNECTED TO THE TAPE DECK) AND A STUFF FUNCTION
20 # INITIATED.
21 # THIS SEGMENT WILL LOAD, SWITCH, AND INITIATE THE STUFF AND CHECK
22 # THE BR FLAG SETTING.
23 #& TBLEND

```

```

0130364 02 000543 003441 177777 27 LI R2,0(177777) # NEW PATTERN
0130366 28 LODOTH
0130366 29 CALL LOD1HLF # LOAD BUFFER
0130366 02 000545 137020 132076 0132076 -001- 30 BSA LOD1HLF
0130370 02 000547 155631 ----- 0130221 31 BNC ERRMSGPOX
0130371 02 000550 003641 140013 32 LI R10,BSWB # SWITCH BUFFERS
0130373 33 CALL SENDMIOM
0130373 02 000552 037020 132064 0132064 -001- 34 BSA SENDMIOM
0130375 02 000554 124275 ----- 35 TBN R11,S(ACTIV) # HAVE BOTH BEEN LOADED?
0130376 02 000555 055770 ----- 0130366 36 BNC LODOTH
37 # AT THIS POINT BUFFER 1 IS ACTIVE.
38 # SET UP COMPARE CONSTANTS FOR FURTHER BUFFER TESTS.
0130377 02 000556 003461 122413 39 LI R3,BUFDEV+M(FILL)+M(ACTIV)+M(LODST)+M(RDY)
0130401 02 000560 003501 002613 40 LI R4,BUFDEV+M(LODST)+M(RDY)+M(BR)
0130403 02 000562 003521 002413 41 LI R5,BUFDEV+M(LODST)+M(RDY)
0130405 42 REFILL
0130405 02 000564 103641 060013 43 LI R10,BFILL #SEND FILL ORDER TO RIGHT ADJUST BUFFER DATA.
0130407 44 CALL SENDMIOM
0130407 02 000566 037020 132064 0132064 -001- 45 BSA SENDMIOM
0130411 02 000570 117263 171777 46 CRM R11,R3,-(M(UNST)+M(LODST)) # DID FILL GO ACTIVE?
0130413 02 000572 055606 ----- 0130221 47 BNC ERRMSGPOX
0130414 02 000573 022075 ----- 48 ZBN R3,S(ACTIV) # PREPARE FOR NEXT LOOP.
0130415 49 CALL WAIT1 # STALL TO ALLOW FILL TO COMPLETE.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 42

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPM W77D

```

0130415 02 000574 037020 132224 0132224 -001- 01   BSA   WAIT1
0130417 02 000576 103641 000013          02   LI    R10,BSTAT      # SEND STATUS TO ASSURE THAT BR IS SET AND
                                     # BUFFER SWITCHED.

0130421          04   CALL  SENDMIOM
0130421 02 000600 037020 132064 0132064 -001- 05   BSA   SENDMIOM
0130423 02 000602 117264 171777          06   CRM   R11,R4,-(M(UNST)+M(LODST)) # DID BUFFER SWITCH?
0130425 02 000604 026115 -----          07   SBN   R4,S(ACTIV)      # GET READY FOR NEXT LOOP.
0130426 02 000605 055573 ----- 0130221 08   BNC   ERRMSGPOX
                                     09   SEGADD
0130427 02 000606 003205 ----- -001- 10   LN    R8,CHKPOINT
0130430 02 000607 010614 ----- -001- 11   RLM   R8,A
0130431 02 000610 016170 000360 -001- 12   IRM   R7,R8,0(360)      #DISPLAY SEGMENT IN BITS 4-7.
0130433 02 000612 034560 043463 CTSD -001- 13   STL   R7,MSFPROG
-001- 14 # ----- SEG. NUMBER=5.

```

0130435

```

18   TRBL   JK10,JK11,JK12,JK13
-001- 19 #& TBL 0205
-001- 20 #& TEST 2
-001- 21 #& SEGMENT 5
-001- 22 #& PR CTAPM
-001- 23 #
-001- 24 # EXPECTED OUTPUT MESSAGE.
-001- 25 # DGN TAPE 0 2 05 R9 R10 R11
-001- 26 #
-001- 27 #           MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 28 #           MTC 68-29 JK11 BUFFER UNIT CIRCUIT
-001- 29 #           MTC 68-28 JK12 BUFFER UNIT CIRCUIT
-001- 30 #           MTC 68-27 JK13 BUFFER UNIT CIRCUIT
-001- 31 #
-001- 32 #
-001- 33 #
-001- 34 #& TBL 1205
-001- 35 #& TEST 2
-001- 36 #& SEGMENT 5
-001- 37 #& PR CTAPM
-001- 38 #
-001- 39 # EXPECTED OUTPUT MESSAGE.
-001- 40 # DGN TAPE 1 2 05 R9 R10 R11
-001- 41 #
-002- 42 #           MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-002- 43 #           MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-002- 44 #           MTC 60-28 JK12 BUFFER UNIT CIRCUIT
-002- 45 #           MTC 60-27 JK13 BUFFER UNIT CIRCUIT
-001- 46 #
-001- 47 # SEGMENT 5 DESCRIPTION.
-001- 48 #
49 # THE SETTING OF THE BR FLAG FROM THE PREVIOUS SEGMENT (SEE PREVIOUS

```

COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPH

W77D

0130435

01 # SEGMENT DESCRIPTION) SHOULD HAVE BEEN DETECTED BY THE INTERRUPT  
 02 # SERVICING THE TDC. THIS SEGMENT WILL VERIFY THIS OCCURRENCE AND  
 03 # CHECK THAT THE BR FLAG CAN BE RESET BY THE CLEAR BR FLAG COMMAND.  
 04  
 05 # NOTE BESIDES THE ABOVE CIRCUIT PACKS BEING SUSPECT FOR THIS  
 06 # FAILURE, ANY INTERRUPT CONNECTIONS BETWEEN THE TDC AND CC  
 07 # SHOULD BE CHECKED.  
 08 #& TBLEND

0130435	02	000614	051005	-----	12	TBS	N(INTSBR)(RAD),S(INTSBR) # DID INTERRUPT COME IN.	
0130436	02	000615	055563	-----	13	BNC	ERRMSGPOX	
0130437	02	000616	003641	020013	14	LI	R10,BCLRBRF # CLEAR BR	
0130441					15	CALL	SENDMIOM	
0130441	02	000620	037020	132064	0132064	-001- 16	BSA	SENDMIOM
0130443	02	000622	117265	171777		17	CRM	R11,R5, -(M(UNST)+M(LODST)) # DID BR RESET?
0130445	02	000624	026135	-----	18	SBN	R5,S(ACTIV) # GET READY FOR NEXT LOOP.	
0130446	02	000625	055553	-----	0130221	19	BNC	ERRMSGPOX
0130447					20	CALL	UNCHECK # UNLOAD AND CHECK RESULTS.	
0130447	02	000626	037020	132122	0132122	-001- 21	BSA	UNCHECK
0130451	02	000630	155550	-----	0130221	22	BNC	ERRMSGPOX
0130452	02	000631	024275	-----		23	TBN	R11,S(ACTIV) # HAS THIS TEST COMPLETED?
0130453	02	000632	055732	-----	0130405	24	BNC	REFILL
					25	SEGADD		
0130454	02	000633	003206	-----	-001- 26	LN	R8,CHKPOINT	
0130455	02	000634	010614	-----	-001- 27	RLN	R8,4	
0130456	02	000635	016170	000360		-001- 28	IRM	R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0130460	02	000637	034560	043463	CTSD	-001- 29	STL	R7,MSFPROG
						-001- 30	#	SEG. NUMBER=6.

0130462

					34	TRBL	JK11
-001-	35	#&	TBL	0206			
-001-	36	#&	TEST	2			
-001-	37	#&	SEGMENT	6			
-001-	38	#&	PR	CTAPH			
-001-	39	#					
-001-	40	#	EXPECTED	OUTPUT	MESSAGE.		
-001-	41	#	DGN	TAPE	0 2 06 R9 R10 R11		
-001-	42	#					
-001-	43	#	MTC	68-29	JK11	BUFFER	UNIT
-001-	44	#					
-001-	45	#					
-001-	46	#					
-001-	47	#&	TBL	1206			
-001-	48	#&	TEST	2			
-001-	49	#&	SEGMENT	6			

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 44

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPH

W77D

```

-001- 01 #& PR CTAPH
-001- 02 #
-001- 03 # EXPECTED OUTPUT MESSAGE.
-001- 04 # DGN TAPE 1 2 06 R9 R10 R11
-001- 05 #
-002- 06 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-001- 07 #
-001- 08 # SEGMENT 6 DESCRIPTION.
-001- 09 #
10 # THE FAILURE TO SERVICE THE TWO 1024 BIT BUFFERS IN AN ADEQUATE
11 # TIME SHOULD RESULT IN AN OVERFLOW CONDITION. BOTH BUFFERS BEING
12 # FULL WITH ADDITIONAL DATA STILL COMING OFF OF THE TAPE UNIT WILL
13 # CAUSE THE BUFFER OVERFLOW STATUS BIT TO BE SET. THIS SEGMENT
14 # WILL USE THE BUFFER FILL ORDER TO SIMULATE THIS CONDITION. BR SHOULD
15 # BECOME SET AT THE COMPLETION OF THE FIRST BUFFER FILL ORDER AND
16 # BUFFER OVERFLOW SHOULD BECOME SET AFTER THE SECOND FILL ORDER.
17 # THIS IS BECAUSE OF THE BR FLAG REMAINING SET AFTER THE FIRST FILL ORDER.
18 #& TBLEND

```

```

0130462 02 000641 003101 -----
0130463
0130463 02 000642 103641 060013
0130465
0130465 02 000644 037020 132064 0132064 -001- 26
0130467
0130467 02 000646 137020 132224 0132224 -001- 28
29 # ISSUE THE SECOND FILL ORDER IF R4 IS NOT ZERO.
0130471 02 000650 136100 130463 0130463.
0130473 02 000652 003253 -----
0130474
0130474 02 000653 037020 132064 0132064 -001- 33
34 # CHECK THAT BOTH BOFL AND BR ARE SET.
0130476 02 000655 103665 044613
0130500 02 000657 055521 ----- 0130221
35
36
37
0130501 02 000660 003207 ----- -001- 38
0130502 02 000661 010614 ----- -001- 39
0130503 02 000662 016170 000360 -001- 40
0130505 02 000664 034560 043463 CTSD -001- 41
-001- 42 #
22 LN R4,1
23 FLLAGN
24 LI R10,BFILL
25 CALL SENDMIOM
26 BSA SENDMIOM
27 CALL WAIT1
28 BSA WAIT1
30 BX R4,FLLAGN
31 LN R10,BSTAT
32 CALL SENDMIOM
33 BSA SENDMIOM
35 CI R11,BUFDEV+M(BR)+M(BOFL)+M(UNST)+M(RDY) # IS STATUS CORRECT?
36 BNC ERRMSGPOX
37 SEGADD
38 LN R8,CHKPOINT
39 RLN R8,4
40 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
41 STL R7,MSFPROG
-----
SEG. NUMBER=7.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 45

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPM

W77D

0130507

```

01 TRBL JK10,JK11,JK12
-001- 02 #& TBL 0207
-001- 03 #& TEST 2
-001- 04 #& SEGMENT 7
-001- 05 #& PR CTAPM
-001- 06 #
-001- 07 # EXPECTED OUTPUT MESSAGE.
-001- 08 # DGN TAPE 0 2 07 R9 R10 R11
-001- 09 #
-001- 10 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 11 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT
-001- 12 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT
-001- 13 #
-001- 14 #
-001- 15 #
-001- 16 #& TBL 1207
-001- 17 #& TEST 2
-001- 18 #& SEGMENT 7
-001- 19 #& PR CTAPM
-001- 20 #
-001- 21 # EXPECTED OUTPUT MESSAGE.
-001- 22 # DGN TAPE 1 2 07 R9 R10 R11
-001- 23 #
-002- 24 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-002- 25 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-002- 26 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT
-001- 27 #
-001- 28 # SEGMENT 7 DESCRIPTION.
-001- 29 #
30 # THE PREVIOUS SEGMENT HAS SET UP A BUFFER OVERFLOW ERROR IN THE TDC.
31 # THIS SEGMENT WILL TEST THE BUFFER INITIALIZATION ORDER'S ABILITY TO
32 # RESET THE BUFFER UNIT TO AN IDLE STATE.
33 #& TBLEND

```

```

0130507 02 000666 003641 160013 37 LI R10,BINIT # SEND INIT TO RESET BUFFER UNIT.
0130511 38 CALL SENDMIOM
0130511 02 000670 037020 132064 0132064 -001- 39 BSA SENDMIOM
0130513 02 000672 103665 020413 40 CI R11,BUFDEV+M(ACTIV)+M(RDY) # HAS BINIT EXECUTED PROPERLY.
0130515 02 000674 055504 ----- 0130221 41 BNC ERRMSGPOX
42 SEGADD
-001- 43 LN R8,CHKPOINT
0130517 02 000676 010614 ----- -001- 44 RLN R8,4
0130520 02 000677 016170 000360 -001- 45 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0130522 02 000701 034560 043463 CTSD -001- 46 STL R7,MSFPROG
-001- 47 # ----- SEG. NUMBER=8.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 46

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 2 BUFFER UNIT TEST

CTAPM

W77D

0130524

```

01 TRBL JK10,JK11,JK12,JK13
-001- 02 #& TBL 0208
-001- 03 #& TEST 2
-001- 04 #& SEGMENT 8
-001- 05 #& PR CTAPM
-001- 06 #
-001- 07 # EXPECTED OUTPUT MESSAGE.
-001- 08 # DGN TAPE 0 2 08 R9 R10 R11
-001- 09 #
-001- 10 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 11 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT
-001- 12 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT
-001- 13 # MTC 68-27 JK13 BUFFER UNIT CIRCUIT
-001- 14 #
-001- 15 #
-001- 16 #
-001- 17 #& TBL 1208
-001- 18 #& TEST 2
-001- 19 #& SEGMENT 8
-001- 20 #& PR CTAPM
-001- 21 #
-001- 22 # EXPECTED OUTPUT MESSAGE.
-001- 23 # DGN TAPE 1 2 08 R9 R10 R11
-001- 24 #
-002- 25 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-002- 26 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-002- 27 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT
-002- 28 # MTC 60-27 JK13 BUFFER UNIT CIRCUIT
-001- 29 #
-001- 30 # SEGMENT 8 DESCRIPTION.
-001- 31 #
32 # THIS SEGMENT WILL CHECK OUT THE RESETTING OF SHIFT COUNTERS. A BUFFER WILL
33 # BE LOADED HALF WAY. A BUFFER INIT ORDER WILL BE SENT. THIS SHOULD
34 # RESET THE COUNTER. ANOTHER WORD WILL BE LOADED (CHECKER PATTERN)
35 # AND A STUFF ORDER SENT. THEN AN UNLOAD WILL BE DONE TO CHECK THAT
36 # THE 2ND PATTERN (1 WORD) IS THE FIRST WORD TO BE UNLOADED FROM THE BUFFER.
37 #& TBLEND

```

```

0130524 41 # R2 SHOULD BE ALL ONES FOR THIS LOAD OPERATION.
0130524 02 000703 037020 132076 C132076 -001- 42 CALL LOD1HLF # PRIME BUFFER FOR CHECK
0130526 02 000705 155473 ----- 0130221 43 BSA LOD1HLF
0130527 02 000706 003641 160013 44 BNC ERRMSGPOX
0130531 45 LI R10,BINIT # ATTEMPT TO RESET BUFFER COUNTER.
0130531 46 CALL SENDMIOM
0130531 02 000710 037020 132064 0132064 -001- 47 BSA SENDMIOM
0130533 02 000712 103641 042013 48 LI R10,ESLON # PREPARE BUFFER FOR LOAD OPERATION
0130535 49 CALL SENDMIOM

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 47

## TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## TEST 2 BUFFER UNIT TEST

CTAPM W77D

0130535	02	000714	037020	132064	0132064	-001-	01	BSA	SENDMIOM	
0130537	02	000716	103641	125252			02	LI	R10,0(125252)	
0130541							03	CALL	SENDIO	# LOAD 1 WORD WITH CHECKER PATTERN.
0130541	02	000720	073034	-----		-001-	04	BSAI	SXENDIO	# SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0130542	02	000721	155457	-----	0130221		05	BNC	ERRMSGPOX	
0130543	02	000722	003641	050013			06	LI	R10,BSTFON	# FORCE STUFF OPERATION.
0130545							07	CALL	SENDMIOM	
0130545	02	000724	037020	132064	0132064	-001-	08	BSA	SENDMIOM	
0130547							09	CALL	WAIT1	
0130547	02	000726	137020	132224	0132224	-001-	10	BSA	WAIT1	
0130551	02	000730	103641	044013			11	LI	R10,BSUNLDON	# SET UP UNLOAD OPERATION
0130553							12	CALL	SENDMIOM	
0130553	02	000732	037020	132064	0132064	-001-	13	BSA	SENDMIOM	
0130555	02	000734	103641	120013			14	LI	R10,BCLROCN	
0130557							15	CALL	SENDMIOM	
0130557	02	000736	037020	132064	0132064	-001-	16	BSA	SENDMIOM	
0130561	02	000740	103641	100007			17	LI	R10,SD	# UNLOAD TEST WORD FOR VERIFICATION.
0130563							18	CALL	SENDMIOM	
0130563	02	000742	037020	132064	0132064	-001-	19	BSA	SENDMIOM	
0130565	02	000744	103665	125252			20	CI	R11,0(125252)	
0130567	02	000746	055432	-----	0130221		21	BNC	ERRMSGPOX	
0130570							22	CONTRTN		
0130570	02	000747	161045	-----			23	SBS	N(PASS)(RAO),S(PASS) # FLAG PASS CONDITION	
0130571							24	RETURN	2	
0130571	02	000750	056462	-----		-001-	25	BTSAN	2	

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 48

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPH W77D

0130572

01 CONTROL

02 # THIS IS THE TAPE UNIT CONTROLLER TEST. ITS RESPONSIBILITY IS TO  
 03 # ISOLATE ANY FAILURES BETWEEN THE TAPE DECK AND THE TAPE DECK CONTROL  
 04 # WITHIN THE TDC. IT WILL OPERATE WITH THE TAPE DECK UNSELECTED.

0130572 02 000751 103163 ----- 0000003

05 TEST SET TEST+1  
 06 LN R7,3 # TEST NUMBER

0130573 02 000752 034560 043463 CTSD

07 SEGADDI  
 -001- 08 STL R7,MSFPROG #DISPLAY NUMBER ON LOW 4 BITS OF SSP.  
 -001- 09 # ----- SEG. NUMBER=0.

0130575

13 TRBL JK7,JK16,JK18

-001- 14 #& TBL 0300  
 -001- 15 #& TEST 3  
 -001- 16 #& SEGMENT 0  
 -001- 17 #& PR CTAPH  
 -001- 18 #  
 -001- 19 # EXPECTED OUTPUT MESSAGE.  
 -001- 20 # DGN TAPE 0 3 00 R9 R10 R11  
 -001- 21 #  
 -001- 22 # MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT  
 -001- 23 # MTC 68-22 JK16 TAPE UNIT CONTROLLER  
 -001- 24 # MTC 68-20 JK18 TAPE UNIT CONTROLLER  
 -001- 25 #  
 -001- 26 #  
 -001- 27 #  
 -001- 28 #& TBL 1300  
 -001- 29 #& TEST 3  
 -001- 30 #& SEGMENT 0  
 -001- 31 #& PR CTAPH  
 -001- 32 #  
 -001- 33 # EXPECTED OUTPUT MESSAGE.  
 -001- 34 # DGN TAPE 1 3 00 R9 R10 R11  
 -001- 35 #  
 -002- 36 # MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT  
 -002- 37 # MTC 60-22 JK16 TAPE UNIT CONTROLLER  
 -002- 38 # MTC 60-20 JK18 TAPE UNIT CONTROLLER  
 -001- 39 #  
 -001- 40 # SEGMENT 0 DESCRIPTION.  
 -001- 41 #  
 42 # THIS SEGMENT ATTEMPTS TO DESELFCT THE TAPE TRANSPORT FROM THE  
 43 # TAPE CONTROLLER THROUGH THE USE OF THE TAPE MAINTENANCE STOP ORDER.  
 44 # THE CONTENTS OF R11 SHOULD INDICATE THIS STATE.  
 45 #& TBLEND

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 49

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## TEST 3 TAPE UNIT CONTROLLER TEST

CTAPM W77D

```

0130575 02 000754 003641 000215          01      LI      R10,TMSTOP
0130577          02          02          02      CALL   SENDMIOM          # ATTEMPT TO DESELECT THE TAPE TRANSPORT
0130577 02 000756 037020 132064 0132064 -001- 03      BSA    SENDMIOM
0130601 02 000760 103401 000115          04      LI      RO,M(HSTP)+TUCDEV # CHECK IF PRIMARY REPLY IS CORRECT.
0130603 02 000762 017013 007777          05      CRM   RO,R11,M(DEVICODE)+M(HSTP)+M(TPR)+M(COMD)
0130605 02 000764 055414 ----- 0130221 06      BNC    ERRMSGPOX
          07      SEGADD
0130606 02 000765 003201 ----- -001- 08      LN     R8,CHKPOINT
0130607 02 000766 010614 ----- -001- 09      RLN   R8,4
0130610 02 000767 016170 000360 -001- 10      IRM   R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0130612 02 000771 034560 043463 CTSD -001- 11      STL   R7,MSFPROG
          -001- 12 # ----- SEG. NUMBER=1.

```

0130614

```

          16      TRBL   JK16,JK17,JK18,JK19
-001- 17 #& TBL 0301
-001- 18 #& TEST 3
-001- 19 #& SEGMENT 1
-001- 20 #& PR CTAPM
-001- 21 #
-001- 22 # EXPECTED OUTPUT MESSAGE.
-001- 23 # DGN TAPE 0 3 01 R9 R10 R11
-001- 24 #
-001- 25 #          MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 26 #          MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 27 #          MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 28 #          MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 29 #
-001- 30 #
-001- 31 #
-001- 32 #& TBL 1301
-001- 33 #& TEST 3
-001- 34 #& SEGMENT 1
-001- 35 #& PR CTAPM
-001- 36 #
-001- 37 # EXPECTED OUTPUT MESSAGE.
-001- 38 # DGN TAPE 1 3 01 R9 R10 R11
-001- 39 #
-002- 40 #          MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 41 #          MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 42 #          MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 43 #          MTC 60-19 JK19 TAPE UNIT CONTROLLER
-001- 44 #
-001- 45 # SEGMENT 1 DESCRIPTION.
-001- 46 #
47 # A CHECK OF THE STATUS OF THE TAPE CONTROLLER IS DONE
48 # USING THE SECONDARY STATUS ORDER. THE EXPECTED REPLY IS
49 # IDLE AND IN THE MAINTENANCE STOP MODE. WRITE ENABLE MUST

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 50

TDC DIAGNOSTIC PROGRAM:

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPH W77D

01 # BE ACTIVE, WHICH REQUIRES A CARTRIDGE TO BE INPLACE AND  
 02 # NOT IN THE SAFE (WRITE PROTECTED) POSITION. R11 IS REPLY.  
 03 #& TBLEND

```

0130614 02 000773 003641 002015          07      LI      R10,TSTAT
0130616                                08      CALL    SENDMIOM      # MAKE SURE ALL STATUS BITS REFLECT MAINTENAN
                                                CE MODE,
0130616 02 000775 037020 132064 0132064 -001- 10      BSA      SENDMIOM
0130620 02 000777 103401 010115          11      LI      RO,TUCDEV+M(WENBL)+M(MTCE)
0130622 02 001001 017013 010115          12      CRM      RO,R11,M(WENBL)+M(MTCE)+TUCDEV # CHECK FOR CORRECT STATUS.
0130624 02 001003 050400 130221 0130221 13      BNCL     ERRMSGPOX
                                                14      SEGADD
0130626 02 001005 003202 -----        -001- 15      LN      R8,CHKPOINT
0130627 02 001006 010614 -----        -001- 16      RLN     R8,4
0130630 02 001007 016170 000360          -001- 17      IRM     R7,R8,0(360)      #DISPLAY SEGMENT IN BITS 4-7.
0130632 02 001011 034560 043463 CTSD     -001- 18      STL     R7,MSFPROG
                                                -001- 19 # -----          .SEG. NUMBER=2.

```

0130634 .

```

23      TRBL     JK16,JK17,JK18,JK19
-001- 24 #& TBL 0302
-001- 25 #& TEST 3
-001- 26 #& SEGMENT 2
-001- 27 #& PR CTAPH
-001- 28 #
-001- 29 # EXPECTED OUTPUT MESSAGE.
-001- 30 # DGN TAPE 0 3 02 R9 R10 R11
-001- 31 #
-001- 32 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 33 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 34 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 35 # MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 36 #
-001- 37 #
-001- 38 #
-001- 39 #& TBL 1302
-001- 40 #& TEST 3
-001- 41 #& SEGMENT 2
-001- 42 #& PR CTAPH
-001- 43 #
-001- 44 # EXPECTED OUTPUT MESSAGE.
-001- 45 # DGN TAPE 1 3 02 R9 R10 R11
-001- 46 #
-002- 47 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 48 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 49 # MTC 60-20 JK18 TAPE UNIT CONTROLLER

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COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPH

W77D

-002- 01 # MTC 60-19 JK19 TAPE UNIT CONTROLLER  
 -001- 02 #  
 -001- 03 # SEGMENT 2 DESCRIPTION.  
 -001- 04 #  
 05 # MOST TAPE UNIT CONTROLLER ORDERS ARE SENT TO THE TAPE CONTROLLER.  
 06 # EACH RESPONSE IS CHECKED FOR CORRECTNESS. R10 CONTAINS THE  
 07 # COMMAND AND R11 WILL CONTAIN THE RESPONSE. THE TRANSPORT IS  
 08 # DESELECTED AT THIS TIME AND NO TAPE MOTION SHOULD BE SEEN.  
 09 # & TBLEND

0130634	02	001013	031400	131737	0131737	13	LAL	RO, TDCORD-1, RA1			
0130636	02	001015	003057	-----		14	LN	R2, 15			
						15	# THIS ROUTINE WILL EXECUTE MOST OF THE TAPE DECK AND TAPE UNIT				
						16	# CONTROLLER ORDERS. EACH PRIMARY RESPONSE IS VERIFIED FOR ITS				
						17	# CORRECTNESS.				
						18	ORDON				
0130637						19	CALL	WAIT1			
0130637						20	BSA	WAIT1			
0130641	02	001016	137020	132224	0132224	-001-	21	LA	R10, 1(RA1)	# SET UP ORDER	
0130642	02	001020	141641	-----			22	CALL	SENDMIOM		
0130642	02	001021	037020	132064	0132064	-001-	23	BSA	SENDMIOM		
0130644	02	001023	141401	-----			24	LA	R0, 1(RA1)	# GET EXPECTED REPLY.	
0130645	02	001024	020260	-----			25	CR	R11, R0	# VERIFY RESPONSE.	
0130646	02	001025	050400	130221	0130221		26	BNCL	ERRMSGPOX		
0130650	02	001027	003641	000015			27	LI	R10, TSTOP	# STOP MUST BE SENT TO ASSURE NEXT ORDERS ACCEPTANCE.	
0130652						29	CALL	SENDMID			
0130652	02	001031	037020	111050	CSYSUB	-001-	30	BSA	SENDMID		
0130654	02	001033	136040	130637	0130637		31	BX	R2, ORDON		
							32	SEGADD			
0130656	02	001035	003203	-----		-001-	33	LN	R8, CHKPOINT		
0130657	02	001036	010614	-----		-001-	34	RLN	R8, 4		
0130660	02	001037	016170	000360		-001-	35	IRM	R7, R8, 0(360)	# DISPLAY SEGMENT IN BITS 4-7.	
0130662	02	001041	034560	043463	CTSD	-001-	36	STL	R7, MSFPROG		
						-001-	37	#			SEG. NUMBER=3.
							38	# THE LAST ITEM CHECKED BEFORE THE MAINTENANCE MODE IS TORN DOWN			
							39	# WILL BE THE CRC HARDWARE. A SINGLE 16 BIT WORD SHIFTED THROUGH			
							40	# THE CRC HARDWARE IS SUFFICIENT TO TEST OUT THE ENTIER SHIFT REGISTER.			
							41	# A WRITE OPERATION IS SIMULATED TO CAUSE THE CONSTANT TO BE SHIFTED INTO			
							42	# THE REGISTER. IT IS ASSUMED THAT THE CRC REGISTER IS ZERO AT THIS			
							43	# POINT SINCE THE CLEAR CRC ORDER WAS SENT ABOVE.			

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 52

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPH

W77D

0130664

```

01 TRBL JK10,JK11,JK12,JK13
-001- 02 #8 TBL 0303
-001- 03 #8 TEST 3
-001- 04 #8 SEGMENT 3
-001- 05 #8 PR CTAPH
-001- 06 #
-001- 07 # EXPECTED OUTPUT MESSAGE.
-001- 08 # DGN TAPE 0 3 03 R9 R10 R11
-001- 09 #
-001- 10 # MTC 68-31 JK10 BUFFER UNIT CIRCUIT
-001- 11 # MTC 68-29 JK11 BUFFER UNIT CIRCUIT
-001- 12 # MTC 68-28 JK12 BUFFER UNIT CIRCUIT
-001- 13 # MTC 68-27 JK13 BUFFER UNIT CIRCUIT
-001- 14 #
-001- 15 #
-001- 16 #
-001- 17 #8 TBL 1303
-001- 18 #8 TEST 3
-001- 19 #8 SEGMENT 3
-001- 20 #8 PR CTAPH
-001- 21 #
-001- 22 # EXPECTED OUTPUT MESSAGE.
-001- 23 # DGN TAPE 1 3 03 R9 R10 R11
-001- 24 #
-002- 25 # MTC 60-31 JK10 BUFFER UNIT CIRCUIT
-002- 26 # MTC 60-29 JK11 BUFFER UNIT CIRCUIT
-002- 27 # MTC 60-28 JK12 BUFFER UNIT CIRCUIT
-002- 28 # MTC 60-27 JK13 BUFFER UNIT CIRCUIT
-001- 29 #
-001- 30 # SEGMENT 3 DESCRIPTION.
-001- 31 #
32 # THIS IS A SETUP SEGMENT FOR TESTING THE CRC CIRCUITRY. IT
33 # SETS THE BUFFER UNIT UP TO ACCEPT DATA.
34 # NOTE!
35 # FAILURE OF THIS SEGMENT SHOULD PROMPT THE RUNNING OF THE BUFFER
36 # UNIT DIAGNOSTIC TEST. TEST 2.
37 #8 TBLEND

```

```

0130664 02 001043 003641 160013 41 LI R10,BINIT # CLEAN UP BUFFER UNIT FROM PREVIOUS TESTING.
0130666 42 CALL SENDMION
0130666 02 001045 037020 132064 0132064 -001- 43 BSA SENDMION
0130670 02 001047 103641 042013 44 LI R10,BSLDON # SET UP THE LOAD STATE.
C130672 45 CALL SENDMION
0130672 02 001051 037020 132064 0132064 -001- 46 BSA SENDMION
0130674 02 001053 103641 000035 47 LI R10,0(35) # SEND CRC CHECK PATTERN.
0130676 48 CALL SENDIO
0130676 02 001055 073034 ----- -001- 49 BSAI SXENDIO # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 53

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPM

W770

```

0130677 02 001056 150400 130221 0130221      01      BNCL      ERRMSGPOX
0130701 02 001060 003641 120013                02      LI        R10,BCLROCN      # ADJUST COUNTER FOR STUFF TO WORK
0130703                03      CALL      SENDMIOM
0130703 02 001062 037020 132064 0132064 -001- 04      BSA        SENDMIOM
0130705 02 001064 150400 130221 0130221      05      BNCL      ERRMSGPOX
0130707 02 001066 003641 050013                06      LI        R10,BSTFON
0130711                07      CALL      SENDMIOM      # RIGHT ADJUST CONSTANT
0130711 02 001070 037020 132064 0132064 -001- 08      BSA        SENDMIOM
0130713                09      CALL      WAIT1
0130713 02 001072 137020 132224 0132224 -001- 10      BSA        WAIT1
0130715 02 001074 103641 140013                11      LI        R10,BSWB
0130717                12      CALL      SENDMIOM      # SWITCH BUFFERS.
0130717 02 001076 037020 132064 0132064 -001- 13      BSA        SENDMIOM
                                14      SEGADD
0130721 02 001100 103204 ----- -001- 15      LN        R8,CHKPOINT
0130722 02 001101 010614 ----- -001- 16      RLN       R8,4
0130723 02 001102 016170 000360 -001- 17      IRM       R7,R8,0(360)      #DISPLAY SEGMENT IN BITS 4-7.
0130725 02 001104 034560 043463 CTSD -001- 18      STL       R7,MSFPROG
                                -001- 19 # ----- SEG. NUMBER=4.

```

0130727

```

                                23      TRBL      JK16,JK17,JK18,JK19
-001- 24 #& TBL 0304
-001- 25 #& TEST 3
-001- 26 #& SEGMENT 4
-001- 27 #& PR CTAPM
-001- 28 #
-001- 29 # EXPECTED OUTPUT MESSAGE.
-001- 30 # DGN TAPE 0 3 04 R9 R10 R11
-001- 31 #
-001- 32 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 33 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 34 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 35 # MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 36 #
-001- 37 #
-001- 38 #
-001- 39 #& TBL 1304
-001- 40 #& TEST 3
-001- 41 #& SEGMENT 4
-001- 42 #& PR CTAPM
-001- 43 #
-001- 44 # EXPECTED OUTPUT MESSAGE.
-001- 45 # DGN TAPE 1 3 04 R9 R10 R11
-001- 46 #
-002- 47 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 48 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 49 # MTC 60-20 JK18 TAPE UNIT CONTROLLER

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81

TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM

ISSUE 06

PAGE 54

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPH W77D

```

-002- 01 #           MTC 60-19 JK19 TAPE UNIT CONTROLLER
-001- 02 #
-001- 03 # SEGMENT 4 DESCRIPTION.
-001- 04 #
05 # THIS SEGMENT IS ENTERED WITH THE BUFFER UNIT LOADED AND READY
06 # TO SHIFT OUT A 16 BIT CHECK CONSTANT FOR CRC VERIFICATION. THIS
07 # SEGMENT SENDS THE TAPE WRITE STOP ORDER WHICH WILL STOP THE
08 # WRITE OPERATION AFTER THE ON-LINE BUFFER SHIFTS OUT ITS DATA.
09 # IT WILL INITIATE THE WRITE ORDER AND WAIT 100 MSEC FOR THE
10 # CRC CIRCUIT TO ACCEPT AND COMPUTE THE CRC WORD FOR THE 16 BITS
11 # SHIFTED INTO IT. THE RESULT SHOULD BE NON-ZERO AND SHOULD BE
12 # DETECTED AS AN ERROR. THIS ERROR IS LOOKED FOR THROUGH THE
13 # ISSUANCE OF A TAPE UNIT STATUS COMMAND WHICH SHOULD RETURN A
14 # MTC START CODE WHEN THE CRC ACCUMULATOR IS NON-ZERO.
15 #& TBLEND

0130727 02 001106 003641 003015          19      LI      R10,TWSTP      # PRIME UNIT TO TERMINATE WRITE AFTER 16
                                           # BITS.
0130731                                21      CALL     SENDMIOM
0130731 02 001110 037020 132064 0132064 -001- 22      BSA     SENDMIOM
0130733 02 001112 130640 131762 0131762          23      LL      R10,TWT2      # SEND WRITE ORDER
0130735                                24      CALL     SENDMIOM
0130735 02 001114 037020 132064 0132064 -001- 25      BSA     SENDMIOM
0130737                                26      CALL     WAIT1       # WAIT 1 SCAN. SHOULD BE ENOUGH FOR 16 BIT
                                           # SHIFT.
0130737 02 001116 137020 132224 0132224 -001- 28      BSA     WAIT1
0130741 02 001120 103641 002015          29      LI      R10,TSTAT    # SEND TAPE STATUS ORDER TO VERIFY THAT
30 # THE UNIT CAN DETECT A NON-ZERO CRC REGISTER.
0130743                                31      CALL     SENDMIO
0130743 02 001122 037020 111050 CSYSUB -001- 32      BSA     SENDMIO
0130745 02 001124 154072 ----- 0131037          33      BC     XERRMSGPOX
                                           34      SEGADD
0130746 02 001125 003205 ----- -001- 35      LN     R8,CHKPOINT
0130747 02 001126 010614 ----- -001- 36      RLN   R8,4
0130750 02 001127 016170 000360          -001- 37      IRM   R7,R8,0(360)  #DISPLAY SEGMENT IN BITS 4-7.
0130752 02 001131 034560 043463 CTSD -001- 38      STL   R7,MSFPROG
-001- 39 # ----- SEG. NUMBER=5.
0130754                                40      TRBL  JK16,JK17,JK18,JK19
-001- 41 #& TBL 0305
-001- 42 #& TEST 3
-001- 43 #& SEGMENT 5
-001- 44 #& PR CTAPH
-001- 45 #
-001- 46 # EXPECTED OUTPUT MESSAGE.
-001- 47 # DGN TAPE 0 3 05 R9 R10 R11
-001- 48 #
-001- 49 #           MTC 68-22 JK16 TAPE UNIT CONTROLLER

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 55

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPH

W77D

```

-001- 01 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 02 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 03 # MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 04 #
-001- 05 #
-001- 06 #
-001- 07 #& TBL 1305
-001- 08 #& TEST 3
-001- 09 #& SEGMENT 5
-001- 10 #& PR CTAPH
-001- 11 #
-001- 12 # EXPECTED OUTPUT MESSAGE.
-001- 13 # DGN TAPE 1 3 05 R9 R10 R11
-001- 14 #
-002- 15 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 16 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 17 # MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 18 # MTC 60-19 JK19 TAPE UNIT CONTROLLER
-001- 19 #
-001- 20 # SEGMENT 5 DESCRIPTION.
-001- 21 #
22 # THE CHECK CONSTANT IN THE CRC ACCUMULATOR WILL NOW BE SHIFTED
23 # BACK INTO THE BUFFER UNIT SO THAT IT CAN BE VERIFIED CORRECT.
24 # THIS SEGMENT CHECKS THAT THE SHIFT CRC ORDER IS EXECUTABLE AND
25 # THAT IT GENERATES AN INTERRUPT UPON COMPLETION.
26
27 # NOTE
28 # THE INTERRUPT LEADS (IF CONNECTED TO THE PROCESSOR) SHOULD BE
29 # INVESTIGATED IF THIS SEGMENT FAILS).
30 #& TBLND

```

0130754

```

0130754 02 001133 003641 020013 34 LI R10,BCLRBRF # CLEAR BR SO THAT SHIFT CRC WORKS.
0130756 35 CALL SENDMIOM
0130756 02 001135 037020 132064 0132064 -001- 36 BSA SENDMIOM
0130760 02 001137 103641 001015 37 LI R10,TSCRC # SHIFT CRC INTO BUFFER UNIT.
0130762 38 CALL SENDMIOM
0130762 02 001141 037020 132064 0132064 -001- 39 BSA SENDMIOM
0130764 40 CALL WAIT1 # WAIT ONE SCAN. FILL GOES AT 600 NSEC PER BIT.
0130764 02 001143 137020 132224 0132224 -001- 42 BSA WAIT1
43 # THE SHIFT CRC OPERATION SHOULD NOW BE COMPLETE.
0130766 02 001145 151005 ----- 44 TBS N(INTSBR)(RAD),S(INTSBR) # WAS INTERRUPT GENERATED?
0130767 02 001146 055050 ----- 0131037 45 BNC XERRMSGPOX
46 SEGADD
0130770 02 001147 003206 ----- -001- 47 LN R8,CHKPOINT
0130771 02 001150 010614 ----- -001- 48 RLN R8,4
0130772 02 001151 016170 000360 -001- 49 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 56

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPM W77D

0130774 02 001153 034560 043463 CTSD

-001- 01 STL R7,MSFPROG

-001- 02 # ----- SEG. NUMBER=6.

0130776

06 TRBL JK16,JK17,JK18,JK19

-001- 07 #&amp; TBL 0306

-001- 08 #&amp; TEST 3

-001- 09 #&amp; SEGMENT 6

-001- 10 #&amp; PR CTAPM

-001- 11 #

-001- 12 # EXPECTED OUTPUT MESSAGE.

-001- 13 # DGN TAPE 0 3 06 R9 R10 R11

-001- 14 #

-001- 15 # MTC 68-22 JK16 TAPE UNIT CONTROLLER

-001- 16 # MTC 68-21 JK17 TAPE UNIT CONTROLLER

-001- 17 # MTC 68-20 JK18 TAPE UNIT CONTROLLER

-001- 18 # MTC 68-19 JK19 TAPE UNIT CONTROLLER

-001- 19 #

-001- 20 #

-001- 21 #

-001- 22 #&amp; TBL 1306

-001- 23 #&amp; TEST 3

-001- 24 #&amp; SEGMENT 6

-001- 25 #&amp; PR CTAPM

-001- 26 #

-001- 27 # EXPECTED OUTPUT MESSAGE.

-001- 28 # DGN TAPE 1 3 06 R9 R10 R11

-001- 29 #

-002- 30 # MTC 60-22 JK16 TAPE UNIT CONTROLLER

-002- 31 # MTC 60-21 JK17 TAPE UNIT CONTROLLER

-002- 32 # MTC 60-20 JK18 TAPE UNIT CONTROLLER

-002- 33 # MTC 60-19 JK19 TAPE UNIT CONTROLLER

-001- 34 #

-001- 35 # SEGMENT 6 DESCRIPTION.

-001- 36 #

37 # THIS SEGMENT VERIFIES THAT THE CRC ACCUMULATOR CONTAINS THE  
 38 # EXPECTED VALUE FOR THE 16 BIT SHIFT CONSTANT PASSED THROUGH THE  
 39 # CRC CIRCUITRY. R10 SHOULD CONTAIN 0(100007) AND R11 SHOULD BE 0(50011)  
 40 #& TBLEND

0130776 02 001155 003641 044013

44

LI R10,BSUNLON

# SET UP THE UNLOAD CONDITIONS.

0131000

45

CALL SENDMIOM

0131000 02 001157 037020 132064 0132064

-001- 46

BSA SENDMIOM

0131002 02 001161 103641 120013

47

LI R10,BCLROC

0131004

48

CALL SENDMIOM

0131004 02 001163 037020 132064 0132064

-001- 49

BSA SENDMIOM

COMMON TAPE MAINTENANCE

PR-1C958-50

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPM

W77D

```

0131006 02 001165 103641 100007          01      LI      R10,SD
0131010          02      CALL  SENDMIOM      # GET THE CRC CONSTANT.
0131010 02 001167 037020 132064 0132064 -001- 03      BSA      SENDMIOM
0131017 02 001171 103665 050011          04      CI      R11,0(50011)      # WAS CHECK SUCCESSFUL.
0131014 02 001173 055023 ----- 0131037 05      BNC      XERRMSGPOX
06 # ALL TAPE CONTROLLER TESTS PASS. TAPE MAINTENANCE IS NOW
07 # REMOVED AND TRANSPORT INITIALIZE IS SENT. THIS WILL COMPLETE
08 # ALL TAPE UNIT CONTROLLER ORDERS.
09      SEGADD
0131015 02 001174 003207 -----          -001- 10      LN      R8,CHKPOINT
0131016 02 001175 010614 -----          -001- 11      RLN     R8,4
0131017 02 001176 016170 000360          -001- 12      IRM     R7,R8,0(360)      #DISPLAY SEGMENT IN BITS 4-7.
0131021 02 001200 034560 043463 CTSD      -001- 13      STL     R7,MSFPROG
-001- 14 # ----- SEG. NUMBER=7.

```

0131023

```

18      TRBL     JK16,JK18,JK17,JK7
-001- 19 #& TBL 0307
-001- 20 #& TEST 3
-001- 21 #& SEGMENT 7
-001- 22 #& PR CTAPM
-001- 23 #
-001- 24 # EXPECTED OUTPUT MESSAGE.
-001- 25 # DGN TAPE 0 3 07 R9 R10 R11
-001- 26 #
-001- 27 #          MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 28 #          MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 29 #          MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 30 #          MTC 68-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 31 #
-001- 32 #
-001- 33 #
-001- 34 #& TBL 1307
-001- 35 #& TEST 3
-001- 36 #& SEGMENT 7
-001- 37 #& PR CTAPM
-001- 38 #
-001- 39 # EXPECTED OUTPUT MESSAGE.
-001- 40 # DGN TAPE 1 3 07 R9 R10 R11
-001- 41 #
-002- 42 #          MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 43 #          MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 44 #          MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 45 #          MTC 60-32 JK7 SERIAL PERIPHERAL INTERFACE CIRCUIT
-001- 46 #
-001- 47 # SEGMENT 7 DESCRIPTION.
-001- 48 #
-001- 49 # THIS IS THE CLEAN-UP SEGMENT FOR THIS TEST. THE SPI INIT COMMAND

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 58

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 3 TAPE UNIT CONTROLLER TEST

CTAPH W77D

01 # IS SENT TO THE TDC. THE CTTC SHOULD BE INITIALIZED. THE CRC ERROR  
 02 # AND MAINTENANCE STOP SHOULD GET RESET.  
 03 # & TBLEND

0131023	02	001202	003641	040007		07	LI	R10,INIT	# REMOVE THE MAINTENANCE STATE.
0131025						08	CALL	SENDMIOM	
0131025	02	001204	037020	132064	0132064	-001-	PSA	SENDMIOM	
0131027	02	001206	103641	002015		10	LI	R10,TSTAT	# MAKE SURE MAINTENANCE IS RESET AND READY ACTIVE
0131031						12	CALL	SENDMIOM	
0131031	02	001210	037020	132064	0132064	-001-	BSA	SENDMIOM	
0131033	02	001212	117667	020401		14	CIRM	R11,M(TUR)/ES(TUR),S(TUR),(M(TUR)+M(MTCE))/ES(TUR)	
0131035	02	001214	055002	-----	0131037	15	BNC	XERRMSGPOX	
0131036	02	001215	053532	-----	0130570	16	B	CONTRTN	
0131037						17	XERRMSGPOX		
0131037	02	001216	137000	132000	0132000	18	BL	ERRMSGPO	

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 59

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPH W77D

0131041

01 DECKREAD

02 # THIS IS THE TAPE DECK READ DIAGNOSTIC TEST. THIS TEST'S PRIMARY  
 03 # FUNCTION IS TO DETECT ERRORS IN THE TRACK SELECTION, READ-A-BLK,  
 04 # AND CONTINUOUS READ CIRCUITRY. IT MUST ALSO PROTECT AGAINST BURNT  
 05 # OUT LED'S WHICH COULD CAUSE THE CARTRIDGE TO BECOME USELESS.  
 06 TEST SET TEST+1

0000004

0131041 02 001220 103164 -----

10 LN R7,4 #TEST NUMBER

0131042 02 001221 034560 043463 CTSD

11 SEGADDI  
 -001- 12 STL R7,MSFPROG #DISPLAY NUMBER ON LOW 4 BITS OF SSP.  
 -001- 13 # ----- SEG. NUMBER=0.

0131044

17 TRBL JK16,JK18,JK19,JKD  
 -001- 18 #& TBL 0400  
 -001- 19 #& TEST 4  
 -001- 20 #& SEGMENT 0  
 -001- 21 #& PR CTAPH  
 -001- 22 #  
 -001- 23 # EXPECTED OUTPUT MESSAGE.  
 -001- 24 # DGN TAPE 0 4 00 R9 R10 R11  
 -001- 25 #  
 -001- 26 # MTC 68-22 JK16 TAPE UNIT CONTROLLER  
 -001- 27 # MTC 68-20 JK18 TAPE UNIT CONTROLLER  
 -001- 28 # MTC 68-19 JK19 TAPE UNIT CONTROLLER  
 -001- 29 # MTC 68-15 MINI-RECORDER 0  
 -001- 30 #  
 -001- 31 #  
 -001- 32 #  
 -001- 33 #& TBL 1400  
 -001- 34 #& TEST 4  
 -001- 35 #& SEGMENT 0  
 -001- 36 #& PR CTAPH  
 -001- 37 #  
 -001- 38 # EXPECTED OUTPUT MESSAGE.  
 -001- 39 # DGN TAPE 1 4 00 R9 R10 R11  
 -001- 40 #  
 -002- 41 # MTC 60-22 JK16 TAPE UNIT CONTROLLER  
 -002- 42 # MTC 60-20 JK18 TAPE UNIT CONTROLLER  
 -002- 43 # MTC 60-19 JK19 TAPE UNIT CONTROLLER  
 -002- 44 # MTC 60-15 MINI-RECORDER 1  
 -001- 45 #  
 -001- 46 # SEGMENT 0 DESCRIPTION.  
 -001- 47 #  
 48 # A SECONDARY TAPE STATUS REQUEST IS SENT TO THE TAPE CONTROLLER.  
 49 # A CHECK IS MADE TO ASSURE THAT THE MINI-RECORDER IS IN AN IDLE

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 60

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPH W77D

0131044

01 # INITIALIZED STATE. NOT LOOKING AT THE BOT-EOT FLAGS, THE ONLY BITS  
 02 # SET SHOULD BE THE TAPE UNIT READY (TUR), WRITE ENABLE (WENBL) AND  
 03 # THE DEVICE CODE 0(15). R11 CONTAINS THE RESPONSE.  
 04  
 05 # NOTE! CARTRIDGE MUST BE IN PLACE AND WRITE ENABLED!!  
 06 # THE CIRCUIT PACKS LISTED ABOVE MAY NOT SOLVE THE PROBLEM.  
 07 # A POSSIBLE FAULT MAY EXIST IN THE CABLING BETWEEN THE  
 08 # MINI-RECORDER AND TDC. AS A LAST RESORT, REPLACE THE MINI-RECORDER.  
 09 #& TBLND

```

0131044 02 001223 003641 002015          13      LI      R10,TSTAT
0131046                                14      CALL   SENDMIOM
0131046 02 001225 037020 132064 0132064 -001- 15      BSA    SENDMIOM
0131050 02 001227 103401 000315          16      LI      R0,M(TUR)+M(WENBL)+TUCDEV # CHECK FOR IDLE STATE.
0131052 02 001231 017013 137377          17      CRM   R0,R11,-(M(BOT)+M(EOT)) # MAKE SURE NO OBVIOUS ERRORS EXIST.
0131054 02 001233 055763 ----- 0131037 18      BNC    XERRMSGPOX
                                19      SEGADD
0131055 02 001234 003201 ----- -001- 20      LN     R8,CHKPOINT
0131056 02 001235 010614 ----- -001- 21      RLN   R8,4
0131057 02 001236 016170 000360          -001- 22      IRM   R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131061 02 001240 034560 043463 CTSD      -001- 23      STL   R7,MSFPROG
                                -001- 24 # ----- SEG. NUMBER=1.

```

0131063

```

                                28      TRBL   JKO
-001- 29 #& TBL 0401
-001- 30 #& TEST 4
-001- 31 #& SEGMENT 1
-001- 32 #& PR CTAPH
-001- 33 #
-001- 34 # EXPECTED OUTPUT MESSAGE.
-001- 35 # DGN TAPE 0 4 01 R9 R10 R11
-001- 36 #
-001- 37 # MTC 68-15 MINI-RECORDER 0
-001- 38 #
-001- 39 #
-001- 40 #
-001- 41 #& TBL 1401
-001- 42 #& TEST 4
-001- 43 #& SEGMENT 1
-001- 44 #& PR CTAPH
-001- 45 #
-001- 46 # EXPECTED OUTPUT MESSAGE.
-001- 47 # DGN TAPE 1 4 01 R9 R10 R11
-001- 48 #
-002- 49 # MTC 60-15 MINI-RECORDER 1

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 61

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPM W77D

```

-001- 01 #
-001- 02 # SEGMENT 1 DESCRIPTION.
-001- 03 #
04 # THE BOT-EOT LIGHT SENSORS FAILED TO STOP THE MINI-RECORDER WHEN
05 # THE CARTRIDGE WAS MOVED PAST THE BOT HOLES.
06 #& TBLEND

0131063 02 001242 024276 ----- 10 TBN R11,S(BOT) # IS POSITION DETERMINABLE
0131064 02 001243 054004 ----- 0131070 11 BC SKIPLD # DO NOT DO LED PROTECTION TEST.
0131065 12 CALL LEDPROT
0131065 02 001244 037020 132161 0132161 -001- 13 BSA LEDPROT
0131067 02 001246 155750 ----- 0131037 14 BNC XERRMSGPOX
0131070 15 SKIPLD
0131070 02 001247 161767 ----- 16 SBS N(DIAGBITS)(RA1),S(DIAGBITS)+1
0131071 02 001250 062747 ----- 17 ZBS N(DIAGBITS)(RA1),S(DIAGBITS) # ALLOW TAPE INTERRUPT SERVICE.
0131072 02 001251 015421 ----- 18 COM R1
0131073 02 001252 034420 045266 LAYOUT 19 STL R1,I_OBUF # SET UP I_O BUFFER TO ALL ONES IN TRACK
FIELD.

0131075 02 001254 003641 003415 21 LI R10,TRB
0131077 22 SEN0
23
-001- 24 SEGADD
0131077 02 001256 103202 ----- -001- 24 LN R8,CHKPOINT
0131100 02 001257 010614 ----- -001- 25 RLN R8,4
0131101 02 001260 016170 000360 -001- 26 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131103 02 001262 034560 043463 CTSD -001- 27 STL R7,MSFPROG
-001- 28 # ----- SEG. NUMBER=2.

```

0131105

```

32 TRBL JK16,JK17,JK18,JK19,JK0
-001- 33 #& TBL 0402
-001- 34 #& TEST 4
-001- 35 #& SEGMENT 2
-001- 36 #& PR CTAPM
-001- 37 #
-001- 38 # EXPECTED OUTPUT MESSAGE.
-001- 39 # DGN TAPE 0 4 02 R9 R10 R11
-001- 40 #
-001- 41 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 42 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 43 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 44 # MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 45 # MTC 68-15 MINI-RECORDER 0
-001- 46 #
-001- 47 #
-001- 48 #
-001- 49 #& TBL 1402

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 62

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPH W77D

```

-001- 01 #& TEST 4
-001- 02 #& SEGMENT 2
-001- 03 #& PR CTAPH
-001- 04 #
-001- 05 # EXPECTED OUTPUT MESSAGE.
-001- 06 # DGN TAPE 1 4 02 R9 R10 R11
-001- 07 #
-002- 08 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 09 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 10 # MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 11 # MTC 60-19 JK19 TAPE UNIT CONTROLLER
-002- 12 # MTC 60-15 MINI-RECORDER 1
-001- 13 #
-001- 14 # SEGMENT 2 DESCRIPTION.
-001- 15 #
16 # THE MINI-RECORDER WAS GIVEN A READ-A-BLOCK ORDER. A TIME SPAN
17 # OF 5 SECONDS WAS ALLOWED TO PASS. THIS SHOULD HAVE BEEN SUFFICIENT
18 # TIME FOR THE UNIT TO READ A BLOCK AND THE INTERRUPT LEVEL CODE TO
19 # SERVICE THE BUFFERS. HOWEVER, A CRC ERROR EXISTED.
20
21 # NOTE!
22 # THIS FAILURE MAY BE CAUSED BY CABLING FAULTS OR DAMAGE CARTRIDGE.
23 # THESE POSSIBILITIES SHOULD BE INVESTIGATED BEFORE MINI-RECORDER IS
24 # REPLACED.
25 #& TBLEND

```

0131105

```

0131105          29      CALL SENDMIOM
0131105 02 001264 037020 132064 0132064 -001- 30      BSA SENDMIOM
0131107          31      BGNTIM SEC=5 #TIME FOR 1BLOCK + BOT CONDITIONS.
0131107          32      CALL TIMOUT
0131107 02 001266 173022 ----- -001- 33      BSAI TXIMOUT # SUBROUTINE TIMOUT IS IN PROGRAM CSYSUB
0131110 02 001267 000311 137020 -001- 34      DATA 201 # TIMOUT+1
0131111          35      CALL MYWAIT
0131111 02 001270 137020 132234 0132234 -001- 36      BSA MYWAIT
0131113 02 001272 151620 ----- 37      TBS N(SRFAL)(RA1),S(SRFAL) #WAS THERE A CRC FAILURE?
0131114 02 001273 054723 ----- 0131037 38      BC XERRMSGPOX # READ DOES NOT WORK.
          39      SEGADD
0131115 02 001274 003203 ----- -001- 40      LN R8,CHKPOINT
0131116 02 001275 010614 ----- -001- 41      RLN R8,4
0131117 02 001276 016170 000360 -001- 42      IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131121 02 001300 034560 043463 CTSD -001- 43      STL R7,MSFPROG
-001- 44 # ----- SEG. NUMBER=3.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 63

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPM W77D

0131123

01 TRBL JKO  
 -001- 02 #8 TBL 0403  
 -001- 03 #8 TEST 4  
 -001- 04 #8 SEGMENT 3  
 -001- 05 #8 PR CTAPM  
 -001- 06 #  
 -001- 07 # EXPECTED OUTPUT MESSAGE.  
 -001- 08 # DGN TAPE 0 4 03 R9 R10 R11  
 -001- 09 #  
 -001- 10 # MTC 68-15 MINI-RECORDER 0  
 -001- 11 #  
 -001- 12 #  
 -001- 13 #  
 -001- 14 #8 TBL 1403  
 -001- 15 #8 TEST 4  
 -001- 16 #8 SEGMENT 3  
 -001- 17 #8 PR CTAPM  
 -001- 18 #  
 -001- 19 # EXPECTED OUTPUT MESSAGE.  
 -001- 20 # DGN TAPE 1 4 03 R9 R10 R11  
 -001- 21 #  
 -002- 22 # MTC 60-15 MINI-RECORDER 1  
 -001- 23 #  
 -001- 24 # SEGMENT 3 DESCRIPTION.  
 -001- 25 #

26 # THE READ-A-BLOCK COMMAND WAS EXECUTED FOR ALL FOUR TRACKS. AFTER  
 27 # EACH READ, THE BLOCK NUMBER WAS CHECKED TO ASSURE THAT THE DATA  
 28 # CAME OFF OF THE RIGHT TRACK. THEN A BACKSPACE COMMAND WAS EXECUTED  
 29 # TO REPOSITION THE TAPE OVER THE SAME BLOCK.

0131123

30  
 31 # NOTE!  
 32 # CABLING FAULTS MAY HAVE CAUSED THE INCORRECT SELECTION OF THE  
 33 # TRACKS DURING THE READ. THIS SHOULD BE INVESTIGATED BEFORE  
 34 # MINI-RECORDER REPLACEMENT.  
 35 #8 TBLEND

0131123	02	001302	030500	045266	LAYOUT	39	LL	R4,I_OBUF	
0131125	02	001304	010517	-----		40	RLN	R4,1	
0131126	02	001305	017112	030000		41	CRM	R4,R10,MSK(2,12)	# HAS CORRECT TRACK BEEN READ.
0131130	02	001307	055707	-----	0131037	42	BNC	XERRMSGPOX	
0131131	02	001310	003640	010000		43	AI	R10,MSK(1,12)	
0131133	02	001312	003645	043415		44	CI	R10,TRB+MSK(1,14)	# HAVE ALL TRB COMMANDS BEEN TESTED.
0131135	02	001314	054013	-----	0131150	45	BC	CONREAD	
0131136	02	001315	072652	-----		46	HN	R10,10	
0131137	02	001316	003641	006415		47	LI	R10,TBS	# MUST ISSUE BACKSPACE TO PROTECT FROM RUNNING OFF EOT.
0131141						49	CALL	SENDMIOM	

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 64

## TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## TEST 4 MINI-RECORDER HEAD TEST.

CTAPM W77D

```

0131141 02 001320 037020 132064 0132064 -001- 01      BSA      SENDMIOM
0131143                                02      CALL     WAIT1S      # WAIT 1 SECOND BEFORE CONTINUING.
0131143 02 001322 137020 132227 0132227 -001- 03      BSA      WAIT1S
0131145 02 001324 172252 -----          04      GM       R10,10
0131146 02 001325 006064 -----          05      LR       R3,R4      # SAVE LAST READ BLOCK #. USED TO ASSURE
                                                BACKSPACE WORKED.
0131147 02 001326 053730 ----- 0131077          07      B       SENO
0131150                                08 CONREAD
0131150 02 001327 103204 -----          09      SEGADD
0131151 02 001330 010614 -----        -001- 10      LN       R8,CHKPOINT
0131152 02 001331 016170 000360        -001- 11      RLM      R8,4
0131154 02 001333 034560 043463 CTSD     -001- 12      IRM      R7,R8,0(360)  #DISPLAY SEGMENT IN BITS 4-7.
                                                -001- 13      STL      R7,MSFPROG
                                                -001- 14 # ----- SEG. NUMBER=4.

```

```

0131156                                18      TRBL     JK16,JK17,JK18,JK19,JKO
-001- 19 #& TBL 0404
-001- 20 #& TEST 4
-001- 21 #& SEGMENT 4
-001- 22 #& PR CTAPM
-001- 23 #
-001- 24 # EXPECTED OUTPUT MESSAGE.
-001- 25 # DGN TAPE 0 4 04 R9 R10 R11
-001- 26 #
-001- 27 #           MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 28 #           MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 29 #           MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 30 #           MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 31 #           MTC 68-15 MINI-RECORDER 0
-001- 32 #
-001- 33 #
-001- 34 #
-001- 35 #& TBL 1404
-001- 36 #& TEST 4
-001- 37 #& SEGMENT 4
-001- 38 #& PR CTAPM
-001- 39 #
-001- 40 # EXPECTED OUTPUT MESSAGE.
-001- 41 # DGN TAPE 1 4 04 R9 R10 R11
-001- 42 #
-002- 43 #           MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 44 #           MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 45 #           MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 46 #           MTC 60-19 JK19 TAPE UNIT CONTROLLER
-002- 47 #           MTC 60-15 MINI-RECORDER 1
-001- 48 #
-001- 49 # SEGMENT 4 DESCRIPTION.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPM W77D

```

-001- 01 #
02 # THE BACKSPACE COMMAND GIVEN IN THE ABOVE SEGMENT DID NOT SEEM
03 # TO EXECUTE PROPERLY. THIS WAS DETERMINED BY COMPARING THE
04 # BLOCK NUMBERS OF THE LAST TWO BLOCKS READ OFF OF THE TAPE. THEY
05 # WERE NOT THE SAME.
06 # NOTE! IF R10=0(6415) RUN TEST 3. (IF NOT SEE BELOW)
07 # MARGINAL DATA RECORDING MAY HAVE RESULTED IN THIS FAILURE. MECHANICAL
08 # WEAR OF THE CARTRIDGE MAY ALSO RESULT IN THIS FAILURE. EXPLORE
09 # THESE POSSIBILITIES BEFORE REPLACING THE MINI-RECORDER.
10 #& TBLND

14 # BEFORE CONTINUING, CHECK THAT BACKSPACE WORKED.
0131156 02 001335 017103 007776 15 CRM R4,R3,MSK(11,1) #ARE BLOCK NUMBERS SAME
0131160 02 001337 055657 ----- 0131037 16 BNC XERRMSGPOX
0131161 02 001340 003101 ----- 17 LN R4,1
0131162 18 BKSPLOP
0131162 02 001341 103641 006415 19 LI R10,TBS # POSITION FOR 2 BLOCK READ. PROTECTS AGAINST
EOT.

0131164 21 CALL SENDMIOM
0131164 02 001343 037020 132064 0132064 -001- 22 BSA SENDMIOM
0131166 23 CALL WAIT1S # WAIT 1 SECOND BEFORE CONTINUING
0131166 02 001345 137020 132227 0132227 -001- 24 BSA WAIT1S
0131170 02 001347 136100 131162 0131162 25 BX R4,BKSPLOP # MUST DO 2 BCKSP.
0131172 02 001351 034500 045266 LAYOUT 26 STL R4,I_OBUF # INIT IO BUFFER. DOES NOT FAKE NEXT TEST
OUT.

28 SEGADD
0131174 02 001353 003205 ----- -001- 29 LN R8,CHKPOINT
0131175 02 001354 010614 ----- -001- 30 RLN R8,4
0131176 02 001355 016170 000360 -001- 31 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131200 02 001357 034560 043463 CTSD -001- 32 STL R7,MSFPROG
-001- 33 # ----- SEG. NUMBER=5.

0131202 37 TRBL JK16,JK17,JK18,JK19,JKD
-001- 38 #& TBL 0405
-001- 39 #& TEST 4
-001- 40 #& SEGMENT 5
-001- 41 #& PR CTAPM
-001- 42 #
-001- 43 # EXPECTED OUTPUT MESSAGE.
-001- 44 # DGN TAPE 0 4 05 R9 R10 R11
-001- 45 #
-001- 46 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 47 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 48 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 49 # MTC 68-19 JK19 TAPE UNIT CONTROLLER

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 66

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPH W77D

```

-001- 01 # MTC 68-15 MINI-RECORDER 0
-001- 02 #
-001- 03 #
-001- 04 #
-001- 05 #& TBL 1405
-001- 06 #& TEST 4
-001- 07 #& SEGMENT 5
-001- 08 #& PR CTAPH
-001- 09 #
-001- 10 # EXPECTED OUTPUT MESSAGE.
-001- 11 # DGN TAPE 1 4 05 R9 R10 R11
-001- 12 #
-002- 13 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 14 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 15 # MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 16 # MTC 60-19 JK19 TAPE UNIT CONTROLLER
-002- 17 # MTC 60-15 MINI-RECORDER 1
-001- 18 #
-001- 19 # SEGMENT 5 DESCRIPTION.
-001- 20 #
21 # A CONTINUOUS READ WAS ISSUED TO DETERMINE IF IT COULD EXECUTE
22 # CORRECTLY. AFTER 3 SECONDS HAD ELAPSED, A CHECK WAS MADE TO
23 # ASSURE THAT NO CRC ERROR WAS DETECTED BY THE INTERRUPT LEVEL
24 # PROGRAM. A CRC ERROR WAS NOTED.
25 #& TBLEND

29 # NEXT THE TAPE READ COMMAND WILL BE ISSUED TO TEST THE ABILITY
30 # OF THE UNIT TO READ CONTINUOUSLY.
0131202 02 001361 010461 ----- 31 RRH R3,1
0131203 02 001362 003641 007415 32 LI R10,TRT # PREPARE TO READ CONTINUOUSLY.
0131205 33 CALL SENDMIOM
0131205 02 001364 037020 132064 0132064 -001- 34 BSA SENDMIOM
0131207 35 CALL WAIT3S # WAIT FOR READ ERROR TO OCCUR.
0131207 02 001366 137020 132232 0132232 -001- 36 BSA WAIT3S
0131211 02 001370 103641 040007 37 LI R10,INIT
0131213 38 CALL SENDMIOM
0131213 02 001372 037020 132064 0132064 -001- 39 BSA SENDMIOM
0131215 02 001374 151620 ----- 40 TBS N(SRFAL)(RA1),S(SRFAL) # HAS A CRC FAILURE OCCURRED?
0131216 02 001375 054621 ----- 0131037 41 BC XERRMSGPOX
42 SEGADD
0131217 02 001376 003206 ----- -001- 43 LN R8,CHKPOINT
0131220 02 001377 010614 ----- -001- 44 RLN R8,4
0131221 02 001400 016170 000360 -001- 45 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131223 02 001402 034560 043463 CTSD -001- 46 STL R7,MSFPROG
-001- 47 # ----- SEG. NUMBER=6.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 67

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPM

W77D

0131225

```

01 TRBL JK16,JK17,JK18,JK19,JK0
-001- 02 #& TBL 0406
-001- 03 #& TEST 4
-001- 04 #& SEGMENT 6
-001- 05 #& PR CTAPM
-001- 06 #
-001- 07 # EXPECTED OUTPUT MESSAGE.
-001- 08 # DGN TAPE 0 4 06 R9 R10 R11
-001- 09 #
-001- 10 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 11 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 12 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 13 # MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 14 # MTC 68-15 MINI-RECORDER 0
-001- 15 #
-001- 16 #
-001- 17 #
-001- 18 #& TBL 1406
-001- 19 #& TEST 4
-001- 20 #& SEGMENT 6
-001- 21 #& PR CTAPM
-001- 22 #
-001- 23 # EXPECTED OUTPUT MESSAGE.
-001- 24 # DGN TAPE 1 4 06 R9 R10 R11
-001- 25 #
-002- 26 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 27 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 28 # MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 29 # MTC 60-19 JK19 TAPE UNIT CONTROLLER
-002- 30 # MTC 60-15 MINI-RECORDER 1
-001- 31 #
-001- 32 # SEGMENT 6 DESCRIPTION.
-001- 33 #
34 # THE CONTINUOUS READ EXECUTED BY THE ABOVE SEGMENT HAS NOT
35 # MOVED THE TAPE FAR ENOUGH TO GET MORE THAN ONE BLOCK.
36 #& TBLEND

```

```

0131225 02 001404 030400 045266 LAYOUT 40 LL R0,I OBUF
0131227 02 001406 003402 003777 41 NI R0,MSK(11)
0131231 02 001410 003462 003777 42 NI R3,MSK(11)
0131233 02 001412 005003 ----- 43 SR R0,R3 # HAS MORE THAN 1 BLOCK BEEN READ?
0131234 02 001413 055603 ----- 0131037 44 BNC XERRMSGPOX
45 SEGADD
0131235 02 001414 003207 ----- -001- 46 LN R8,CHKPOINT
0131236 02 001415 010614 ----- -001- 47 RLN R8,4
0131237 02 001416 016170 000360 -001- 48 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131241 02 001420 034560 043463 CTSD -001- 49 STL R7,MSFPROG

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 68

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPH W770

```

0131243 02 001422 003641 002015 -001- 01 # ----- SEG. NUMBER=7.
0131245 02 001424 037020 132224 0132224 -001- 02 LI R10,TSTAT
0131247 02 001426 137020 132064 0132064 -001- 03 CALL WAIT1
0131251 02 001430 124272 ----- -001- 04 BSA WAIT1
0131252 02 001431 054565 ----- 0131037 -001- 05 CALL SENDMIOM # SEE IF TAPE IS STOPPED.
-001- 06 BSA SENDMIOM # IS TAPE STILL MOVING?
-001- 07 TBN R11,S(TIM)
-001- 08 BC XERRMSGPOX

```

0131253

```

12 TRBL JK16,JK17,JK18,JKO
-001- 13 #& TBL 0407
-001- 14 #& TEST 4
-001- 15 #& SEGMENT 7
-001- 16 #& PR CTAPH
-001- 17 #
-001- 18 # EXPECTED OUTPUT MESSAGE.
-001- 19 # DGN TAPE 0 4 07 R9 R10 R11
-001- 20 #
-001- 21 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 22 # MTC 68-21 JK17 TAPE UNIT CONTROLLER
-001- 23 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 24 # MTC 68-15 MINI-RECORDER 0
-001- 25 #
-001- 26 #
-001- 27 #
-001- 28 #& TBL 1407
-001- 29 #& TEST 4
-001- 30 #& SEGMENT 7
-001- 31 #& PR CTAPH
-001- 32 #
-001- 33 # EXPECTED OUTPUT MESSAGE.
-001- 34 # DGN TAPE 1 4 07 R9 R10 R11
-001- 35 #
-002- 36 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 37 # MTC 60-21 JK17 TAPE UNIT CONTROLLER
-002- 38 # MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 39 # MTC 60-15 MINI-RECORDER 1
-001- 40 #
-001- 41 # SEGMENT 7 DESCRIPTION.
-001- 42 #
43 # TAPE READ WAS TO BE TERMINATED BY AN INIT ORDER. THE TAPE
44 # IS STILL MOVING.
45
46 # NOTE! REMOVE CARTRIDGE MANUALLY BEFORE REPAIR IS INITIATED.
47 # AFTER REPAIR, REPLACE CARTRIDGE AND RUN THIS TEST TO SEE IF
48 # IT ATPS.
49 #& TBLEND

```

0131253

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 69

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 4 MINI-RECORDER READ TEST.

CTAPH S W77D

0131253 02,001432 037000 130570 0130570

01

BL

CONTRTN

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 70

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPH W77D

0131255

01 MISCT  
 02 # THIS IS THE TAPE DECK MISCELLANEOUS TEST. ALL NONE READ, WRITE  
 03 # FUNCTIONS WILL BE TESTED AT THIS TIME. THIS TEST ALSO IS PROTECTED  
 04 # FROM AN LED BURN OUT TO PREVENT UNWINDING OF THE TAPE OFF THE REELS.  
 05 # NOTE! A TAPE CARTRIDGE MUST BE IN PLACE FOR THIS TEST.  
 06 TEST SET TEST+1

0000005

0131255 02 001434 103165 -----

10 LN R7,5

0131256 02 001435 034560 043463 CTSD

11 SEGADDI  
 -001- 12 STL R7,MSFPROG #DISPLAY NUMBER ON LOW 4 BITS OF SSP.  
 -001- 13 # ----- SEG. NUMBER=0.

0131260

14 TRBL JK0  
 -001- 15 #8 TBL 0500  
 -001- 16 #8 TEST 5  
 -001- 17 #8 SEGMENT 0  
 -001- 18 #8 PR CTAPH  
 -001- 19 #  
 -001- 20 # EXPECTED OUTPUT MESSAGE.  
 -001- 21 # DGN TAPE 0 5 00 R9 R10 R11  
 -001- 22 #  
 -001- 23 # MTC 68-15 MINI-RECORDER 0  
 -001- 24 #  
 -001- 25 #  
 -001- 26 #  
 -001- 27 #8 TBL 1500  
 -001- 28 #8 TEST 5  
 -001- 29 #8 SEGMENT 0  
 -001- 30 #8 PR CTAPH  
 -001- 31 #  
 -001- 32 # EXPECTED OUTPUT MESSAGE.  
 -001- 33 # DGN TAPE 1 5 00 R9 R10 R11  
 -001- 34 #  
 -002- 35 # MTC 60-15 MINI-RECORDER 1  
 -001- 36 #  
 -001- 37 # SEGMENT 0 DESCRIPTION.  
 -001- 38 #  
 39 # THE BOT-EOT SENSORS DID NOT PREVENT THE TAPE GOING BEYOND THE  
 40 # BOT HOLES. A FAULTY CARTRIDGE OR BAD TRANSPORT MAY BE THE CAUSE.  
 41 #8 TBLEND

0131260 02 001437 003641 002015

45 LI R10,TSTAT

0131262

46 CALL SENDMIO

0131262 02 001441 037020 111050 CSYSUB

-001- 47 BSA SENDMIO

0131264 02 001443 124276 -----

48 TBN R11,S(BOT)

#IS TAPE AT BOT

0131265 02 001444 054004 ----- 0131271

49 BC NOLED

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 71

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPM W770

```

0131266 01 CALL LEDPROT # CHECK THAT LED IS NOT AFFECTING TEST.
0131266 02 001445 037020 132161 0132161 -001- 02 BSA LEDPROT
0131270 02 001447 155547 ----- 0131037 03 BNC XERRMSGPOX
0131271 04 NOLED
0131271 02 001450 161767 ----- 05 SBS N(DIAGBITS)(RA1),S(DIAGBITS)+1
0131272 02 001451 062747 ----- 06 ZBS N(DIAGBITS)(RA1),S(DIAGBITS) #SET UP INTERRUPT ACTIVATION.
07 # ASSUME THAT RD1BLK WORKS
0131273 02 001452 003641 003415 08 LI R10,TRB
0131275 09 CALL SENDMIOM #READ BLK TO LOCATE POSITION OF TAPE.
0131275 02 001454 037020 132064 0132064 -001- 10 BSA SENDMIOM
0131277 11 CALL WAIT3S # WAIT 3 SECONDS FOR READ TO STOP.
0131277 02 001456 137020 132232 0132232 -001- 12 BSA WAIT3S
0131301 02 001460 130400 045266 LAYOUT 13 LL RO,I CBUF #GET BLOCK NUMBER
0131303 02 001462 003421 000144 14 LI R1,100
0131305 02 001464 003541 002415 15 LI R6,TFF #SET UP FAST SPEED ORDERS.
0131307 02 001466 003521 004415 16 LI R5,TFR
0131311 02 001470 003061 ----- 17 LN R3,1
0131312 02 001471 005020 ----- 18 SR R1,RO #WHICH ORDER SHOULD BE SENT FIRST.
0131313 02 001472 054002 ----- 0131315 19 BC GO
20 # FROM THE ABOVE CALCULATION, THE TAPE IS CLOSER
21 # TO THE END OF TAPE THAN THE BOT. THE FIRST FAST
22 # SPEED TEST WILL BE THE FAST REVERSE.
23 OTHER
0131314 24 EXR R6,R5
0131314 02 001473 107145 ----- 25 GO
0131315 26 LR R10,R6
0131315 02 001474 106246 ----- 27 CALL SENDMIOM
0131316 28 BSA SENDMIOM
0131316 02 001475 037020 132064 0132064 -001- 29 SEGADD
0131320 02 001477 103201 ----- -001- 30 LN R8,CHKPOINT
0131321 02 001500 010614 ----- -001- 31 RLN R8,4
0131322 02 001501 016170 000360 -001- 32 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131324 02 001503 034560 043463 CTSD -001- 33 STL R7,MSFPROG
-001- 34 # ----- SEG. NUMBER=1.
0131326 36 TRBL JK18,JK0
-001- 37 #& TBL 0501
-001- 38 #& TEST 5
-001- 39 #& SEGMENT 1
-001- 40 #& PR CTAPM
-001- 41 #
-001- 42 # EXPECTED OUTPUT MESSAGE.
-001- 43 # DGN TAPE 0 5 01 R9 R10 R11
-001- 44 #
-001- 45 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 46 # MTC 68-15 MINI-RECORDER 0
-001- 47 #
-001- 48 #
-001- 49 #

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 72

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPH W77D

```

-001- 01 #8 TBL 1501
-001- 02 #8 TEST 5
-001- 03 #8 SEGMENT 1
-001- 04 #8 PR CTAPH
-001- 05 #
-001- 06 # EXPECTED OUTPUT MESSAGE.
-001- 07 # DGN TAPE 1 5 01 R9 R10 R11
-001- 08 #
-002- 09 # MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 10 # MTC 60-15 MINI-RECORDER 1
-001- 11 #
-001- 12 # SEGMENT 1 DESCRIPTION.
-001- 13 #
14 # A FAST SPEED ORDER WAS SENT TO THE MINI-RECORDER. SUFFICIENT
15 # TIME WAS ALLOWED TO ELAPSE FOR THE TACH TO INDICATE THAT
16 # THE TAPE WAS IN MOTION (TIM). THE STATUS OF THE TRANSPORT
17 # DID NOT REFLECT THIS SITUATION. R11 CONTAINS THE SECONDARY
18 # STATUS RESPONSE.
19 #8 TBLEND

0131326 0131326 02 001505 037020 132224 0132224 -001- 23 CALL WAIT1 #ALLOW TACH TO REACH SPEED
0131326 02 001507 103641 002015 -001- 24 BSA WAIT1
0131330 02 001511 037020 132064 0132064 -001- 25 LI R10,TSTAT
0131332 02 001513 124272 ----- -001- 26 CALL SENDMIOM
0131332 02 001517 016170 000360 -001- 27 BSA SENDMIOM
0131334 02 001514 055502 ----- 0131037 -001- 28 TBN R11,S(TIM) # IS TAPE MOVING
0131335 02 001515 003202 ----- -001- 29 BNC XERRMSGPOX #TAPE SHOULD BE DOING FAST SPEED
0131336 02 001516 010614 ----- -001- 30 SEGADD
0131337 02 001517 016170 000360 -001- 31 LN R8,CHKPOINT
0131340 02 001521 034560 043463 CTSD -001- 32 RLN R8,4
0131342 02 001521 034560 043463 CTSD -001- 33 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
-001- 34 STL R7,MSFPROG
-001- 35 # ----- SEG. NUMBER=2.

0131344 0131344 39 TRBL JK16,JK19,JKO
-001- 40 #8 TBL 0502
-001- 41 #8 TEST 5
-001- 42 #8 SEGMENT 2
-001- 43 #8 PR CTAPH
-001- 44 #
-001- 45 # EXPECTED OUTPUT MESSAGE.
-001- 46 # DGN TAPE 0 5 02 R9 R10 R11
-001- 47 #
-001- 48 # MTC 68-22 JK16 TAPE UNIT CONTROLLER
-001- 49 # MTC 68-19 JK19 TAPE UNIT CONTROLLER

```

COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPM

W77D

```

-001- 01 # MTC 68-15 MINI-RECORDER 0
-001- 02 #
-001- 03 #
-001- 04 #
-001- 05 #& TBL 1502
-001- 06 #& TEST 5
-001- 07 #& SEGMENT 2
-001- 08 #& PR CTAPM
-001- 09 #
-001- 10 # EXPECTED OUTPUT MESSAGE.
-001- 11 # DGN TAPE 1 5 02 R9 R10 R11
-001- 12 #
-002- 13 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 14 # MTC 60-19 JK19 TAPE UNIT CONTROLLER
-002- 15 # MTC 60-15 MINI-RECORDER 1
-001- 16 #
-001- 17 # SEGMENT 2 DESCRIPTION.
-001- 18 #
19 # THE FAST SPEED UNDER TEST WILL BE STOPPED BY THIS SEGMENT.
20 # THE TAPE STOP ORDER WAS SENT TO THE TRANSPORT AND THE
21 # SECONDARY STATUS INDICATED THAT THE TAPE WAS STILL IN MOTION
22 # AFTER 100 MSEC.
23 #& TBLEND

0131344 02 001523 003641 000015 27 LI R10,TSTOP
28 #STOP TAPE UNIT
0131346 29 CALL SENDMIOM
0131346 02 001525 037020 132064 0132064 -001- 30 BSA SENDMIOM
0131350 31 CALL WAIT1S # WAIT 1 SEC FOR UNIT TO STOP
0131350 02 001527 137020 132227 0132227 -001- 32 BSA WAIT1S
33 # CHECK THAT TAPE HAS STOPPED.LOOK AT TIM.
0131352 02 001531 103641 002015 34 LI R10,TSTAT
0131354 35 CALL SENDMIOM # SEND STATUS REQUEST.
0131354 02 001533 037020 132064 0132064 -001- 36 BSA SENDMIOM
0131356 02 001535 124272 ----- 37 TBN R11,S(TIM) # LOOK FOR MOTION
0131357 02 001536 054460 ----- 0131037 38 BC XERRMSGPOX
0131360 02 001537 036060 131314 0131314 39 BX R3,OTHER #SEND OTHER TAPE FAST SPEED.
40 SEGADD
0131362 02 001541 003203 ----- -001- 41 LN R8,CHKPOINT
0131363 02 001542 010614 ----- -001- 42 RLN R8,4
0131364 02 001543 016170 000360 -001- 43 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131366 02 001545 034560 043463 CTSD -001- 44 STL R7,MSFPROG
-001- 45 # ----- SEG. NUMBER=3.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 74

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPM W77D

0131370 '

```

01 TRBL JKO
-001- 02 #& TBL 0503
-001- 03 #& TEST 5
-001- 04 #& SEGMENT 3
-001- 05 #& PR CTAPM
-001- 06 #
-001- 07 # EXPECTED OUTPUT MESSAGE.
-001- 08 # DGN TAPE 0 5 03 R9 R10 R11
-001- 09 #
-001- 10 # MTC 68-15 MINI-RECORDER 0
-001- 11 #
-001- 12 #
-001- 13 #
-001- 14 #& TBL 1503
-001- 15 #& TEST 5
-001- 16 #& SEGMENT 3
-001- 17 #& PR CTAPM
-001- 18 #
-001- 19 # EXPECTED OUTPUT MESSAGE.
-001- 20 # DGN TAPE 1 5 03 R9 R10 R11
-001- 21 #
-002- 22 # MTC 60-15 MINI-RECORDER 1
-001- 23 #
-001- 24 # SEGMENT 3 DESCRIPTION.
-001- 25 #
26 # AT THIS POINT MOST OF THE TAPE FUNCTIONS SEEM TO BE OPERATIVE.
27 # IT IS NOW TIME TO DIAGNOSE THE BOT SENSORS. THE TAPE HANDLER
28 # WILL BE PROMPTED TO POSITION THE TAPE 20 BLOCKS FROM THE BOT
29 # POSITION. IF THE FAST SPEEDS ARE OPERATING CORRECTLY, IT SHOULD
30 # NOT TAKE MORE THAN 1 MINUTE TO GET TO BLOCK 20. HOWEVER, THE
31 # 1 MINUTE TIME LIMIT HAS BEEN EXCEEDED. THIS MAY BE DUE TO GROSSLY
32 # OUT OF SPEC. FAST SPEEDS.
33 #& TBLEND

37 # THIS SEGMENT WILL TEST FOR A BURNT OUT LED ON THE
38 # BOT-EOT SENSOR. IT IS ASSUMED AT THIS POINT THAT THE READ
39 # AND POSITIONING COMMANDS ALL FUNCTION CORRECTLY
40 # THE TAPE HANDLER POSITIONING ROUTINES WILL BE USED TO GET TO A
41 # LOCATION 20 BLOCKS AWAY FROM THE BOT.
42 # THIS IS A SAFE DISTANCE TO POSITION WITHOUT FEAR OF HITTING BOT.
43 # THEN 20 BACKSPACE ORDERS WILL INCH THE TAPE TO THE FIRST BLOCK
44 # ON THE TAPE.
0131370 02 001547 031400 043337 CTSD 45 LAL RO,TUSTAT,RA1 #CLEAR OUT POSITION OK BIT.
0131372 02 001551 043404 ----- 46 LAX RO,R4(RA1)
0131373 02 001552 062720 ----- 47 ZBS O(RA1),S(POSOK)
0131374 02 001553 031400 043317 CTSD 48 LAL RO,TCBADR,RA1 # POSOK BIT MUST BE RESET DUE TO FAST SPEED TEST.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 75

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPH W77D

```

0131376 02 001555 003401 000024          01      LI      RO,20
0131400 02 001557 044405 -----          02      ST      RO,N(LOGBLK)(RA1)
0131401 02 001560 003421 014527 MASACS     03      LI      R1,BLKMAX+M(ENDRK)
0131403 02 001562 002427 017777          04      STM     R1,N(LASTBLK)(RA1),M(LASTBLK)+M(ENDRK)
          05 # CTAPH IS NOW READY TO POSITION.
0131405 02 001564 003003 ----- CTAPH     06      LN      RO,POSST #SET POSITION STATE INTO ACTION.
0131406 02 001565 044412 -----          07      ST      RO,N(STATEWRD)(RA1) #SET POSITION INTO PROGRESS.
0131407          08      BGNTIM MIN=1
0131407          -001- 09      CALL     TIM:JT
0131407 02 001566 073022 -----          -002- 10      BSAI     TXIMOJT # SUBROUTINE TIMEOUT IS IN PROGRAM CSYSUB
0131410 02 001567 004541 -----          -001- 11      DATA   2401 # TIMEOUT+1
0131411 02 001570 106040 -----          12      LR      R2,R0
0131412          13      WAT
0131412          14      CALL     WAIT1 # LET TIME PASS.
0131412 02 001571 137020 132224 0132224 -001- 15      BSA      WAIT1
0131414 02 001573 106002 -----          16      LR      RO,R2
0131415          17      CALL     TIMCHK # HAS MAX. ALOTTED TIME ELAPSED?
0131415 02 001574 037020 111364 CSYSUB -001- 18      BSA      TIMCHK
0131417 02 001576 155361 ----- 0132000 19      BNC      ERRMSGPO # TOO MUCH TIME HAS ELAPSED ERROR.
0131420 02 001577 040412 -----          20      L      RO,N(STATEWRD)(RA1)
0131421 02 001600 014000 -----          21      TZ      RO # HAS CTAPH FINISHED POSITION REQUEST?
0131422 02 001601 055770 ----- 0131412 22      BNC      WAT # NO
0131423          23      NEXTSTP
0131423 02 001602 131400 043337 CTSD        24 # CHECK IF BLOCK 20 APPEARS IN TAPE STATUS WORD.
0131425 02 001604 042404 -----          25      LAL     RO,TUSTAT,RA1
0131426 02 001605 017400 177424          26      LX      RO,R4(RA1)
0131430 02 001607 055350 ----- 0132000 27      CIRM     RO,20,0,MSK(11)
          28      BNC      ERRMSGPO
          29 # NEXT 20 BACKSPACES WILL BE SENT TO POSITION HEADS AT
          30 # THE BEGINNING OF THE FIRST BLOCK ON THE TAPE
          31      SEGADD
0131431 02 001610 003204 -----          -001- 32      LN      R8,CHKPOINT
0131432 02 001611 010614 -----          -001- 33      RLN     R8,4
0131433 02 001612 016170 000360          -001- 34      IRM     R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131435 02 001614 034560 043463 CTSD        -001- 35      STL     R7,MSFPROG
          -001- 36 # ----- SEG. NUMBER=4.

0131437          40      TRBL     JKO
          -001- 41 #& TBL 0504
          -001- 42 #& TEST 5
          -001- 43 #& SEGMENT 4
          -001- 44 #& PR CTAPH
          -001- 45 #
          -001- 46 # EXPECTED OUTPUT MESSAGE.
          -001- 47 # DGN TAPE 0 5 04 R9 R10 R11
          -001- 48 #
          -001- 49 # MTC 68-15 MINI-RECORDER 0

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 76

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPM

W77D

```

-001- 01 #
-001- 02 #
-001- 03 #
-001- 04 #& TBL 1504
-001- 05 #& TEST 5
-001- 06 #& SEGMENT 4
-001- 07 #& PR CTAPM
-001- 08 #
-001- 09 # EXPECTED OUTPUT MESSAGE.
-001- 10 # DGN TAPE 1 5 04 R9 R10 R11
-001- 11 #
-002- 12 # MTC 60-15 MINI-RECORDER 1
-001- 13 #
-001- 14 # SEGMENT 4 DESCRIPTION.
-001- 15 #
16 # FROM 20 BLOCKS OUT, THE TAPE IS BACKSPACED TO THE FRONT OF
17 # BLOCK ZERO ON TRACK ZERO. FROM THIS POSITION ONE MORE BACKSPACE
18 # IS ISSUED AND 3 SECONDS ELAPSED BUT THE TAPE WAS NOT STOPPED AT
19 # THE BOT HOLES. TO PREVENT LOSS OF TAPE, A READ-A-BLOCK WAS GIVEN
20 # AFTER AN INIT ORDER TO POSITION THE TAPE IN A SAFE AREA OUTSIDE
21 # THE BOT REGION.
22 #& TBLEND
0131437 02 001616 003441 000023 23 LI R2,19
0131441 02 001620 003641 006415 24 LI R10,TBS
0131443 25 NXTBK
0131443 26 CALL SENDMIOM
0131443 02 001622 137020 132064 0132064 -001- 27 BSA SENDMIOM
0131445 28 CALL TIMOUT
0131445 02 001624 173022 ----- -001- 29 BSAI TXIMOUT # SUBROUTINE TIMOUT IS IN PROGRAM CSYSUB
0131446 02 001625 000021 137020 MASACS 30 DATA REDKON
0131447 31 CALL MYWAIT
0131447 02 001626 137020 132234 0132234 -001- 32 BSA MYWAIT
0131451 02 001630 136040 131443 0131443 33 BX R2,NXTBK
34 # AT THIS POINT THE TAPE SHOULD BE READY TO BACKSPACE
35 # TO THE BOT HOLES AND STOP.
36 # A BACKSPACE ORDER WILL BE SENT AND A SPECIFIC AMOUNT
37 # OF TIME ALLOWED TO ELAPSE BEFORE BOT FLAG IS LOOKED FOR.
0131453 38 CALL SENDMIOM
0131453 02 001632 037020 132064 0132064 -001- 39 BSA SENDMIOM
0131455 40 CALL WAIT3S # WAIT FOR BACKSPACE TO EXECUTE.
0131455 02 001634 137020 132232 0132232 -001- 41 BSA WAIT3S
0131457 02 001636 103641 002015 42 LI R10,TSTAT
0131461 43 CALL SENDMIOM
0131461 02 001640 037020 132064 0132064 -001- 44 BSA SENDMIOM
0131463 02 001642 124276 ----- 45 TBN R11,S(BOT)
0131464 02 001643 055003 ----- 0131467 46 BNC EMGSTP
0131465 02 001644 024272 ----- 47 TBN R11,S(TIM) # TAPE AT BOT. IS IT STOPPED?
0131466 02 001645 055024 ----- 0131512 48 BNC BOOTST # YES
49 #ERROR LED BURNT OUT. STOP UNIT AND ISSUE A RD1BLK TO PREVENT TAPE LOSS.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

## TDC DIAGNOSTIC PROGRAM.

## TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPM

W77D

```

0131467 , 01 EMGSTP
0131467 02 001646 103641 040007 02 LI R10,INIT
0131471 03 CALL SENDMIOM
0131471 02 001650 037020 132064 0132064 -001- 04 BSA SENDMIOM
0131473 05 CALL WAIT1
0131473 02 001652 137020 132224 0132224 -001- 06 BSA WAIT1
0131475 02 001654 103641 003415 07 LI R10,TRB
0131477 08 CALL SENDMIOM
0131477 02 001656 037020 132064 0132064 -001- 09 BSA SENDMIOM
0131501 10 WAITIM
0131501 11 CALL WAIT1
0131501 02 001660 137020 132224 0132224 -001- 12 BSA WAIT1
0131503 02 001662 103641 002015 13 LI R10,TSTAT
0131505 14 CALL SENDMIOM
0131505 02 001664 037020 132064 0132064 -001- 15 BSA SENDMIOM
0131507 02 001666 124272 ----- 16 TBN R11,S(TIM)
0131510 02 001667 054771 ----- 0131501 17 BC WAITIM
0131511 02 001670 053267 ----- 0132000 18 B ERRMSGPO
19 TAPEDGN OW 0(1671) # 12958
-001- 20 NOTE ***** THE FIRST ADDRESS OVERWRITTEN IS 001671 *****

0131512 23 BOOTST
0131512 02 001671 103641 007215 24 # THE LAST TEST IS TO SEE IF THE TINIT COMMAND WILL REWIND THE TAPE.
0131514 25 LI R10,TINIT
26 EOW # 12958
-001- 27 NOTE ***** THE LAST ADDRESS OVERWRITTEN IS 001672 *****

30 # AND POSITION IT AT LOAD POINT
31 SEGADD
0131514 02 001673 003205 ----- -001- 32 LN R8,CHKPOINT
0131515 02 001674 010614 ----- -001- 33 RLN R8,4
0131516 02 001675 016170 000360 -001- 34 IRM R7,R8,0(360) #DISPLAY SEGMENT IN BITS 4-7.
0131520 02 001677 034560 043463 CTSD -001- 35 STL R7,MSFPROG
-001- 36 # ----- SEG. NUMBER=5.

0131522 40 TRBL JK16,JK18,JK19,JKO
-001- 41 #& TBL 0505
-001- 42 #& TEST 5
-001- 43 #& SEGMENT 5
-001- 44 #& PR CTAPM
-001- 45 #
-001- 46 # EXPECTED OUTPUT MESSAGE.
-001- 47 # DGN TAPE 0 5 05 R9 R10 R11
-001- 48 #
-001- 49 # MTC 68-22 JK16 TAPE UNIT CONTROLLER

```

COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.

CTAPH W77D

```

-001- 01 # MTC 68-20 JK18 TAPE UNIT CONTROLLER
-001- 02 # MTC 68-19 JK19 TAPE UNIT CONTROLLER
-001- 03 # MTC 68-15 MINI-RECORDER 0
-001- 04 #
-001- 05 #
-001- 06 #
-001- 07 #& TBL 1505
-001- 08 #& TEST 5
-001- 09 #& SEGMENT 5
-001- 10 #& PR CTAPH
-001- 11 #
-001- 12 # EXPECTED OUTPUT MESSAGE.
-001- 13 # DGN TAPE 1 5 05 R9 R10 R11
-001- 14 #
-002- 15 # MTC 60-22 JK16 TAPE UNIT CONTROLLER
-002- 16 # MTC 60-20 JK18 TAPE UNIT CONTROLLER
-002- 17 # MTC 60-19 JK19 TAPE UNIT CONTROLLER
-002- 18 # MTC 60-15 MINI-RECORDER 1
-001- 19 #
-001- 20 # SEGMENT 5 DESCRIPTION.
-001- 21 #
22 # THE TRANSPORT INITIALIZE COMMAND IS SUPPOSE TO REWIND THE TAPE
23 # AND POSITION IT AT THE LOAD POINT. SINCE THE PREVIOUS SEGMENT LEFT
24 # THE TAPE AT THE BOT HOLES, THIS SEGMENT EXPECTS THE TAPE STATUS
25 # TO REFLECT THAT THE TAPE HAS BEEN MOVED OFF OF THIS MARK. THIS
26 # SEGMENT HAS DETECTED THAT THE TAPE IS STILL AT THE BOT MARK OR
27 # IS STILL IN MOTION. CHECK FOR TAPE OFF REEL.
28 #& TBLEND

```

```

0131522
0131522 02 001701 037020 132064 0132064 -001- 32 CALL SENDMIOM
0131524 34 CALL SENDMIOM
0131524 02 001703 137020 132232 0132232 -001- 35 WAIT3S # WAIT FOR TINIT TO FULL EXECUTE.
0131526 02 001705 103641 002015 36 LI R10,TSTAT
0131530 37 CALL SENDMIOM
0131530 02 001707 037020 132064 0132064 -001- 38 BSA SENDMIOM
0131532 02 001711 103662 042000 39 NI R11,M(BOT)+M(TIM) #HAS TAPE STOPPED AND OFF BOT.
0131534 02 001713 055733 ----- 0131467 40 BNC EMGSTP
0131535 41 CONTRTNX
0131535 02 001714 137000 130570 0130570 42 BL CONTRTN

```

COMMON TAPE MAINTENANCE

PR-10958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 79

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

0131537

01 TWRITE  
 02 # THIS IS THE FINAL TEST OF THE TDC AND TAPE DECK.  
 03 # ALL WRITE FUNCTIONS MUST WORK TO PASS THIS TEST. THE CTAPH ROUTINES  
 04 # WILL BE USED FOR THE ENTIER TEST. IT IS ASSUMED ALL POSITIONING AND  
 05 # READ FUNCTIONS HAVE BEEN TESTED. THE DATA FOR THE WRITE  
 06 # IS OBTAINED FROM THE MATE UNIT. IT MUST BE INSERVICE FOR  
 07 # THIS TEST TO PASS. THIS TEST MUST PASS TO ASSURE THE  
 08 # RE-ESTABLISHMENT OF THE DATA IN THE TEST BLOCKS.  
 09 TEST SET TEST+1

0000006

13 TAPEDGN OW 0(1716) # 13668  
 -001- 14 NOTE \*\*\*\*\* THE FIRST ADDRESS OVERWRITTEN IS 001716 \*\*\*\*\*

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 80

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

```

SEGINT
01 MACRO
02 SEGINT SEGNUM
03 PMC SAVE,ON
04 # *****
05 # INITIALIZE THE SEGMENT NUMBER TO DEC(SYSLST(1))
06 # *****
07 SPACE
08 LI R8,DEC(SYSLST(1)) # LOAD SEGMENT NUMBER DEC(SYSLST(1)) INTO R8
09 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
10 SPACE
11 PMC RESTORE
12 MEND

SEGINC
16 MACRO
17 SEGINC INCVAL=1,PRINT=N
18 JUMPF .LAB,'PRINT'='Y'
19 PMC SAVE,ON
20 # ADD DEC(INCVAL) TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
21 PMC RESTORE
22 .LAB NULLNP
23 PMC SAVE,ON
24 AN R8,DEC(INCVAL) # ADD DEC(INCVAL) TO THE SEGMENT IN R8
25 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
26 SPACE
27 PMC RESTORE
28 MEND

SEGDEC
32 MACRO
33 SEGDEC DECVAL=1,PRINT=N
34 JUMPF .LAB,'PRINT'='Y'
35 PMC SAVE,ON
36 # SUBTRACT DEC(DECVAL) FROM R8,TO SET-UP THE ENTRY TO THE NEXT SEGMENT
37 PMC RESTORE
38 .LAB NULLNP
39 PMC SAVE,ON
40 SN R8,DEC(DECVAL) # SUBTRACT DEC(DECVAL) FROM THE SEGMENT IN R8
41 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
42 SPACE
43 PMC RESTORE
44 MEND

```

COMMON TAPE MAINTENANCE

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9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 81

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPM W77D

SEGMULT

```

01 MACRO
02   SEGMULT VAL1,VAL2,VALN
03 JUMPF .ERO,N.SYSLST<2
04 PMC SAVE,ON
05 # THIS SECTION OF CODE MAKES-UP SEGMENTS MDO(_NDX=1,N.SYSLST-1;DEC(SYSLST(_NDX),
06   2) )AND DEC(SYSLST(N.SYSLST),2)
07 SPACE
08 PMC RESTORE
09 JUMPF .OUT
10 .ERO NULLNP
11 PMC SAVE,ON
12 W NOTE MUST SPECIFY MORE THE 1 PARAMETER
13 SPACE
14 PNC RESTORE
15 MEND

```

SEGPRNT

```

19 MACRO
20   SEGPRNT SEGNMBR
21 PMC SAVE,ON
22 # THIS IS PART OF SEGMENT DEC(SEGNMBR)
23 PMC RESTORE
24 MEND

```

COMMON TAPE MAINTENANCE

PR-1C958-50

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

01 PAGSCR LAYOUT 1,OFFSET=0  
02 CRCTBL ITEM 16

# EQUATE THE CRC TABLE TO THE FIRST ENTRY OF  
PAGSCR

04 LOEND

PAGSCR  
001 ----- -003- 05 # CRCTBL -----  
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  
|----- EQUATE THE CRC TABLE TO THE FIRST ENTRY OF PAGSCR -----|

14 PAGSCR LAYOUT 1,OFFSET=16  
15 STATUS ITEM 16

# EQUATE THE STATUS TABLE TO THE MIDDLE OF  
PAGSRC

17 LOEND

PAGSCR  
161 ----- -003- 18 # STATUS -----  
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  
|----- EQUATE THE STATUS TABLE TO THE MIDDLE OF PAGSRC -----|

TDC DIAGNOSTIC PROGRAM.

CTAPH

W77D

TEST 6 MINI-RECORDER WRITE TEST.

01 # THIS IS A LAYOUT OF THE SCRATCH AREA USED BY THIS DIAGNOSTIC  
 02 CRCTBL LAYOUT 16  
 03 TPNO ITEM 16  
 04 TSTNO ITEM 16  
 05 ATOP ITEM 16  
 06 CURTST ITEM 16  
 07 STATSV ITEM 16  
 08 INTSBR ITEM 1  
 09 ERGOT ITEM 1  
 10 PASS ITEM 1  
 11 FAIL ITEM 1  
 12 CATP ITEM 1  
 13 ITEM 11  
 14 BLKADDR ITEM 11  
 16 TRK ITEM 2  
 17 ITEM 16  
 18 CRCTOYD ITEM 16  
 19 CRCT1Y0 ITEM 16  
 20 CRCT1Y1 ITEM 16  
 21 CRCT2Y0 ITEM 16  
 22 CRCT2Y1 ITEM 16  
 23 CRCT3Y0 ITEM 16  
 24 CRCT3Y1 ITEM 16  
 25 CRCEXTR ITEM 16  
 26 LOEND

# INTERRUPT GENERATED  
 # TEST FAILED  
 # TEST PASS REPORT BIT  
 # FAIL REPORT BIT  
 # USED IN TEST 6 ONLY  
 # SPARE BITS  
 # BLOCK NUMBER OF THE 2ND LAST BLOCK OF THE  
 TAPE  
 # TRACK BITS OF THE TRACK/BLOCK ID  
 # THE CRC FOR TRACK ADDR. 0, BLOCK Y  
 # THE CRC FOR TRACK ADDR. 1, BLOCK Y  
 # THE CRC FOR TRACK ADDR. 1, BLOCK Y+1  
 # THE CRC FOR TRACK ADDR. 2, BLOCK Y  
 # THE CRC FOR TRACK ADDR. 2, BLOCK Y+1  
 # THE CRC FOR TRACK ADDR. 3, BLOCK Y  
 # THE CRC FOR TRACK ADDR. 3, BLOCK Y+1  
 # THE EXTRA CRC TABLE LOCATION

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPM W77D

```
01 STATUS LAYOUT 16
02 ITEM 16
03 ITEM 16
04 ITEM 16
05 ITEM 16
06 ITEM 16
07 ITEM 16
08 ITEM 16
09 ITEM 16
10 STATOY0 ITEM 16
11 STAT1Y0 ITEM 16
12 STAT1Y1 ITEM 16
13 STAT2Y0 ITEM 16
14 STAT2Y1 ITEM 16
15 STAT3Y0 ITEM 16
16 STAT3Y1 ITEM 16
17 STAEXTR ITEM 16
18 LOEND
```

```
# THE STATUS FOR TRACK ADDR. 0, BLOCK Y
# THE STATUS OF TRACK ADDR. 1, BLOCK Y
# THE STATUS OF TRACK ADDR. 1, BLOCK Y+1
# THE STATUS OF TRACK ADDR. 2, BLOCK Y
# THE STATUS OF TRACK ADDR. 2, BLOCK Y+1
# THE STATUS OF TRACK ADDR. 3, BLOCK Y
# THE STATUS OF TRACK ADDR. 3, BLOCK Y+1
# THE EXTRA STATUS TABLE LOCATION
```

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

STATUS	-003- 01 #
00	
01	
02	
03	
04	
05	
06	
07	
08	STAT0Y0 THE STATUS FOR TRACK ADDR. 0, BLOCK Y
09	STAT1Y0 THE STATUS OF TRACK ADDR. 1, BLOCK Y
10	STAT1Y1 THE STATUS OF TRACK ADDR. 1, BLOCK Y+1
11	STAT2Y0 THE STATUS OF TRACK ADDR. 2, BLOCK Y
12	STAT2Y1 THE STATUS OF TRACK ADDR. 2, BLOCK Y+1
13	STAT3Y0 THE STATUS OF TRACK ADDR. 3, BLOCK Y
14	STAT3Y1 THE STATUS OF TRACK ADDR. 3, BLOCK Y+1
15	STAEXTR THE EXTRA STATUS TABLE LOCATION
	15   14   13   12   11   10   9   8   7   6   5   4   3   2   1   0

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W770

0000001	01 FATAL EQU	1	# A HARD ERROR ON THE FIRST READ OF A BLOCK
	02 CRC TEXT	'BUFLN'	# THE CRC IS THE LAST WORD IN THE I_0 BUFFER
0000007	03 CLRTABX EQU	N(CRCXTR)-N(CRCTOYD)	# THE LENGTH OF THE TABLE MINUS 1
0000010	04 TABLTOP EQU	N(CRCTOYD)	# THE INDEX TO THE FIRST ENTRY
0000011	05 SNDYDENT EQU	N(CRCT1YD)	# THE TRACK 1, BLOCK Y ENTRY
0000015	06 LSTYDENT EQU	N(CRCT3YD)	# THE LAST Y ENTRY IN THE TABLES
0000012	07 FSTY1ENT EQU	N(CRCT1Y1)	# INDEX TO THE FIRST Y+1 BLOCKS
0000016	08 LSTY1ENT EQU	N(CRCT3Y1)	# THE LAST Y+1 ENTRY IN THE TABLES
	09 # THE NEXT ENTRY WITH THE SAME BLOCK NUMBER		
0000002	10 NXTY1ENT EQU	N(CRCT3Y1)-N(CRCT2Y1)	

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPM W77D

0131537

01 TWRITE  
 02 # THIS IS THE FINAL TEST OF THE TDC AND THE MINI-RECORDER  
 03 # ALL WRITE FUNCTIONS ARE TESTED. SUBROUTINES ARE  
 04 # USED AS 'GO-BETWEENS' FROM THE DIAGNOSTIC TO THE SYSTEM  
 05 # IT IS USED IN. THIS TEST ASSUMES THAT THE READ CIRCUITS AND  
 06 # POSITION CIRCUITS HAVE PASSED THEIR RESPECTIVE DIAGNOSTIC TESTS.

10 # THE TEST SENDS A FAST FORWARD COMMAND TO THE TRANSPORT, WHEN THE  
 11 # TAPE HAS STOPPED MOVING, THE TAPE IS BACKSPACED TWO BLOCKS. THE  
 12 # DIAGNOSTIC DOES A SERIES OF READS AND WRITES TO DETERMINE IF ANY  
 13 # FAULTS EXIST IN THE WRITE HEADS, THE WRITE HEAD SELECT, OR THE  
 14 # SPEED OF THE TRANSPORT. THE DATA WRITTEN ON THE TAPE IS GENERATED  
 15 # BY A SUBROUTINE WHICH USES THE SYSTEM CLOCK.  
 16 # THIS DIAGNOSTIC DOES NOT RELY ON THE DATA ON TAPE (EXCEPT TRACK  
 17 # ADDR. 0). THIS TEST WILL RUN A CHECK ON THE WRITE CIRCUITS IF  
 18 # THERE IS ONLY ONE BLOCK ON THE TAPE.

0131537 02 001716 103561 000006

20

LI

R7,6

# FIRST SET THE TEST NUMBER (R7) EQUAL TO 6

0131541 02 001720 003200 -----

21

ZR

RB

# THEN CLEAR THE SEGMENT NUMBER (R8)

0131542

22

CALL

DISPLAY

# SHOW THE SEGMENT ON THE SSP'S L.E.D.'S

0131542 02 001721 037020 117767 0117767 -001- 23

BSA

DISPLAY

COMMON TAPE MAINTENANCE

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TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

0131544

0131544

0131544

0131544

```

01 #####
02
03 # THIS IS A REGISTER MAP.IT STATES THE REGISTER NAME AND ITS USE
04
05 #     REG     USE
06
07 #     R0     SCRATCH (AND RETURN CODES FROM SUBROUTINES)
08 #     R1     SCRATCH
09 #     R2     SET UP FOR BX COUNTER WHEN CHECKING FOR HARD ERRORS
10 #     R3     INDEX THROUGH THE BLOCKS OF THE STATUS TABLE
11 #     R4     CURRENT STATUS INFORMATION
12 #     R5     CURRENT CRC FROM THE I_O BUFFER TO THE TABLE
13 #     R6     CURRENT TRACK/BLOCK IDENTIFIER
14 #     R7     CURRENT TEST NUMBER
15 #     R8     CURRENT SEGMENT NUMBER
16 #     R9     CONTAINS THE CHANNEL/SUBCHANNEL OF THE TDC UNDER TEST
17 #     R10    CONTAINS ANY MESSAGES (DATA OR COMMANDS)TO THE TDC
18 #     R11    RECEIVES REPLIES (DATA OR STATUS) FROM THE TDC
19 #     RA0    THE BASE ADDRESS OF THE CRC TABLE (CRCTBL)
20 #     RA1    STATUS TABLE BASE ADDRESS(STATUS)
21
22 #####

```

COMMON TAPE MAINTENANCE

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C05

TDC DIAGNOSTIC PROGRAM.

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TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

0131544 02 001723 171420 -----

01 # SAVE ALL THE REGISTERS SO THIS TEST CAN USE THE REGISTERS  
02 # AS PLANNED AND THEN RESTORE THEM TO WHAT EVER THE  
03 # DIAGNOSTIC MONITOR EXPECTS THEM TO BE  
04 HA

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPM W77D

```

0131545          01          SEGINT 1
-001- 02 # *****
-001- 03 # INITIALIZE THE SEGMENT NUMBER TO 1
-001- 04 # *****

0131545 02 001724 003601 000001          -001- 06          LI          R8,1          # LOAD SEGMENT NUMBER 1 INTO R8
0131547          -001- 07          CALL         DISPLAY          # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0131547 02 001726 037020 117767 0117767 -002- 08          BSA          DISPLAY

          10 # CALL THE ROUTINE TO SET-UP THE DIAGOSTICS SPECIAL INITIALIZATION
          11 # WHICH IS SYSTEM DEPENDENT

0131551          13          CALL         SYSTSET          # CALL THIS TO SET UP THIS TEST
0131551 02 001730 137020 117712 0117712 -001- 14          BSA          SYSTSET
0131553 02 001732 155100 ----- 0131653          15          BNC          ERROR2          # IF AN ERROR HAS OCCURED THE 'CF' WILL BE
          # CLEARED

0131554          20          SEGPRNT 2
-001- 21 # THIS IS PART OF SEGMENT 2
          22          SEGINC
0131554          -001- 23          AN          R8,1          # ADD 1 TO THE SEGMENT IN R8
0131554 02 001733 004601 -----          -001- 24          CALL         DISPLAY          # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0131555          -001- 24          CALL         DISPLAY
0131555 02 001734 037020 117767 0117767 -002- 25          BSA          DISPLAY

          30 # THIS STEP OF THE TEST IS DESIGNED TO ZERO THE STATUS TABLE.
          31 # THIS TABLE IS USED TO KEEP TRACK OF THE STATUS OF THE BLOCKS
          32 # ON TAPE WHICH THE DIAGNOSTIC IS TRYING TO READ AND/OR WRITE
          33 # THE BASE ADDRESS IS OFFSET TO POINT THE RAO AND RA1 TO THE PARTS
          34 # OF THE TABLE WHICH NEEDS TO BE ZEROED

0131557 02 001736 131000 043112 CTSD          36          LAL          RD,N(CRCTOYD)+CRCTBL,RAO # SET UP THE START OF THE CRC TABLE
0131561 02 001740 031400 043132 CTSD          37          LAL          RD,N(STATOYD)+STATUS,RA1 # SET UP THE START OF THE STATUS TABLE
0131563 02 001742 003461 000007          38          LI          R3,CLRTABX          # LOAD R3 WITH THE LENGTH OF THE TABLE MINUS
          # 1
0131565 02 001744 003140 -----          40          ZR          R6          # ZERO R6 TO CLEAR THE TABLE ENTERIES

0131566          42 CLRTBL

0131566 02 001745 146143 -----          44          STX          R6,R3(RAO)          # STORE ZERO INTO THE CRC TABLE INDEXED BY R3
0131567 02 001746 046543 -----          45          STX          R6,R3(RA1)          # STORE ZERO INTO THE STATUS TABLE INDEXED BY
          # R3
0131570 02 001747 036060 131566 0131566          47          BX          R3,CLRTBL          # BX USING R3 UNTILL THE TABLE IS CLEARED

```

COMMON TAPE MAINTENANCE

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TEST 6 MINI-RECORDER WRITE TEST.

CTAPM W77D

01 # NOW SET UP THE RA REGISTERS WITH THE RIGHT BASE ADDRESS FOR THE  
 02 # FOR THE REST OF THIS TEST

0131572 02 001751 031000 043102 CTSD  
 0131574 02 001753 031400 043122 CTSD

04 LAL RD,CRCTBL,RA0  
 05 LAL RD,STATUS,RA1

# LOAD RA0 WITH THE ADDR. OF THE CRC TABLE  
 # LOAD RA1 WITH THE ADDR. OF THE STATUS TABLE

COMMON TAPE MAINTENANCE

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TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

```

0131610                                01 FASTFOR
0131610 02 001767 103641 002415        03      LI      R10,TFF      # PREPARE TO ISSUE FAST FORWARD
0131612                                04      CALL     SENDMIO
0131612 02 001771 037020 111050 CSYSUB -001- 05      BSA      SENDMIO
                                           06 DINSERT NOTE ' BGNTIM SEC=50 # MAXIMUM TIME TO EACH EOT FROM BOT (WITHIN
                                           # SPEC.)
                                           08 DDELETE NOTE 4
W0131614 02 001773 137020 111375 CSYSUB 09      BSA      TIMEOUT
0131616 02 001775 003721 -----        10      DATA    Z001
0131617 02 001776 106040 -----        11      LR       R2,R0      # SAVE TIME CONSTANT.
                                           13 TAPEDGN OW   0(1777)      #3E790207
-001- 14      NOTE ***** THE FIRST ADDRESS OVERWRITTEN IS 001777 *****
                                           17 CPATCH3 BGNP 0(72)      #3E790207
0131620 02 001777 037000 115165 0115165 -001- 18      BL       XXX571
-001- 19      NOTE CPATCH3 'CSECT'
-001- 20      NOTE ***** PATCH AREA BEGINS AT 000072 *****
                                           -001- 23 XXX571 PATCHAREA
0115165                                24      CALL     TEMPINH_ #Inform Dispatcher to wait 1 Base level loop
0115165                                25      BSA      TEMPINH_
0115165 06 000072 137020 147320 BLMMA -001- 26
0115167                                27      CALL     WAIT      #before returning from the real time break.
0115167                                28      BSAI     WXAII     #Take a real time break.
0115167 06 000074 173025 -----        -001- 29      ENDP
0115170                                30      BL       XXX575      # SUBROUTINE WAIT IS IN PROGRAM CBLM
0115170 06 000075 137000 131622 0131622. -001- 31      NOTE ***** LAST PATCH ADDRESS USED IS 000076 *****
-001- 32      NOTE ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) *****
                                           -001- 35 XXX575 OWCONTINUE
0131622                                36      EOW      #3E790207
0131622                                -001- 37      NOTE ***** THE LAST ADDRESS OVERWRITTEN IS 002000 *****
                                           41      LI      R10,TSTAT # SET-UP R10 WITH THE SECONDARY STATUS
0131622 02 002001 103641 002015        43      CALL     SENDMIO # SEND IT TO THE TDC
0131624                                44      BSA      SENDMIO
0131624 02 002003 037020 111050 CSYSUB -001- 45      TBN      R11,S(TIM) # HAS THE TAPE STARTED MOVING YET?
0131626 02 002005 124272 -----        46      BNC      ERROR2 # BRANCH TO AN ERROR IF NOT
0131627 02 002006 055024 ----- 0131653

```

COMMON TAPE MAINTENANCE

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## TDC DIAGNOSTIC PROGRAM.

## TEST 6 MINI-RECORDER WRITE TEST.

```

0131630 '
-001- 01 SEGRNT 3
02 # THIS IS PART OF SEGMENT 3
03 SEGINC
0131630 02 002007 004601 ----- -001- 04 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0131631 -001- 05 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0131631 02 002010 037020 117767 0117767 -002- 06 BSA DISPLAY

0131633
08 CALW1
10 DINSERT NOTE ' CALL WAIT # TAKE A REAL TIME BREAK.
11 DDELETE NOTE 2
12 BSA WAIT # GET SECONDARY STATUS FROM THE CTTC
13 LI R10,TSTAT
14 CALL SENDMIO
0131637 02 002016 037020 111050 CSYSUB -001- 15 BSA SENDMIO # CHECK IF THE TAPE HAS STOPPED
0131641 02 002020 124272 ----- 16 TBN R11,S(TIM) # BRANCH IF IT HAS STOPPED
0131642 02 002021 055013 ----- 0131655 17 BNC EOTCHK # HAS TIMEOUT OCCURRED?
0131643 02 002022 006002 ----- 18 LR R0,R2
19 DINSERT NOTE ' CHKTIM
20 DDELETE NOTE 2
0131644 02 002023 037020 111364 CSYSUB 21 BSA TIMCHK
0131646 02 002025 154765 ----- 0131633 22 BC CALW1
23 # IF THE TAPE HAS NOT STOPPED, STOP IT AND RETURN AN ERROR
0131647 02 002026 003641 040007 24 LI R10,INIT # SET-UP THE INITIATE COMMAND TO THE SPI
0131651 02 002030 037020 111050 CSYSUB -001- 25 CALL SENDMIO # SEND IT OUT
0131651 02 002030 037020 111050 CSYSUB -001- 26 BSA SENDMIO

0131653
28 ERROR2
0131653 02 002032 137000 117670 0117670. 30 BL ERRORS # GO TO PROCESS THE ERROR

0131655
32 EOTCHK
0131655 34 SEGRNT 4
-001- 35 # THIS IS PART OF SEGMENT 4
36 SEGINC
0131655 02 002034 104601 ----- -001- 37 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0131656 -001- 38 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0131656 02 002035 037020 117767 0117767 -002- 39 BSA DISPLAY

0131660 02 002037 124270 ----- 41 TBN R11,S(EOT) # CHECK IF THE TAPE IS AT EOT
0131661 02 002040 054007 ----- 0131670 42 BC ATEOT # CONTINUE IF IT IS
0131662 02 002041 024271 ----- 43 TBN R11,S(TOR) # CHECK IF THE TAPE IS OFF THE REEL
0131663 02 002042 054770 ----- 0131653 44 BC ERROR2 # BRANCH IF IT IS

```

COMMON TAPE MAINTENANCE

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TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

0131664		01	SEGRPT 5		
		-001- 02	# THIS IS PART OF SEGMENT 5		
0131664		03	SEGINC		
0131664	02 002043 004601	-----	AN R8,1		# ADD 1 TO THE SEGMENT IN R8
0131665		-001- 04	CALL DISPLAY		# SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0131665	02 002044 037020 117767 0117767	-002- 05	BSA DISPLAY		
0131667	02 002046 153764	----- 0131653	08 B	ERRON2	# THERE IS AN ERROR (NO TIM,NO TOR,NO EOT AFTER 50 SEC.)

COMMON TAPE MAINTENANCE

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TEST 6 MINI-RECORDER WRITE TEST.

CTAPM

W77D

0131670		01 ATEOT.				
0131670		03	SEGRPT	6		
	-001-	04 # THIS	IS PART	OF SEGMENT 6		
0131670		05	SEGINC	2		
0131670	02 002047 104602	-----	AN	R8,2		# ADD 2 TO THE SEGMENT IN R8
0131671		-001-	CALL	DISPLAY		# SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0131671	02 002050 037020 117767 0117767	-002-	BSA	DISPLAY		
0131673	02 002052 103041	-----	10	LN	R2,1	# SET UP R2 TO BE USED AS A BX COUNTER
0131674		12 BKSPLOP1				
0131674	02 002053 103641 006415		14	LI	R10,TBS	# LOAD R10 WITH A BACKSPACE (TRACK ADDR. 0).
0131676			15	CALL	SENDMIO	
0131676	02 002055 037020 111050 CSYSUB	-001-	16	BSA	SENDMIO	# WAIT 1 SECOND BEFORE CONTINUING
0131700			17	CALL	WAIT3S	
0131700	02 002057 137020 132232 0132232	-001-	18	9SA	WAIT3S	# MUST DO 2 BACKSPACES
0131702	02 002061 136040 131674 0131674		19	BX	R2,BKSPLOP1	

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TEST 6 MINI-RECORDER WRITE TEST.

CTAPM W77D

```

0131704 02 002063 003541 000527 MASACS      01      LI      R6,BLKMAX      # LOAD R6 WITH BLKMAX (THE BLOCK NUMBER IS
                                           UNKNOWN)

0131706                                     04      CALL  READSUB      # READ BLOCK Y FROM TRACK ADDR 0
0131706 02 002065 037020 120045 0120045 -001- 05      BSA  READSUB
0131710 02 002067 154011 ----- 0131721      06      BC    READOK      # BRANCH IF THERE IS NO ERROR FLAGGED
0131711 02 002070 003421 000001              07      LI    R1,FATAL    # SET UP TO FLAG THE ERROR FOR LATER USE
0131713 02 002072 044430 -----              08      ST    R1,TABTOP(RA1) # STORE THE FLAG IN THE TABLE
0131714                                     09      SEGINC 1,Y
                                           -001- 10 # ADD 1 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0131714 02 002073 004601 -----              -001- 11      AN    R8,1      # ADD 1 TO THE SEGMENT IN R8
0131715                                     -001- 12      CALL  DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0131715 02 002074 037020 117767 0117767      -002- 13      BSA  DISPLAY

0131717 02 002076 137000 117003 0117003      15      BL    NOSPEED    # NOW TREAT IT AS ONLY HAVING 1 BLOCK FROM
                                           BLKMAX TO EOT

0131721                                     20 READOK

                                           22 # THIS SEGMENT COMPUTES WHICH BLOCK THE TAPE HAS STOPPED AT

0131721 02 002100 130540 045266 LAYOUT      24      LL    R6,I_OBUF    # SET UP R6 WITH THE TR/BLK ID
0131723                                     25      EOW   # 13668
                                           -001- 26      NOTE ***** THE LAST ADDRESS OVERWRITTEN IS 002101 *****

                                           30 # NOW MASK OFF THE BLOCK NUMBER FROM THE CURRENT TRACK/BLOCK
                                           31 # ID IN R6 FROM THE TAPE AND STORE IT INTO THE TABLE. THIS WILL
                                           32 # PROTECT AGAINST ANY PREVIOUS WRITE TRACK SELECTION FAULTS IN THE
                                           33 # HARDWARE, AND AT THE SAME TIME ALLOW THE TEST TO RUN PROPERLY.

                                           35 TAPEDGN OW 0(2102) # 12339
                                           -001- 36      NOTE ***** THE FIRST ADDRESS OVERWRITTEN IS 002102 *****

                                           39 # THE SECOND TO THE LAST BLOCK IS GOOD ON TRK 1 MASK THE BLK AND
                                           40 # AND STORE IT IN THE TABLE
0131723 02 002102 003542 003777              41      NI    R6,M(BLKADDR)
0131725 02 002104 044146 -----              42      ST    R6,N(BLKADDR)(RAD)
                                           43 # NOW COMPARE IT TO BLKMAX
0131726 02 002105 003421 000527 MASACS      44      LI    R1,BLKMAX
0131730 02 002107 037000 116774 0116774      45      BL    TFAPCH2    # BRANCH TO LABEL TAPEPACH
0131732                                     46      TAKEOUT 6
0131732 02 002111 006000 -----              -001- 47      LR    0,0
0131733 02 002112 006000 -----              -001- 48      LR    0,0
0131734 02 002113 006000 -----              -001- 49      LR    0,0

```

COMMON TAPE MAINTENANCE

PR-1C958-50

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

TEST 6 MINI-RECORDER WRITE TEST.

CTAPH W77D

0131735 02 002114 006000 -----  
 0131736 02 002115 006000 -----  
 0131737 02 002116 006000 -----  
 0131740

-001- 01  
 -001- 02  
 -001- 03  
 04  
 -001- 05

LR 0,0  
 LR 0,0  
 LR 0,0  
 EOW  
 NOTE

# 12339

\*\*\*\*\* THE LAST ADDRESS OVERWRITTEN IS 002116 \*\*\*\*\*

COMMON TAPE MAINTENANCE

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9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 100

## TDC DIAGNOSTIC PROGRAM.

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## SUPPORTING SUBROUTINES

CTAPM W77D

```

0131740
0131740 02 002117 003415 -----
0131741 02 002120 003515 -----
0131742 02 002121 013415 -----
0131743 02 002122 053515 -----
0131744 02 002123 023415 -----
0131745 02 002124 123515 -----
0131746 02 002125 033415 -----
0131747 02 002126 173515 -----
0131750 02 002127 011415 -----
0131751 02 002130 051515 -----
0131752 02 002131 006415 -----
0131753 02 002132 006515 -----
0131754 02 002133 002415 -----
0131755 02 002134 002515 -----
0131756 02 002135 004415 -----
0131757 02 002136 004515 -----
0131760 02 002137 007415 -----
0131761 02 002140 007515 -----
0131762 02 002141 015415 -----
0131763 02 002142 055515 -----
0131764 02 002143 006015 -----
0131765 02 002144 050115 -----
0131766 02 002145 003015 -----
0131767 02 002146 050115 -----
0131770 02 002147 005015 -----
0131771 02 002150 050115 -----
0131772 02 002151 000015 -----
0131773 02 002152 050115 -----
0131774 02 002153 007015 -----
0131775 02 002154 050215 -----
0131776

01 TDCORD
02 # THIS ORDER AND RESPONSE TABLE IS USED TO VERIFY THE TAPE UNIT
03 # CONTROLLER CIRCUITRY. A ORDER IS FOLLOWED BY ITS REPLY.
04 TRB1
05 DATA 0(3415) # TRB1
06 DATA 0(3515)
07 TRB2
08 DATA 0(13415) # TRB2
09 DATA 0(53515)
10 TRB3
11 DATA 0(23415) # TRB3
12 DATA 0(123515)
13 TRB4
14 DATA 0(33415) # TRB4
15 DATA 0(173515)
16 TWIBG2
17 DATA 0(11415) # TWIBG2
18 DATA 0(51515)
19 TBS1
20 DATA 0(6415) # TBS1
21 DATA 0(6515)
22 TFF1
23 DATA 0(2415) # TFF1
24 DATA 0(2515)
25 TFR1
26 DATA 0(4415) # TFR1
27 DATA 0(4515)
28 TRT1
29 DATA 0(7415) # TRT1
30 DATA 0(7515)
31 TWT2
32 DATA 0(15415) # TWT2
33 DATA 0(55515)
34 TCCRC
35 DATA 0(6015) # TCCRC
36 DATA 0(50115)
37 TWSTPT
38 DATA 0(3015) # TWSTP
39 DATA 0(50115)
40 TCWS
41 DATA 0(5015) # TCWS
42 DATA 0(50115)
43 TSTOPT
44 DATA 0(15) # TSTOP
45 DATA 0(50115)
46 TCMTC
47 DATA 0(7015) # TCMTC
48 DATA 0(50215)
49 TMAINT

```

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPM W77D

0131776 02 002155 004015 -----  
0131777 02 002156 050015 -----

01  
02

DATA 0(4015)  
DATA 0(50015)

# TMAINT

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.  
SUPPORTING SUBROUTINES

9:34:51 2/07/81 \*\*\*\*  
CTAPH W77D

01 TAPEDGN OW 0(2157) # 11799  
-001- 02 NOTE \*\*\*\*\* THE FIRST ADDRESS OVERWRITTEN IS 002157 \*\*\*\*\*

0132000

05 ERRMSGPO  
06 # THIS IS THE COMMON ERROR BRANCH FOR ALL TESTS. ALL DECISIONS  
07 # CONCERNING THE MODE OF EXECUTION AND METHOD OF PRINTOUT IS DONE  
08 # HERE. REGISTERS R7 AND R8 MUST CONTAIN THE TEST AND SEGMENT NUMBER.  
09 # RAO SHOULD POINT TO THE TAPE DIAGNOSTIC CONTROL BLOCK,

0132000 02 002157 110604 -----  
0132001 02 002160 003562 000017  
0132003

13 RRN R8,4  
14 NI R7,0(17)  
15 EOW # 11799  
-001- 16 NOTE \*\*\*\*\* THE LAST ADDRESS OVERWRITTEN IS 002161 \*\*\*\*\*

0132003 02 002162 003441 062104

19 TTYFMT FMT=(WRD,WRD,DEC,DEC,DEC,L\_X,L\_X,L\_X)  
-001- 20 LI R2,0ITTYO\_L\_X\*(10-7)\*4)ITTYO\_DEC\*(9-7)\*4)ITTYO\_DEC\*(8-7)\*4)  
ITTYO\_DEC\*(7-7)\*4)

0132005 02 002164 003461 021146

-001- 22 LI R3,0ITTYO\_\*E((10-7)\*4)ITTYO\_\*E((9-7)\*4)ITTYO\_L\_X\*(8-7)\*4)ITTYO\_L\_X\*(7-7)\*4)

0132007 02 002166 061065 -----

24 SBS N(FAIL)(RAD),S(FAIL) #FLAG TO MONITOR THAT TEST FAILED.

0132010 02 002167 040140 -----

25 L R6,N(TPNO)(RAD)

0132011 02 002170 051264 -----

26 TBS N(STATSV)(RAD),S(TSTATE) #WAS TDC OUT OF SERVICE

0132012 02 002171 054003 ----- 0132015

27 BC PUTAWAY1 #YES

0132013

28 # REMOVE TDC AND LIGHT LAMP AND GIVE REMOVE PRINTOUT.

0132013 02 002172 037020 126763 CTAPH

-001- 29 CALL DGNRMV

0132015

30 BSA DGNRMV

0132015 02 002174 103421 010060

-001- 32 TTYCTL PRIOR=3,SOURCE=MFA,ZSPRS=NO

0132017

33 LI R1,0\*(13)+1\*(12)+0\*(9)+0\*(8)+0\*(6)+3\*(4)+0\*(3)+0

0132017 02 002176 135420 050537 LAYOUT

34 PUTAWAY

0132021 02 002200 045441 -----

35 STAL R1,TTY\_MFA,RA1

0132022 02 002201 003501 000014 TTYTBL

36 STA R2,1(RA1)

0132024 02 002203 003521 000242 TTYTBL

37 SPELL R4,(D,G,N)

0132026 02 002205 037020 111005 CSYSUB

-001- 38 LI R4,DXGN

0132030 02 002207 103641 040007

39 SPELL R5,(T,A,P,E)

0132032

40 LI R5,TXAPE

0132032 02 002211 037020 111050 CSYSUB

-001- 41 CALL ST2\_11 # STORE REMAINING REGISTERS.

0132034

42 BSA ST2\_11

0132034 02 002213 137020 126162 CTAPH

43 LI R10,INIT #STOP TAPE ON ERROR

0132036 02 002215 131400 043317 CTSD

-001- 44 CALL SENDMIO # CLEAR TCB AFTER TEST.

0132040 02 002217 062727 -----

45 BSA SENDMIO

46 CALL INITTAPE

47 BSA INITTAPE

48 LAL R0,TCBADR,RA1

49 ZBS N(REPK)(RA1),S(REPK)

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

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SUPPORTING SUBROUTINES

CTAPM

W77D

```

0132041 01 RETURN 2
0132041 02 002220 056462 ----- -001- 02 BTSAN 2

0132042
06 SENDSFT
07 # THIS ROUTINE IS USED TO SEND 16 CONSTANTS TO THE BT
08 # TO CHECK OUT ITS BUS GATING AND PARITY GENERATION.
09 # R10 CONTAINS THE STARTING CONSTANT AND IT IS SHIFTED
10 # LEFT ONE WITH EACH SUCCESSFUL TRANSMISSION. AN ERROR
11 # TERMINATES THE EXECUTION OF THE ROUTINE. RETURN 0 INDICATES
12 # SUCCESS AND RETURN 1 INDICATES ERROR.

0132042 14 BEGIN ( )
0132042 02 002221 103057 ----- 15 LN R2,15
0132043 16 RTORD
0132043 17 CALL SENDIO
0132043 02 002222 173034 ----- -001- 18 BSAI SXENDIO # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0132044 02 002223 156000 ----- 19 BPAX RO # BT ALWAYS SENDS THE 5 START CODE.
0132045 20 RETURN 1
0132045 02 002224 156461 ----- -001- 21 BTSAN 1 # KEEP SENDING ORDERS
0132046 02 002225 153002 ----- 0132050 22 B BXT
0132047 23 RTN1
0132047 24 RETURN 1 # NO-RESPONSE IS AN ERROR.
0132047 02 002226 156461 ----- -001- 25 BTSAN 1

0132050 27 BXT
0132050 02 002227 120253 ----- 28 CR R10,R11 # IS RESPONSE CORRECT.
0132051 02 002230 055776 ----- 0132047 29 BNC RTN1 # NO
0132052 02 002231 010657 ----- 30 RLN R10,1
0132053 02 002232 036040 132043 0132043 31 BX R2,RTORD # KEEP SENDING ORDERS.
0132055 32 RETURN 0
0132055 02 002234 056460 ----- -001- 33 BTSAN 0

0132056
37 SMTH
38 # THIS ROUTINE WILL SEND A MAINTENANCE ORDER TO THE TDC
39 # AND CHECK FOR A MAINTENANCE START CODE REPLY.
0132056 40 BEGIN ( )
0132056 41 CALL SENDMIO
0132056 02 002235 137020 111050 CSYSUB -001- 42 BSA SENDMIO
0132060 02 002237 156000 ----- 43 BPAX RO
0132061 44 RETURN 1
0132061 02 002240 156461 ----- -001- 45 BTSAN 1
0132062 46 RETURN 0
0132062 02 002241 156460 ----- -001- 47 BTSAN 0
0132063 48 RETURN 1
0132063 02 002242 156461 ----- -001- 49 BTSAN 1

```

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPM W77D

```

0132064      04 SENDMIOM
05 #THIS ROUTINE WILL SEND A MAINTENANCE ORDER AND CHECK THE RESULTS.
06 # AN ATP RESPONSE WILL RESULT IN A RETURN TO THE CALLING PROGRAM.
07 # FAILURE OF THE ORDER WILL RESULT IN A RETURN TO AN ERROR BRANCH.
08
0132064      09 # ENTRY R10=ORDER
          10 #      R9=ADDRESS OF DEVICE
          11 #      R8=SEG. NUMBER
          12 #      R7=TEST NUMBER

0132064      14      BEGIN      ( )
0132064      15      CALL      SENDMIO
0132064 02 002243 137020 111050 CSYSUB -001- 16      BSA      SENDMIO
0132066 02 002245 155002 ----- 0132070 17      BNC      RESETAD
0132067      18      RETURN
0132067 02 002246 056400 ----- -001- 19      BTSA      ....

0132070      21 RESETAD
0132070 02 002247 103340 ----- 22      ZR      RA1
0132071 02 002250 031400 132000 0132000 23      LAL      RO,ERRMSGPO,RA1
0132073 02 002252 072740 ----- 24      HN      RA1,0      #RETURN TO ERROR BRANCH.
0132074 02 002253 072761 ----- 25      HN      RA1+1,1
0132075      26      RETURN
0132075 02 002254 056400 ----- -001- 27      BTSA

0132076      31 LOD1HLF
02 # THIS ROUTINE WILL LOAD UP THE CURRENT INACTIVE BUFFER WITH THE
03 # PATTERN SPECIFIED IN R2. ONLY ONE HALF OF THE BUFFER IS LOADED.
04 # RETURN 0 INDICATES A SUCCESSFUL LOAD OPERATION.
05
0132076      35      BEGIN
0132076 02 002255 171420 ----- -002- 36      HA
0132077 02 002256 003641 042013 37      LI      R10,BSLDON      #SET THE LOAD STATE UP.
0132101      38      CALL      SENDMIO
0132101 02 002260 037020 111050 CSYSUB -001- 39      BSA      SENDMIO
0132103 02 002262 106242 ----- 40      LR      R10,R2
0132104 02 002263 003441 000037 41      LI      R2,31      #BX CONSTANT FOR 1/2 OF BUFFER.
0132106      42      OROUT
0132106 02 002265 103070 ----- 43      LN      R3,8
0132107 02 002266 023400 ----- 44      SIO
0132110      45      STAR
0132110 02 002267 136060 132110 0132110 46      BX      R3,STAR
0132112 02 002271 023500 ----- 47      TIO
0132113 02 002272 055004 ----- 0132117 48      BNC      FAILURE
0132114 02 002273 036040 132106 0132106 49      BX      R2,OROUT

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 105

## TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## SUPPORTING SUBROUTINES

CTAPM

W77D

```

0132116
0132116 02 002275 056440 ----- -001- 01 RETURN 0
0132117 02 002275 056440 ----- -001- 02 BTSAGN 0
0132117 03 FAILURE
0132117 04 RETURN 1
0132117 02 002276 156441 ----- -001- 05 BTSAGN 1

0132120
0132120 02 002277 171420 ----- 09 UNCHECK1
0132121 02 002300 053014 ----- 0132135 10 HA
0132122 11 B STUNLD
12 UNCHECK
13 # THIS ROUTINE IS USED TO UNLOAD AND CHECK DATA STORED IN THE
14 # INACTIVE BUFFER. THE CONTENTS OF R2 INDICATES WHAT IS EXPECTED
15 # IN THE FIRST 32 WORDS OF THE BUFFER. THE LAST 32 WORDS MUST BE
16 # ZERO. RETURN 0 INDICATES AN ATP CONDITION.

0132122
0132122 02 002301 171420 ----- -002- 18 BEGIN
0132123 02 002302 003641 044013 19 HA
0132125 20 LI R10,BSUNLDON #SET UP UNLOAD STATES IN TDC.
0132125 02 002304 037020 111050 CSYSUB -001- 21 CALL SENDMIO
0132127 02 002306 155030 ----- 0132157 22 BSA SENDMIO
0132130 02 002307 003641 120013 23 BNC ERXIT
0132132 24 LI R10,BCLROCN
0132132 02 002311 037020 111050 CSYSUB -001- 25 CALL SENDMIO
0132134 02 002313 155023 ----- 0132157 26 BSA SENDMIO
0132135 27 BNC ERXIT
0132135 02 002314 103641 100007 28 STUNLD
0132137 29 LI R10,SD
0132137 02 002316 103501 000037 30 NEXHLF
0132141 31 LI R4,31
0132141 02 002320 103150 ----- 32 NORD
0132142 02 002321 023440 ----- 33 LN R6,8
0132143 34 SMIO #UNLOAD A 16 BIT WORD.
0132143 02 002322 136140 132143 0132143 35 STR
0132145 02 002324 023500 ----- 36 BX R6,STR
0132146 02 002325 055011 ----- 0132157 37 TIO
0132147 02 002326 020262 ----- 38 BNC ERXIT
0132150 02 002327 055007 ----- 0132157 39 CR R11,R2
0132151 02 002330 036100 132141 0132141 40 #WAS DATA AND R3 SAME? #NO
0132153 02 002332 014042 ----- 41 BNC ERXIT
42 BX R4,NORD
43 TZ R2
44 # IF BOTH HALVES OF BUFFER ARE DONE R3g0
0132154 02 002333 003040 ----- 45 ZR R2
0132155 02 002334 055762 ----- 0132137 46 BNC NEXHLF
0132156 47 RETURN 0
0132156 02 002335 056440 ----- -001- 48 BTSAGN 0
0132157 49 ERXIT

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 106

## TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## SUPPORTING SUBROUTINES

CTAPM W77D

```

0132157 02 002336 172673 ----- 01      HN      R11,11
0132160                02      RETURN 1
0132160 02 002337 056441 ----- -001- 03      BTSAGN 1

```

0132161

```

07 LEDPROT
08 # THIS SEGMENT IS RESPONSIBLE FOR PROTECTING AGAINST AN LED
09 # BURN OUT WHICH COULD WIND THE TAPE OFF THE REEL. A RETURN
10 # CODE OF 1 INDICATES A POSSIBLE FAILURE. RETURN 0 WILL INDICATE
11 # THAT THE CALLING TEST MAY CONTINUE.

```

```

0132161                15      BEGIN
0132161 02 002340 171420 ----- -002- 16      HA
0132162 02 002341 003641 006415      17      LI      R10,TBS      #PREPARE TO ISSUE BACKSPACE
0132164                18      CALL    SENDMIO
0132164 02 002343 037020 111050 CSYSUB -001- 19      BSA     SENDMIO
0132166                20      BGNTIM  SEC=3      #MAXIMUM TIME TO BOT HOLES
0132166                21      CALL    TIMOUT
0132166 02 002345 173022 ----- -001- 21      CALL    TIMOUT
0132167 02 002346 000171 ----- -002- 22      BSAI   TXIMOUT      # SUBROUTINE TIMOUT IS IN PROGRAM CSYSUB
0132170 02 002347 106040 ----- -001- 23      DATA  121      # TIMOUT+1
0132171                24      LR      R2,RD      #SAVE TIME CONSTANT.
0132171                25      CALW
0132171                26      CALL    WAIT      # TAKE A REAL TIME BREAK.
0132171 02 002350 173025 ----- -001- 27      BSAI   WXAIT      # SUBROUTINE WAIT IS IN PROGRAM CBLM
0132172 02 002351 106002 -----      28      LR      R0,R2
0132173                29      CHKTIM
0132173                30      CALL    TIMCHK      # HAS TIMEOUT OCCURRED?
0132173                31      CALL    TXIMCHK      # HAS TIMOUT OCCURRED?
0132174 02 002352 073037 ----- -002- 31      BSAI   TXIMCHK      # SUBROUTINE TIMCHK IS IN PROGRAM CSYSUB
0132174 02 002353 154775 -----      32      BC     CALW
0132175 02 002354 003641 002015      33      LI      R10,TSTAT
0132177                34      CALL    SENDMIO
0132177 02 002356 037020 111050 CSYSUB -001- 35      BSA     SENDMIO
0132201 02 002360 124272 -----      36      TBN   R11,S(TIM)      #IS TAPE STILL MOVING
0132202 02 002361 054002 -----      37      BC     ERRSTOP      # YES POSSIBLE ERROR.
0132203                38      RETURN 0
0132203 02 002362 056440 ----- -001- 39      BTSAGN 0
0132204                40      ERRSTOP
0132204 02 002363 103641 040007      41      LI      R10,INIT
0132206                42      CALL    SENDMIO
0132206 02 002365 037020 111050 CSYSUB -001- 43      BSA     SENDMIO
0132210 02 002367 103641 003415      44      LI      R10,TRP
0132212                45      CALL    SENDMIO      # ISSUE READ 1 BLK TO PROTECT FROM RUN OFF.
0132212 02 002371 037020 111050 CSYSUB -001- 46      BSA     SENDMIO
0132214                47      BGNTIM  SEC=5
0132214                48      CALL    TIMOUT
0132214 02 002373 173022 ----- -002- 49      BSAI   TXIMOUT      # SUBROUTINE TIMOUT IS IN PROGRAM CSYSUB

```

COMMON TAPE MAINTENANCE

PR-1C958-50

## TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## SUPPORTING SUBROUTINES

CTAPH W77D

```

0132215 02 002374 000311 ----- -001- 01      DATA  201      # TIMEOUT+1
0132216 02 002375 106040 -----          02      LR      R2,R0
0132217          03      CLWT
0132217          04      CALL      WAIT
0132217 02 002376 173025 ----- -001- 05      BSAI    WXAIT    # SUBROUTINE WAIT IS IN PROGRAM CBLM
0132220 02 002377 106002 -----          06      LR      RO,R2
0132221          07      CHKTIM
0132221          08      CALL    TIMCHK    # HAS TIMEOUT OCCURRED?
0132221 02 002400 073037 ----- -002- 09      BSAI    TXIMCHK  # SUBROUTINE TIMCHK IS IN PROGRAM CSYSUB
0132222 02 002401 154775 ----- 0132217 10      BC      CLWT
0132223          11      RETURN  1
0132223 02 002402 056441 ----- -001- 12      BTSAGN  1

0132224          16      WAIT1
0132224          17      BGNTIM  MSEC=100    # SPECIAL ENTRY FOR 100 MSEC TIME BREAK.
0132224          18      CALL    TIMEOUT
0132224 02 002403 173022 ----- -002- 19      BSAI    TXIMCHK  # SUBROUTINE TIMEOUT IS IN PROGRAM CSYSUB
0132225 02 002404 000005 ----- -001- 20      DATA  5      # TIMEOUT+1
0132226 02 002405 153006 ----- 0132234 21      B      MYWAIT
0132227          22      WAIT1S
0132227          23      BGNTIM  SEC=1      # SPECIAL ENTRY FOR 1 SEC WAIT
0132227          24      CALL    TIMEOUT
0132227 02 002406 173022 ----- -002- 25      BSAI    TXIMCHK  # SUBROUTINE TIMEOUT IS IN PROGRAM CSYSUB
0132230 02 002407 000051 ----- -001- 26      DATA  41     # TIMEOUT+1
0132231 02 002410 153003 ----- 0132234 27      B      MYWAIT
0132232          28      WAIT3S
0132232          29      BGNTIM  SEC=3      # SPECIAL ENTRY FOR 3 SEC WAIT
0132232          30      CALL    TIMEOUT
0132232 02 002411 173022 ----- -002- 31      BSAI    TXIMCHK  # SUBROUTINE TIMEOUT IS IN PROGRAM CSYSUB
0132233 02 002412 000171 ----- -001- 32      DATA  121    # TIMEOUT+1
0132234          33      MYWAIT
0132234          34      # THIS ROUTINE WILL TAKE REAL TIME BREAKS UNTIL A SPECIFIC AMOUNT
0132234          35      # OF TIME ELAPSES. RO CONTAINS THE TIME CONSTANT USED TO ESTABLISH
0132234          36      # THE ELAPSED TIME.

0132234          40      BEGIN
0132234 02 002413 171420 ----- -002- 41      HA
0132235 02 002414 006040 -----          42      LR      R2,R0
0132236          43      MOREWAIT
0132236          44      CALL    WAIT
0132236 02 002415 173025 ----- -001- 45      BSAI    WXAIT    # SUBROUTINE WAIT IS IN PROGRAM CBLM
0132237 02 002416 106002 -----          46      LR      RO,R2
0132240          47      CHKTIM
0132240          48      CALL    TIMCHK    # HAS TIMEOUT OCCURRED?
0132240 02 002417 073037 ----- -002- 49      BSAI    TXIMCHK  # SUBROUTINE TIMCHK IS IN PROGRAM CSYSUB

```

COMMON TAPE MAINTENANCE

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## TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

## SUPPORTING SUBROUTINES

CTAPH W77D

```

0132241 02 002420 154775 ----- 0132236      01      BC      MOREWAIT
0132242                                02      RETURN
0132242 02 002421 156420 -----                -001- 03      BTSAG
                                04 TFAPCH2 BGNP      0(0)          # 13668
                                -001- 05      NOTE      TFAPCH2 'CSECT'
                                -001- 06      NOTE      ***** PATCH AREA BEGINS AT 000000 *****

0116774                                09 TAPEPACH
0116774 10 000000 105141 -----                10      SR      R6,R1          # SUBTRACT BLKMAX FROM THE CURRENT BLOCK'S
                                12      BNC      ERROR1        # BRANCH IF THE CF=0 (R1>R6)

0116776                                14      SEGPRNT 7
                                -001- 15 # THIS IS PART OF SEGMENT 7
0116776                                16      SEGINC
0116776 10 000002 004601 -----                -001- 17      AN      R8,1          # ADD 1 TO THE SEGMENT IN R8
0116777                                -001- 18      CALL     DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0116777 10 000003 037020 117767 0117767        -002- 19      BSA      DISPLAY

0117001 10 000005 114146 -----                21      TZ      R6
0117002 10 000006 055021 ----- 0117023        22      BNC      ALLTEST      # IS Y - BLKMAX = 0
                                                # IF THESE OTHER CHECKS FAIL THEN RUN ALL
                                                # TESTS

0117003                                27 NOSPEED

29 # THIS BRANCH IS TAKEN IF THE DIAGNOSTIC CALCULATED THAT THERE IS
30 # ONLY ONE BLOCK BETWEEN BLKMAX AND THE END OF THE TAPE OR THE
31 # SECOND TO THE LAST BLOCK ON THE TAPE WAS NOT READABLE. THE
32 # DIAGNOSTIC WILL TRY TO RUN AS MANY TEST AS POSSIBLE USING
33 # THE LAST BLOCK ON THE TAPE.

35 # FIRST THIS LOOP SETS THE CONDITIONAL ATP FLAG ,THEN READS
36 # THE LAST BLOCK ON THE TAPE. NOTE THAT THERE IS NO ROOM
37 # ON THE TAPE TO RUN THE SPEED TEST (WHICH TAKE TWO BLOCKS).
38 # RUN TESTS OF THE WRITE CIRCUITS THEN TELL THE CRAFTSPERSON THE
39 # TAPE WAS TOO SHORT.

0117003 10 000007 161105 -----                43      SBS      N(CATP)(RAO),S(CATP) # SET THE CONDITIONAL ATP BIT

0117004                                45      CALL     READSUB      # READ BLOCK Y+1 OFF TRACK ADDR. 0
0117004 10 000010 037020 120045 0120045        -001- 46      BSA      READSUB
0117006 10 000012 155124 ----- 0117132        47      BNC      ERROR1        # BRANCH WHEN THE READ OF BLOCK Y+1 IS BAD

```

## COMMON TAPE MAINTENANCE

PR-1C958-50

## TDC DIAGNOSTIC PROGRAM.

CTAPM W77D

## SUPPORTING SUBROUTINES

```

0117007                                01      SEGRPT 8
-001- 02 # THIS IS PART OF SEGMENT 8
                                03      SEGINC
0117007                                04      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117007 10 000013 004601 ----- -001- 05      CALL   DISPLAY  # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117010                                -001- 06      BSA    DISPLAY
0117010 10 000014 037020 117767 0117767

                                08 # NOW SET UP THE STATUS OF THE LAST BLOCK

0117012 10 000016 130540 045266 LAYOUT 10      LL      R6,I_OBUF  # SET UP R6 WITH THE TR/BLK ID

                                12 # NOW MASK OFF THE BLOCK NUMBER FROM THE CURRENT TRACK/BLOCK
                                13 # ID IN R6 FROM THE TAPE AND STORE IT INTO THE TABLE. THIS WILL
                                14 # PROTECT AGAINST ANY PREVIOUS WRITE TRACK SELECTION FAULTS IN THE
                                15 # HARDWARE, AND AT THE SAME TIME ALLOW THE TEST TO RUN PROPERLY.

                                17 TFAPCH2 OW 0(20)      # 12339
-001- 18      NOTE ***** THE FIRST ADDRESS OVERWRITTEN IS 000020 *****

                                21 # THE LAST BLOCK IS GOOD ON TRK 1 MASK THE BLK AND TRK AND STORE
                                22 # IT IN THE TABLE
                                23      BL      PATCH2
0117014 10 000020 037000 115255 0115255 24 RETURN2
0117016                                25      LI      R1,BLKMAX
0117016 10 000022 103421 000527 MASACS 26      EOW
0117020                                -001- 27      NOTE ***** THE LAST ADDRESS OVERWRITTEN IS 000023 *****

                                30      AN      R1,1      # ADD ONE TO BLKMAX (R1)
0117020 10 000024 004421 ----- 31      SR      R6,R1      # SUBTRACT BLKMAX FROM THE CURRENT BLOCK'S
                                32      BSA    ERROR1      # NUMBER
0117021 10 000025 005141 ----- 33      BNC    ERROR1      # BRANCH IF THE CF=0 (R1>R6)
0117022 10 000026 055110 ----- 0117132

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COMMON TAPE MAINTENANCE

PR-1C958-50

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

```

0117023          01 ALLTEST
0117023          03      SEGINT 10
-001- 04 # *****
-001- 05 # INITIALIZE THE SEGMENT NUMBER TO 10
-001- 06 # *****

0117023 10 000027 103601 000012      -001- 08      LI      R8,10      # LOAD SEGMENT NUMBER 10 INTO R8
0117025          -001- 09      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117025 10 000031 037020 117767 0117767 -002- 10      BSA      DISPLAY

12 # THIS SECTION WILL SET UP THE STATUS TABLE. (THE TAPE IS AT THE
13 # END OF THE BLOCK THAT IS TO BE READ - EITHER Y OR Y+1). SO
14 # BACKSPACE ONE BLOCK, INCREMENT THE TRACK, READ THE NEXT BLOCK,
15 # CHECK FOR NO SPEED TEST, (IF NO SPEED TEST IS GOING TO BE
16 # RUN, GO BACK TO THE BACKSPACE), READ THE NEXT BLOCK,
17 # SAVE THE TR/BLK ID, THE CRC, AND THE STATUS FLAGS IN THE TABLE,
18 # BACKSPACE, AND BRANCH TO THE FIRST BACKSPACE. THE LOOP IS ENDED
19 # WHEN THE LAST BLOCK IS READ AND THE STATUS IS STORED AWAY.

0117027 10 000033 103070 -----      23      LN      R3,TABLTOP      # SET UP R3 TO INDEX THE FIRST TABLE ENTRY
0117030 10 000034 030520 046765 MASACS      24      LL      R5,I OBUF+CRC      # LOAD R5 WITH THE CRC FROM THE I_O BUFFER
0117032 10 000036 046123 -----      25      STX     R5,R3(RAO)      # STORE THE CRC IN THE FIRST CRC TABLE ENTRY
0117033 10 000037 040146 -----      26      L       R6,N(BLKADDR)(RAO) # LOAD R6 WITH THE BLOCK NUMBER IN THE TABLE

0117034          28      SEGMULT 10,15,20
-001- 29 # THIS SECTION OF CODE MAKES-UP SEGMENTS 10 15 AND 20

0117034          31 RDSTAT

0117034 10 000040 103042 -----      33      LN      R2,2      # SET UP A BX CONSTANT TO CHECK FOR A HARD
                                # ERROR READ
0117035 10 000041 004461 -----      35      AN      R3,1      # UPDATE THE INDEXING REGISTER
0117036 10 000042 003540 004000      36      AI      R6,E(S(TRK)) # ADD 1 TO THE TRACK ADDR.

40 # BACKSPACE TO SET UP THE BLOCK Y READ.

0117040          42 YBS1

0117040          44      CALL   BACKSUB      # THIS BACKSPACE WILL BE USED ALL OF THE TIME
0117040 10 000044 137020 117776 0117776 -001- 45      BSA      BACKSUB

```

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPM W77D

```

0117042 10 000046 155070 ----- 0117132      01      BNC      ERROR1      # GO TO ERROR MESSAGE RETURN BECAUSE BKSP WAS
                                                FATAL

0117043                                     -001- 04      SEGMLT 11,16,21
0117043                                     -001- 05 # THIS SECTION OF CODE MAKES-UP SEGMENTS 11 16 AND 21

0117043                                     07      SEGINC
0117043 10 000047 004601 ----- -001- 08      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117044 -001- 09      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117044 10 000050 037020 117767 0117767 -002- 10      BSA     DISPLAY

                                                12 # TRY TO READ THE BLOCK Y FROM THE TAPE

0117046                                     14      CALL     READSUB    # READ BLOCK 1
0117046 10 000052 137020 120045 0120045 -001- 15      BSA     READSUB
0117050 10 000054 154014 ----- 0117064      16      BC      YSAVE    # IF THE READ WAS GOOD CHECK THE TRACK/BLOCK
                                                ID

                                                21 # CHECK R2 FOR A HARD ERROR INDICATION. IF IT IS NOT = 0 BACKSPACE
                                                22 # AND TRY AGAIN. IF IT IS 0 LOAD R4 WITH A FATAL FLAG AND BRANCH
                                                23 # TO THE NEXT STEP WHICH WILL STORE R4 AND GO ON WITH THE TEST.

0117051                                     25      SEGDEC 1,Y
0117051 10 000055 004217 ----- -001- 26 # SUBTRACT 1 FROM R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117051 -001- 27      SN      R8,1      # SUBTRACT 1 FROM THE SEGMENT IN R8
0117052 -001- 28      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117052 10 000056 037020 117767 0117767 -002- 29      BSA     DISPLAY

0117054 10 000060 136040 117040 0117040      31      BX      R2,YBS1    # IF THE COUNT IS NOT EQUAL TO ZERO RETRY THE
                                                READ

0117056                                     34      SEGINC 2,Y
0117056 10 000062 004602 ----- -001- 35 # ADD 2 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117057 -001- 36      AN      R8,2      # ADD 2 TO THE SEGMENT IN R8
0117057 -001- 37      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117057 10 000063 037020 117767 0117767 -002- 38      BSA     DISPLAY

0117061 10 000065 103501 000001      40      LI      R4,FATAL    # SETUP TO FLAG THE FATAL READ
0117063 10 000067 053015 ----- 0117100      41      B      NEXXT    # CONTINUE WITH THE PART OF THE TEST

0117064                                     45 YSAVE

```

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117064 10 000070 130420 045266 LAYOUT      01 # THE READ WAS GOOD. CHECK THE BLOCK NUMBER AND SAVE THE CRC.
                                                02   LL      R1,I_OBUF      # SET UP R1 WITH THE TR/BLK ID

                                                04 # COMPARE THE EXPECTED BLOCK NUMBER (IN R6) TO THE BLOCK WHICH WAS
0117066 10 000072 017141 003777            05 # READ FROM THE TAPE (IN R1).
0117070 10 000074 055042 ----- 0117132    07   CRM      R6,R1,M(BLKADDR)
                                                08   BNC      ERROR1      # IF THE 2 BLOCK NUMBERS ARE NOT EQUAL IT IS
                                                # AN ERROR

0117071                                     11   SEGMULT 12,17,22
-001- 12 # THIS SECTION OF CODE MAKES-UP SEGMENTS 12 17 AND 22

0117071                                     14   SEGINC
0117071 10 000075 004601 ----- -001- 15   AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117072 -001- 16   CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117072 10 000076 037020 117767 0117767 -002- 17   BSA      DISPLAY

                                                19 # STORE THE CRC IN THE CRC TABLE AFTER THE BLOCK NUMBER IS TESTED
0117074 10 000100 130520 046765 MASACS     20   LL      R5,I_OBUF+CRC  # LOAD R5 WITH THE CRC FROM THE I_O BUFFER
0117076 10 000102 046123 -----          21   STX     R5,R3(RAD)    # STORE THE CRC IN THE CRC TABLE
0117077 10 000103 003100 -----          22   ZR      R4      # SETUP TO STORE THE STATUS OF THE BLOCK

0117100                                     26 NEXXT

                                                28 # STORE THE STATUS BITS. R4 CONTAINS THE STATUS, EITHER R4 = 0
0117100 10 000104 146503 -----          29 # IF THE READ WAS GOOD BEFORE R2 = 0, OR R4 = FATAL IF THE READ
0117101 10 000105 004461 -----          30 # WAS FATAL THREE TIMES (HARD ERROR).

                                                32   STX     R4,R3(RA1)    # STORE THE STATUS IN THE TABLE
0117101 10 000105 004461 -----          33   AN      R3,1      # ADD 1 TO THE INDEX (POINT TO THE NEXT TABLE
                                                # ENTRIES)

                                                38 # THE NEXT STEP IS TO CHECK IF THE TEST IS GOING TO RUN THE SPEED TEST
0117102 10 000106 051105 -----          39 # THIS WAS CALCULATED BEFORE AND THE FLAG WAS SET. TEST THE FLAG AND
0117103 10 000107 055005 ----- 0117110    40 # BRANCH IF IT IS SET, OTHERWISE READ THE NEXT BLOCK

                                                42   TBS     N(CATP)(RAD),S(CATP) # IS THE BIT SET?
0117104                                     43   BNC     Y1READ      # IF NOT CONTINUE WITH THE TEST

0117104                                     45   SEGINC 3,Y
-001- 46 # ADD 3 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117104 10 000110 004603 ----- -001- 47   AN      R8,3      # ADD 3 TO THE SEGMENT IN R8
0117105 -001- 48   CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117105 10 000111 037020 117767 0117767 -002- 49   BSA      DISPLAY

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COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

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SUPPORTING SUBROUTINES

CTAPH W77D

0117107 10 000113 153055 ----- 0117164

02

B

STATFINI

# IF YES GO TO THE START OF THE NEXT READ

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117110 01 Y1READ
0117110 10 000114 103042 ----- 02 LN R2,2 # SET UP R2 WITH THE BX COUNTER AGAIN

0117111 06 Y1READ1
0117111 08 CALL READSUB # READ BLOCK Y+1
0117111 10 000115 137020 120045 0120045 -001- 09 BSA READSUB
0117113 10 000117 154025 ----- 0117140 10 BC Y1SAVE # THE READ WAS GOOD.CHECK THE BLOCK NUMBER
# AND SAVE THE CRC

15 # CHECK R2 FOR A HARD ERROR INDICATION. IF IT IS NOT = 0 BACKSPACE
16 # AND TRY AGAIN. IF IT IS 0 LOAD R4 WITH A FATAL FLAG AND BRANCH
17 # TO THE NEXT STEP WHICH WILL STORE R4 AND GO ON WITH THE TEST.
18 # IF R2 NOT EQUAL TO 0, USE SPECIAL BACKSPACE AND RETRY THE READ

0117114 10 000120 02040 117121 0117121 20 BX R2,ERRBKSP
0117116 10 000122 003501 000001 22 LI R4,FATAL # SETUP TO FLAG THE FATAL READ
0117120 10 000124 004601 ----- 23 AN R8,1
0117121 24 ERBKSP
0117121 25 CALL DISPLAY
0117121 10 000125 137020 117767 0117767 -001- 26 BSA DISPLAY
0117123 10 000127 153032 ----- 0117155 28 B NEXT # GO TO THE NEXT PART OF THE TEST TO STORE
# THE FLAG

0117124 -001- 32 SEGMULT 13,18,23
-001- 33 # THIS SECTION OF CODE MAKES-UP SEGMENTS 13 18 AND 23

0117124 35 SEGINC
0117124 10 000130 004601 ----- -001- 36 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0117125 -001- 37 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117125 10 000131 037020 117767 0117767 -002- 38 BSA DISPLAY

40 # BACKSPACE TO SET UP THE REREAD OF BLOCK Y+1.
0117127 41 CALL BACKSUB # THIS BACKSPACE WILL BE USED AFTER AN ERROR
0117127 10 000133 137020 117776 0117776 -001- 42 BSA BACKSUB
0117131 10 000135 154003 ----- 0117134 43 BC NOERROR1 # BRANCH IF NO ERROR FLAG WAS SET

0117132 45 ERROR1

```

COMMON TAPE MAINTENANCE

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## TDC DIAGNOSTIC PROGRAM.

## SUPPORTING SUBROUTINES

CTAPH W77D

```

0117132 10 000136 137000 117670 0117670      01      BL      ERRORS      # GO TO ERROR RETURN BECAUSE BACKSPACE WAS
                                                FATAL

0117134                                          04 NOERROR1

0117134                                          06      SEGDEC 1,Y
-001- 07 # SUBTRACT 1 FROM R8,TO SET-UP THE ENTRY TO THE NEXT SEGMENT
-001- 08      SN      R8,1      # SUBTRACT 1 FROM THE SEGMENT IN R8
0117134 10 000140 104217 -----      -001- 09      CALL      DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117135      -001- 09      CALL      DISPLAY
0117135 10 000141 037020 117767 0117767      -002- 10      BSA      DISPLAY

0117137 10 000143 153752 ----- 0117111      12      B      Y1READ1      # BACKSPACE IS GOOD. GO TO REREAD BLOCK Y+1

0117140                                          16 Y1SAVE

0117140                                          18 # THE READ WAS GOOD. CHECK THE TR/BLK ID AND SAVE THE CRC IF
0117140                                          19 # THE THE BLOCK NUMBER IS GOOD.

0117140 10 000144 130420 045266 LAYOUT      21      LL      R1,I_OBUF      # SET UP R1 WITH THE TR/BLK ID
0117142 10 000146 004037 -----      22      SN      R1,1      # SUBTRACT 1 FROM THE BLOCK NUMBER IN R1.

0117140                                          24 # COMPARE THE EXPECTED BLOCK NUMBER (IN R6) TO THE BLOCK WHICH WAS
0117140                                          25 # READ FROM THE TAPE (IN R1).

0117143 10 000147 017141 003777      27      CRM      R6,R1,M(BLKADDR)
0117145 10 000151 055765 ----- 0117132      28      BNC      ERROR1      # IF THE 2 BLOCK NUMBERS ARE NOT EQUAL.IT IS
                                                AN ERROR

0117146                                          31      SGINC 2
0117146 10 000152 004602 -----      -001- 32      AN      R8,2      # ADD 2 TO THE SEGMENT IN R8
0117147      -001- 33      CALL      DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117147 10 000153 037020 117767 0117767      -002- 34      BSA      DISPLAY

0117151                                          36      SEGMULT 14,19,24
-001- 37 # THIS SECTION OF CODE MAKES-UP SEGMENTS 14 19 AND 24

0117151 10 000155 130520 046765 MASACS      39 # STORE THE CRC IN THE CRC TABLE AFTER THE BLOCK NUMBER IS TESTED
0117153 10 000157 046123 -----      40      LL      R5,I_OBUF+CRC      # LOAD R5 WITH THE CRC FROM THE I_O BUFFER
0117154 10 000160 003100 -----      41      STX      R5,R3(RAO)      # STORE THE CRC IN THE CRC TABLE
                                                42      ZR      R4      # SETUP TO STORE THE STATUS OF THE BLOCK

0117155                                          44 NEXTT

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COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

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SUPPORTING SUBROUTINES

CTAPH 477D

01 # STORE THE STATUS BITS. R4 CONTAINS THE STATUS, EITHER R4 = 0  
02 # IF THE READ WAS GOOD BEFORE R2 = 0, OR R4 = FATAL IF THE READ  
03 # WAS FATAL THREE TIMES (HARD ERROR).

0117155 10 000161 146503 -----

05 STX R4,R3(RA1) # STORE THE STATUS IN THE TABLE

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.  
SUPPORTING SUBROUTINES

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CTAPM W77D

01 # AFTER READING BLOCK Y+1, BACKSPACE ONE BLOCK

```

0117156          05      CALL  BACKSUB      # THIS BACKSPACE WILL BE USED SET UP EITHER
                                                THE
0117156 10 000162 037020 117776 0117776 -001- 07      BSA    BACKSUB      # BEGINING OF THE NEXT READ OR THE FIRST
0117160          08                                     WRITE
0117160 10 000164 155752 ----- 0117132    10      BNC    ERROR1      # GO TO ERROR RETURN BECAUSE THE BACKSPACE
                                                WAS FATAL

0117161          15      SEGMULT 15,20,25
-001- 16 # THIS SECTION OF CODE MAKES-UP SEGMENTS 15 20 AND 25

0117161          18      SEGINC
0117161 10 000165 004601 ----- -001- 19      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117162          20      CALL  DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117162 10 000166 037020 117767 0117767 -002- 21      BSA    DISPLAY

0117164          23 STATFINI

0117164 10 000170 103465 000016    25      CI      R3,LSTY1ENT      # IS R3 INDEXING THE ENTERY FOR BLOCK Y+1,
                                                TRACK ADDR. 3
27 # *****
28 # THIS IS THE EXIT CHECK FOR THIS LOOP
29 # *****
0117166 10 000172 055646 ----- 0117034. 30      BNC    RDSTAT      # IF NOT BRANCH BACK TO CONTINUE WITH THIS
                                                LOOP

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117167          01      SEGINT 30
-001- 02 # *****
-001- 03 # INITIALIZE THE SEGMENT NUMBER TO 30
-001- 04 # *****

0117167 10 000173 003601 000036      -001- 06      LI      R8,30          # LOAD SEGMENT NUMBER 30 INTO R8
0117171          -001- 07      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117171 10 000175 037020 117767 0117767 -002- 08      BSA    DISPLAY

10 # THIS STEP OF THE TEST WILL TRY TO USE THE WRITE CIRCUITS. TRACK
11 # ADDR. 1 IS WRITTEN FIRST, THEN THE NEXT TRACK IS READ TO SEE IF
12 # THE PREVIOUS WRITE HAS EFFECTED IT IN ANY DETECTABLE WAY. THEN
13 # THE PROCESS IS REPEATED FOR TRACK ADDR. 2 AND 3. THE LOOP IS
14 # FINISHED WHEN TRACK ADDR. 3 HAS BEEN WRITTEN.

18 # RAD IS SETUP WITH THE ADDRESS OF THE 'STATUS'. SET UP R3 WITH
19 # AN INDEX POINTING TO THE 2ND ENTRIES AND LOAD R6 WITH THE BLOCK
20 # NUMBER OF THE FIRST BLOCK READ FROM TAPE, ADD 1 TO THE TRACK
21 # ADDRESS AND STORE IT AWAY.

0117173 10 000177 103071 -----      25      LN      R3,SNDOENT      # SET UP INDEX TO POINT TO THE SECOND TABLE
                                           ENTRY
0117174 10 000200 042503 -----      27      LX      R4,R3(RA1)      # LOAD R4 WITH THE PRIOR STATUS COLLECTED
                                           EARLIER.
0117175 10 000201 040146 -----      29      L       R6,N(BLKADDR)(RAD) # LOAD R6 WITH THE BLOCK NUMBER IN THE TABLE
0117176 10 000202 003540 004000      30      AI      R6,E(S(TRK))    # ADD 1 TO THE TRACK ADDR.

0117200          32 WRITE1

0117200          34      SEGMULT 30,37,44
-001- 35 # THIS SECTION OF CODE MAKES-UP SEGMENTS 30 37 AND 44

0117200 10 000204 103042 -----      37      LN      R2,2          # LOAD R2 WITH A BX COUNTER FOR HARD ERROR
                                           DETECTION

0117201          40 WRBKSP

0117201          42      CALL   BACKSUB      # BACKSPACE TO SET UP THE NEXT WRITE
0117201 10 000205 137020 117776 0117776 -001- 43      BSA    BACKSUB
0117203 10 000207 155727 ----- 0117132 44      BNC    ERROR1      # THE BACKSPACE WAS BAD.

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COMMON TAPE MAINTENANCE

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## TDC DIAGNOSTIC PROGRAM.

## SUPPORTING SUBROUTINES

CTAPH

W77D

```

0117204 ' -001- 01 SEGMLT 31,38,45
-001- 02 # THIS SECTION OF CODE MAKES-UP SEGMENTS 31 38 AND 45

0117204 04 SEGINC
0117204 10 000210 004601 ----- -001- 05 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0117205 -001- 06 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117205 10 000211 037020 117767 0117767 -002- 07 BSA DISPLAY

0117207 09 CALL WRITESUB # WRITE BLOCK Y WITH THE GENERATED DATA
0117207 10 000213 137020 120017 0120017 -001- 10 BSA WRITESUB
0117211 10 000215 154017 ----- 0117230 11 BC CRCSTORE # THE WRITE WAS GOOD

13 # THIS BRANCH IS TAKEN WHEN A FATAL ERROR IN THE WRITE ROUTINE HAS
14 # BEEN DETECTED.THE BX COUNTER IN R2 IS USED TO DECIDE IF THE FATAL
15 # WRITE WAS A SOFT OR HARD ERROR. IF R2=0 IT IS A HARD ERROR AND
16 # THIS PART OF THIS TEST HAS FAILED.

0117212 18 SEGDEC 1,Y
-001- 19 # SUBTRACT 1 FROM R8,TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117212 10 000216 004217 ----- -001- 20 SN R8,1 # SUBTRACT 1 FROM THE SEGMENT IN R8
0117213 -001- 21 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117213 10 000217 037020 117767 0117767 -002- 22 BSA DISPLAY

0117215 10 000221 136040 117201 0117201 24 BX R2,WRBKSP # IS R2 = 0, IF NO TRY AGAIN.

0117217 26 SEGINC 1,Y
-001- 27 # ADD 1 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117217 10 000223 004601 ----- -001- 28 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0117220 -001- 29 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117220 10 000224 037020 117767 0117767. -002- 30 BSA DISPLAY

32 # NOW CHECK IF THIS BLOCK COULD BE READ BEFORE

0117222 10 000226 114104 ----- 34 TZ R4 # IF THIS BLOCK WAS READABLE R4 = 0
0117223 10 000227 054707 ----- 0117132 35 BC ERROR1 # IF R2 = 0, THERE IS A HARD ERROR

0117224 37 SEGMLT 32,39,46
-001- 38 # THIS SECTION OF CODE MAKES-UP SEGMENTS 32 39 AND 46

0117224 40 SEGINC
0117224 10 000230 004601 ----- -001- 41 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0117225 -001- 42 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117225 10 000231 037020 117767 0117767 -002- 43 BSA DISPLAY

45 # IF R4 IS NOT EQUAL TO 0, THEN THIS BLOCK COULD NOT BE READ
46 # AND THERE MAY BE OTHER PROBLEMS (BAD TAPE,A WRITE PROBLEM WHICH
47 # HAS NOT BEEN FIXED)
0117227 10 000233 153703 ----- 0117132 48 B ERROR1 # THERE MAY BE OTHER PROBLEMS

```

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117230                                01 CRCSTORE
0117230                                03      SEGMLT 33,40,47
-001- 04 # THIS SECTION OF CODE MAKES-UP SEGMENTS 33 40 AND 47

0117230                                06      SEGINC 2
0117230 10 000234 104602 ----- -001- 07      AN      R8,2          # ADD 2 TO THE SEGMENT IN R8
0117231                                -001- 08      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117231 10 000235 037020 117767 0117767 -002- 09      BSA    DISPLAY

11 # THE WRITE OF THIS BLOCK IS DONE, STORE THE CRC AND CONTINUE
12      LL      R5,I_OBUF+CRC      # LOAD R5 WITH THE CRC FROM THE I_O BUFFER
0117235 10 000241 046123 ----- 13      STX    R5,R3(RA0)      # STORE THE NEW CRC IN TO THE CRC TABLE
0117236 10 000242 003465 000015 14      CI      R3,LSTYDENT      # IF R3 = THE LAST BLOCK Y ENTRY, THIS LOOP IS
                                           DONE
16 # *****
17 # THIS IS THE EXIT CHECK FOR THIS LOOP
18 # *****
0117240 10 000244 054056 ----- 0117316 19      BC      READ2          # IF R3 IS POINTING TO THE LAST Y ENTRY EXIT
                                           THIS LOOP

0117241 10 000245 004462 ----- 24      AN      R3,NXTY1ENT      # POINT TO THE NEXT Y BLOCK IN THE TABLE.
0117242 10 000246 042503 ----- 25      LX      R4,R3(RA1)      # LOAD R4 WITH THE PRIOR STATUS COLLECTED
                                           EARLIER.
0117243 10 000247 003540 004000 27      AI      R6,E(S(TRK))      # ADD 1 TO THE TRACK ADDR.

0117245 10 000251 003042 ----- 31      LN      R2,2          # LOAD R2 WITH A BX COUNTER FOR HARD ERROR
                                           DETECTION

0117246                                34 YRRBKSP
0117246                                36      CALL   BACKSUB      # BACKSPACE TO SET UP THE NEXT REREAD
0117246 10 000252 137020 117776 0117776 -001- 37      BSA    BACKSUB
0117250 10 000254 155662 ----- 0117132 38      BNC    ERROR1          # THE BACKSPACE WAS BAD.

0117251                                40      SEGMLT 34,41
-001- 41 # THIS SECTION OF CODE MAKES-UP SEGMENTS 34 AND 41

0117251                                43      SEGINC
0117251 10 000255 004601 ----- -001- 44      AN      R8,1          # ADD 1 TO THE SEGMENT IN R8
0117252                                -001- 45      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117252 10 000256 037020 117767 0117767 -002- 46      BSA    DISPLAY

```

COMMON TAPE MAINTENANCE

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## SUPPORTING SUBROUTINES

CTAPH W77D

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0117254
0117254 10 000260 137020 120045 0120045 -001- 01 CALL READSUB # REREAD BLOCK Y TO SEE IF IT IS THE SAME
0117256 10 000262 154017 ----- 0117275 02 BSA READSUB
03 BC YRRNOERR # THE REREAD WAS GOOD. GOTO CHECK WHAT IT WAS

05 # THERE WERE ERRORS IN THE REREAD OF BLOCK Y. CHECK IF THIS BLOCK
06 # WAS FLAGGED AS FATAL BEFORE. IF IT WAS THEN THIS IS THE RIGHT LEG
07 # AND NOTHING HAS CHANGED. IF IT WAS READABLE THE FIRST TIME, BX USING
08 # R2 UNTILL R2=0. THEN IT IS ASSUMED THAT A PREVIOUS WRITE DESTROYED
09 # THIS BLOCK.

0117257
-001- 11 SEGINC 3,Y
-001- 12 # ADD 3 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117257 10 000263 004603 ----- -001- 13 AN R8,3 # ADD 3 TO THE SEGMENT IN R8
0117260 -001- 14 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117260 10 000264 037020 117767 0117767 -002- 15 BSA DISPLAY

0117262 10 000266 114104 ----- 17 TZ R4 # CHECK R4 FOR ZERO
0117263 10 000267 055715 ----- 0117200 18 BNC WRITE1 # IF R4 IS NOT = 0 THIS IS THE RIGHT LEG,
CONTINUE

0117264
-001- 20 SEGDEC 4,Y
0117264 10 000270 004214 ----- -001- 21 # SUBTRACT 4 FROM R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117265 -001- 22 SN R8,4 # SUBTRACT 4 FROM THE SEGMENT IN R8
0117265 10 000271 037020 117767 0117767 -001- 23 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
-002- 24 BSA DISPLAY

0117267 10 000273 136040 117246 0117246 26 BX R2,YRRBKSP # IF R4=0, CHECK R2 FOR 0. IF R2 NO = 0 TRY
AGAIN.

0117271
-001- 28 SEGINC 1,Y
0117271 10 000275 004601 ----- -001- 29 # ADD 1 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117272 -001- 30 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0117272 10 000276 037020 117767 0117767 -001- 31 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
-002- 32 BSA DISPLAY

0117274 10 000300 153636 ----- 0117132 34 B ERROR1 # IF R2=0, ASSUME A PREVIOUS WRITE DESTROYED
THIS BLOCK

0117275 39 YRRNOERR

0117275
-001- 41 SEGMULT 35,42
-001- 42 # THIS SECTION OF CODE MAKES-UP SEGMENTS 35 AND 42

0117275
-001- 44 SEGINC
0117275 10 000301 104601 ----- -001- 45 AN R8,1 # ADD 1 TO THE SEGMENT IN R8
0117276 -001- 46 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117276 10 000302 037020 117767 0117767 -002- 47 BSA DISPLAY

```

## COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

01 # THIS BRANCH IS TAKEN WHEN A REREAD OF BLOCK Y IS GOOD. THIS LEG
02 # BEEN CHANGED. THE SAME IS TRUE FOR THE CRC, IF IT HAS CHANGED
03 # OF THIS CHECK WILL 1) SEE IF THIS BLOCK WAS READABLE BEFORE, AND
04 # 2) CHECK THE CRC TO SEE IF IT IS WHAT IT SHOULD BE. IF BOTH OF
05 # THESE TESTS ARE PASSED THEN THE BLOCK APPEARS TO BE UNCHANGED
06 # FROM THE TIME THE CRC WAS ENTERED INTO THE TABLE AND NOW, THE
07 # BLOCK HAS BEEN CHANGED BY A PREVIOUS WRITE. (IF THE READ SELECT
08 # AND THE WRITING OF THIS BLOCK CAN CONTINUE. BUT, IF R4 IS NOT
09 # EQUAL TO 0, THEN THIS BLOCK (UNREADABLE BEFORE, READABLE NOW) HAS
10 # AND THE CRC CIRCUITS ARE RELIABLE.) EITHER CASE IS AN ERROR.

0117300 10 000304 114104 ----- 12      TZ      R4          # TEST IF R4 = 0. (R4 = 0 IF THIS BLOCK WAS
                                # READABLE BEFORE)
0117301 10 000305 055631 ----- 0117132 14      BNC      ERROR1     # IF R4 IS NOT 0, THEN A UNREADABLE BLOCK IS
                                # READABLE

0117302                                19      SEGMULT 36,43
-001- 20 # THIS SECTION OF CODE MAKES-UP SEGMENTS 36 AND 43

0117302                                22      SEGINC
0117302 10 000306 004601 ----- -001- 23      AN      R8,1        # ADD 1 TO THE SEGMENT IN R8
0117303                                -001- 24      CALL   DISPLAY     # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117303 10 000307 037020 117767 0117767 -002- 25      BSA    DISPLAY

0117305 10 000311 142023 ----- 27      LX      R1,R3(RA0)   # GET THE OLD CRC FROM THE TABLE
0117306 10 000312 030520 046765 MASACS 28      LL      R5,I_0BUF+CRC # LOAD R5 WITH THE CRC FROM THE I_0 BUFFER
0117310 10 000314 020025 ----- 29      CR      R1,R5      # COMPARE THE OLD AND THE NEW CRC'S
0117311 10 000315 055621 ----- 0117132 30      BNC    ERROR1     # BRANCH IF THE CRC ARE NOT THE SAME

0117312                                34      SEGMULT 37,44
-001- 35 # THIS SECTION OF CODE MAKES-UP SEGMENTS 37 AND 44

0117312                                37      SEGINC
0117312 10 000316 004601 ----- -001- 38      AN      R8,1        # ADD 1 TO THE SEGMENT IN R8
0117313                                -001- 39      CALL   DISPLAY     # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117313 10 000317 037020 117767 0117767 -002- 40      BSA    DISPLAY

42 # IF R4=0 AND THE CRC'S ARE THE SAME THEN IT IS ASSUMED TO BE SAFE
43 # TO OVER-WRITE THE BLOCK. THEREFORE BRANCH TO THE WRITE TEST.

0117315 10 000321 153663 ----- 0117200 45      B      WRITE1

```

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117316          01 READ2
0117316          03      SEGINT 50
-001- 04 # *****
-001- 05 # INITIALIZE THE SEGMENT NUMBER TO 50
-001- 06 # *****

0117316 10 000322 103601 000062 -001- 08      LI      R8,50          # LOAD SEGMENT NUMBER 50 INTO R8
0117320 -001- 09      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117320 10 000324 037020 117767 0117767 -002- 10      BSA      DISPLAY

```

```

12 # THE NEXT STEP IN THIS TEST IS TO CONFIRM THAT THE BLOCKS WHICH
13 # WERE SUPPOSED TO BE WRITTEN ON THE TAPE, ARE OUT THERE. THIS IS
14 # DONE BY READING THE BLOCKS AGAIN AND COMPARING THE CRC'S IN THE
15 # STATUS TABLE TO THE CRC'S OF THE BLOCKS ON THE TAPE. THEN THE
16 # 2ND BLOCKS ARE READ, BLOCKS Y+1. IF THESE BLOCKS WERE, AND STILL
17 # ARE GOOD THEN THE TEST IS OVER AND THE DIANOSTIC WILL REPOSITION
18 # THE TAPE INSIDE THE NORMAL SYSTEM DATA AREA.

```

```

20 # IF THE SPEED TEST IS NOT GOING TO BE RUN BECAUSE THE TAPE IS TOO
21 # SHORT, THE REREAD OF BLOCK Y IS STILL DONE TO DETECT ANY FAULTS
22 # IN THE WRITE CIRCUITS, AND IF THE TESTS PASS, THE DIAGNOSTIC
23 # WILL PRINT OUT A FAIL MESSAGE WHICH CAN BE EQUATED TO A
24 # SHORT (BAD) TAPE, INSTEAD OF A BAD PEICE OF HARDWARE EITHER IN
25 # THE TDC OR THE MINI-RECORDER.

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```

27 # IF THE SPEED TEST IS GOING TO BE RUN AND ANY OF THE Y+1
28 # BLOCKS WERE FLAGGED AS UNREADABLE AT THE START, THEN THE BAD Y+1
29 # BLOCK(S) MUST BE WRITTEN CORRECTLY, THEN BLOCK Y MUST BE REWRITTEN,
30 # THEN THE BLOCK Y+1 MUST BE REREAD TO DETECT SPILL OVER WHICH IS
31 # CAUSED BY A SPEED ERROR OF THE TRANSPORT. THIS REWRITING OF BLOCK
32 # Y+1 IS AN ADDITIONAL STEP OUTSIDE OF THE LOOP USED TO REREAD
33 # THE BLOCKS WHICH WERE READABLE AT THE START AND IS ATEMPTED AFTER
34 # THE OTHER TESTS OF THE WRITE CIRCUITS HAVE PASSED THE OTHER TESTS.

```

```

36 # OTHER ERRORS WHICH WILL CAUSE THIS STEP TO FAIL ARE A FATAL READ
37 # OR BACKSPACE, OR IF THE WRITES ARE DESTRUCTIVE OR HAVE NO EFFECT
38 # ON THE TAPE (NO POWER TO THE ERASE/WRITE HEADS, FOR AN EXAMPLE)

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

01 # THIS SECTION IS SIMILAR TO THE ONE THAT COLLECTED THE INFORMATION  
 02 # FOR THE STATUS TABLE, EXCEPT THIS TIME IT CHECKS WHAT IS ON THE  
 03 # TAPE AGAINST WHAT THE STATUS TABLE SAYS IT SHOULD BE.

07 # AFTER THE WRITE CIRCUITS HAVE BEEN USED, THE FIRST BLOCK TO BE  
 08 # CHECKED AGAINST THE STATUS TABLE IS BLOCK Y, TRACK ADDR. 0. THIS  
 09 # IS DONE (AFTER A BACKSPACE) TO INSURE THAT THE WRITE PROTECTED  
 10 # TRACK IS SAFE FROM WRITES TO TRACK ADDR.'S 1, 2, AND 3.

14 # THIS LOOP WILL BACKSPACE TO SET UP THE READ OF BLOCK Y, READ IT,  
 15 # AND IF THERE IS NO HARD ERROR, CHECK THE CRC IN THE STATUS TABLE  
 16 # AGAINST THE CRC READ OFF THE TAPE (IN THE I\_O BUFFER) TO SEE IF  
 17 # IT IS WHAT THE TABLE SAYS IT SHOULD BE. IF IT IS CHECK IF THE  
 18 # SPEED TEST IS TO BE RUN. IF IT IS, TEST THE STATUS OF THE  
 19 # BLOCK Y+1. IF IT WAS BAD GO TO READ THE NEXT BLOCK Y. IF IT IS  
 20 # GOOD, READ IT TO SEE IF THE WRITE OF BLOCK Y HAS EFFECTED IT  
 21 # (THIS BLOCK WILL BE UNREADABLE IF THERE IS A SPEED ERROR)

23 # THIS LOOP STARTS WITH THE TAPE HEADS AFTER THE THE BLOCK Y,  
 24 # AND STARTS BY REREADING THE WRITE PROTECTED TRACK, TRACK ADDR. 0.  
 25 # IF THIS FIRST REREAD FAILS THERE IS A REAL PROBLEM IN THIS TDC.  
 26 # AFTER THE FIRST BLOCK IS READ (NO HARD FAIL) THE BLOCKS Y AND Y+1  
 27 # ARE READ OFF THE REMAINING TRACKS, PROVIDED THAT THE FIRST READ  
 28 # OF THE BLOCK Y+1 UNDER TEST WAS NOT A HARD ERROR. IF IT WAS THE  
 29 # LAST STEP WILL BE USED TO WRITE BLOCK Y+1, REWRITE BLOCK Y+1,  
 30 # REWRITE Y, THEN REREAD Y+1 TO CHECK FOR THE SPEED ERROR.

0117322 10 000326 140146 -----	34	L	R6,N(BLKADDR)(RAD)	# LOAD R6 WITH THE BLOCK NUMBER
0117323 10 000327 003070 -----	35	LN	R3,TABLTOP	# SET UP THE INDEX TO THE FIRST TABLE ENTRY
0117324 10 000330 053003 ----- 0117327	36	B	CHKSTAT	# BRANCH AROUND THE 'ADD 1' TO THE SEGMENT NUMBER
0117325	39	CHKSTAT		
0117325	41		SEGMULT 50,54,62,68	
	-001-	42	# THIS SECTION OF CODE MAKES-UP SEGMENTS 50 54 62 AND 68	
0117325 10 000331 103540 004000	44	AI	R6,E(S(TRK))	# ADD 1 TO THE TRACK ADDR.

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH

W77D

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0117327          01 CHKSTAT
0117327 10 000333 1425C3 ----- 03      LX      R4,R3(RA1)      # LOAD R4 WITH THE PRIOR STATUS COLLECTED
                                                EARLIER.
0117330 10 000334 003042 ----- 05      LN      R2,2          # SET UP R2 WITH A BX COUNTER FOR HARD ERROR
                                                ON THE READ

                                08 # BACKSPACE TO SET UP THE BLOCK Y REREAD.

0117331          10 YBS2
0117331          12      CALL   BACKSUB      # SET UP THE REREAD OF BLOCK Y
0117331 10 000335 137020 117776 0117776 -001- 13      BSA   BACKSUB
0117333 10 000337 155335 ----- 0117670 14      BNC   ERRORS      # GO TO ERROR MESSAGE RETURN BECAUSE
                                                BACKSPACE WAS FATAL

0117334          19      SEGMULT 51,55,61,69
-001- 20 # THIS SECTION OF CODE MAKES-UP SEGMENTS 51 55 61 AND 69

0117334          22      SEGINC
0117334 10 000340 004601 ----- -001- 23      AN    R8,1          # ADD 1 TO THE SEGMENT IN R8
0117335          -001- 24      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117335 10 000341 037020 117767 0117767 -002- 25      BSA   DISPLAY

                                27 # NOW TRY TO REREAD THE BLOCK Y (THIS READ WILL READ ALL TRACKS)

0117337          29      CALL   READSUB      # REREAD BLOCK Y
0117337 10 000343 137020 120045 0120045 -001- 30      BSA   READSUB
0117341 10 000345 154011 ----- 0117352 31      BC    YCHECK      # THE REREAD WAS GOOD SO CHECK THE TR/BLK ID
                                                AND CRC

                                34 # CHECK R2 FOR A HARD ERROR INDICATION. IF IT IS NOT = 0 BACKSPACE
                                35 # AND TRY AGAIN. IF IT IS EQUAL TO 0 THEN IT IS A HARD ERROR.

0117342 10 000346 036040 117331 0117331 37      BX    R2,YBS2      # IF THE COUNT IS NOT EQUAL TO ZERO RETRY THE
                                                READ

                                40 # NOW CHECK IF THIS BLOCK COULD BE READ BEFORE

0117344 10 000350 014104 ----- 42      TZ    R4          # IF THIS BLOCK WAS READABLE R4 = 0
0117345 10 000351 054323 ----- 0117670 43      BC    ERRORS      # IF R2 = 0, THERE IS A HARD ERROR

0117346          45      SEGMULT 52,56,63,70
-001- 46 # THIS SECTION OF CODE MAKES-UP SEGMENTS 52 56 63 AND 70

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH

W77D

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0117346          01      SEGINC
0117346 10 000352 004601 ----- -001- 02      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117347          -001- 03      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117347 10 000353 037020 117767 0117767 -002- 04      BSA     DISPLAY

                                06 # IF R4 IS NOT EQUAL TO 0, THEN THIS BLOCK COULD NOT BE READ
                                07 # AND THERE MAY BE OTHER PROBLEMS (BAD TAPE, A WRITE PROBLEM WHICH
                                08 # HAS NOT BEEN FIXED)
0117351 10 000355 153317 ----- 0117670 09      B      ERRORS      # THERE MAY BE OTHER PROBLEMS

0117352          13 YCHECK

0117352          15      SEGMULT 53,57,64,71
-001- 16 # THIS SECTION OF CODE MAKES-UP SEGMENTS 53 57 64 AND 71

0117352          18      SEGINC 2
0117352 10 000356 104602 ----- -001- 19      AN      R8,2      # ADD 2 TO THE SEGMENT IN R8
0117353          -001- 20      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117353 10 000357 037020 117767 0117767 -002- 21      BSA     DISPLAY

                                23 # THE REREAD WAS GOOD. CHECK THE CRC.
                                24      LL      R5,I OBUF+CRC    # SET UP R5 WITH THE CRC
0117355 10 000361 130520 046765 MASACS 25      LX      R1,R3(RAO)    # LOAD R1 WITH THE CRC FROM THE TABLE
0117357 10 000363 042023 ----- 26      CR      R1,R5      # IF THE REGISTERS ARE NOT EQUAL THERE IS AN
                                # ERROR
0117361 10 000365 055307 ----- 0117670 28      BNC     ERRORS      # IF THE 2 CRC'S ARE NOT EQUAL IT IS AN ERROR

0117362          30      SEGMULT 54,58,65,72
-001- 31 # THIS SECTION OF CODE MAKES-UP SEGMENTS 54 58 65 AND 72

0117362          33      SEGINC
0117362 10 000366 004601 ----- -001- 34      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117363          -001- 35      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117363 10 000367 037020 117767 0117767 -002- 36      BSA     DISPLAY

0117365 10 000371 104461 ----- 38      AN      R3,1      # INCREMENT THE INDEX

                                40 # THE FIRST TIME THROUGH THE LOOP, AFTER READING TRACK ADDR. 0,
                                41 # THE NEXT PART OF THIS LOOP IS NOT USED BECAUSE THE BLOCK Y+1 ON
                                42 # TRACK ADDR. 0, IS NEVER USED (UNLESS THE SPEED TEST IS NOT RUN
                                43 # BUT THEN THE BLOCK HAS BEEN READ). BRANCH TO READ THE BLOCK Y
                                44 # OFF OF TRACK ADDR. 1, IF TRACK ADDR. 0, BLOCK Y WAS JUST READ

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

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0117366 10 000372 003465 000011      01      CI      R3,SNDY0ENT      # CHECK IF THIS IS THE FIRST TIME THROUGH
                                          THIS LOOP
0117370 10 000374 054735 ----- 0117325  03      BC      CHCKSTAT      # IF YES, THE REST OF THIS LOOP IS USELESS

07 # THE NEXT STEP IS TO CHECK IF THE TEST IS GOING TO RUN THE SPEED TEST
08 # THIS WAS CALCULATED BEFORE AND THE FLAG WAS SET. TEST THE FLAG AND
09 # BRANCH IF IT IS SET, OTHERWISE REREAD THE NEXT BLOCK

0117371      11      SEGINC 3,Y
-001- 12 # ADD 3 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117371 10 000375 004603 ----- -001- 13      AN      R8,3      # ADD 3 TO THE SEGMENT IN R8
0117372      -001- 14      CALL  DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117372 10 000376 037020 117767 0117767 -002- 15      BSA  DISPLAY

0117374 10 000400 151105 -----      17      TBS  N(CATP)(RAD),S(CATP) # IS THE BIT SET?
0117375 10 000401 054041 ----- 0117436  18      BC  CHCKFINI      # IF YES, GO CHECK IF THIS WAS THE LAST BLOCK

0117376 10 000402 042503 -----      22      LX  R4,R3(RA1)      # LOAD R4 WITH THE OLD STATUS SAVED IN THE
                                          TABLE
0117377 10 000403 014104 -----      24      TZ  R4      # TEST IF THIS BLOCK HAD A HARD READ ERROR
                                          THE FIRST ATTEMPT
0117400 10 000404 055036 ----- 0117436  26      BNC  CHCKFINI      # IF THIS BLOCK COULD NOT BE READ, SKIP THIS
                                          PART

0117401      28      SEGDEC 3,Y
-001- 29 # SUBTRACT 3 FROM R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117401 10 000405 004215 ----- -001- 30      SN  R8,3      # SUBTRACT 3 FROM THE SEGMENT IN R8
0117402      -001- 31      CALL  DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117402 10 000406 037020 117767 0117767 -002- 32      BSA  DISPLAY

0117404 10 000410 103042 -----      34      LN  R2,2      # SET UP R2 WITH THE BX COUNTER AGAIN

0117405      38 Y1READ2

0117405      40      CALL  READSUB      # REREAD BLOCK Y+1
0117405 10 000411 137020 120045 0120045 -001- 41      BSA  READSUB
0117407 10 000413 154016 ----- 0117425  42      BC  Y1BS2      # THE REREAD WAS GOOD. NO SPEED ERROR

44 # CHECK R2 FOR A HARD ERROR INDICATION. IF IT IS NOT = 0 BACKSPACE
45 # AND TRY AGAIN.
46 # IF R2 NOT EQUAL TO 0, USE SPECIAL BACKSPACE AND RETRY THE READ
0117410 10 000414 036040 117413 0117413  47      BX  R2,ERRBKSP2
0117412 10 000416 053256 ----- 0117670  48      B  ERRORS      # IF A HARD ERROR OCCURS THEN THERE IS A
                                          SPEED ERROR

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPM

W77D

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                                04 # BACKSPACE TO SET UP THE REREAD OF BLOCK Y+1.
0117413                                06 ERRBKSP2
0117413                                08      SEGMULT 59,66,73
-001- 09 # THIS SECTION OF CODE MAKES-UP SEGMENTS 59 66 AND 73
0117413                                11      SEGINC
0117413 10 000417 104601 ----- -001- 12      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117414                                -001- 13      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117414 10 000420 037020 117767 0117767 -002- 14      BSA     DISPLAY
0117416                                16      CALL     BACKSUB    # THIS BACKSPACE WILL BE USED ONLY AFTER AN
                                                ERROR
0117416 10 000422 137020 117776 0117776 -001- 18      BSA     BACKSUB    # GO TO ERROR RETURN BECAUSE BACKSPACE WAS
0117420 10 000424 155250 ----- 0117670 19      BNC     ERRORS      FATAL
0117421                                21      SEGDEC 1,Y
-001- 22 # SUBTRACT 1 FROM R8,TO SET-UP THE ENTRY TO THE NEXT SEGMENT
0117421 10 000425 004217 ----- -001- 23      SN      R8,1      # SUBTRACT 1 FROM THE SEGMENT IN R8
0117422                                -001- 24      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117422 10 000426 037020 117767 0117767 -002- 25      BSA     DISPLAY
0117424 10 000430 153761 ----- 0117405 27      B      Y1READ2    # BACKSPACE IS GOOD. GO TO REREAD BLOCK Y+1

0117425                                31 Y1BS2
0117425                                33      SEGMULT 60,67,74
-001- 34 # THIS SECTION OF CODE MAKES-UP SEGMENTS 60 67 AND 74
0117425                                36      SEGINC 2
0117425 10 000431 104602 ----- -001- 37      AN      R8,2      # ADD 2 TO THE SEGMENT IN R8
0117426                                -001- 38      CALL     DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117426 10 000432 037020 117767 0117767 -002- 39      BSA     DISPLAY
0117430                                41 # BACK BLOCK TO SETUP EITHER THE TOP OF THIS LOOP OR
                                                42 # THE START OF THE NEXT LOOP.
0117430                                43      CALL     BACKSUB    # THIS BACKSPACE WILL BE USED SET UP THE NEXT
                                                READ
0117430 10 000434 137020 117776 0117776 -001- 45      BSA     BACKSUB    # GO TO ERROR RETURN BECAUSE THE BACKSPACE
0117432 10 000436 155236 ----- 0117670 46      BNC     ERRORS      WAS FATAL

```

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117433      01      SEGMLT 61,68,75
-001- 02 # THIS SECTION OF CODE MAKES-UP SEGMENTS 61 68 AND 75

0117433      04      SEGINC
0117433 10 000437 004601 ----- -001- 05      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117434      -001- 06      CALL   DISPLAY  # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117434 10 000440 037020 117767 0117767 -002- 07      BSA    DISPLAY

0117436      09      CHCKFINI

0117436 10 000442 103465 000016      11      CI      R3,LSTY1ENT      # IS R3 INDEXING THE ENTRY FOR BLOCK Y+1,
                                           TRACK ADDR. 3
13 # *****
14 # THIS IS THE EXIT CHECK FOR THIS LOOP
15 # *****
0117440 10 000444 054003 ----- 0117443      16      BC      RPARCK
0117441 10 000445 004461 -----      17      AN      R3,1      # INCREMENT THE INDEX
0117442 10 000446 053663 ----- 0117325      18      B      CHCKSTAT      # BRANCH BACK TO CONTINUE WITH THIS LOOP

```

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPM

W77D

0117443

01 RPARCK

03 # THIS STEP WILL CHECK THE STATUS TABLE TO SEE IF ANY DLOCK Y+1  
 04 # WAS FLAGGED AS A HARD ERROR AT THE START. IF NONE OF THE FLAGS  
 05 # FOR A HARD ERROR WERE SET IN THE STATUS TABLE AT THE START, THE  
 06 # TEST IS READY TO POSITION THE TAPE BACK INSIDE THE NORMAL SYSTEM  
 07 # DATA AREA. IF ANY OF THE BLOCKS WERE FLAGGED AS A HARD ERROR IN  
 08 # THE STATUS TABLE GENERATION STEP, IT WILL HAVE TO BE REWRITTEN.  
 09 # AFTER THIS BLOCK IS READABLE BLOCK Y ON THE SAME TRACK HAS TO BE  
 10 # REWRITTEN. AFTER BLOCK Y IS REWRITTEN BLOCK Y+1 HAS TO BE REREAD  
 11 # TO DETECT A SPEED ERROR. (A SPEED HAS OCCURRED IF BLOCK Y+1 IS NO  
 12 # LONGER READABLE)

14 # FIRST CHECK IF THIS BLOCK HAS BEEN FLAGGED AS AN UNREADABLE BLOCK  
 15 # IF IT IS NOT IN NEED OF REWRITING CHECK THE OTHER BLOCKS' STATUS  
 16 # FLAGS. IF IT HAS TO BE REWRITTEN BRANCH TO THE BEGINING OF THE  
 17 # REWRITE PROCESS.

0117443 10 000447 151410 -----  
 0117444 10 000450 054224 ----- 0117670

0117445  
 0117445 10 000451 004601 -----  
 0117446  
 0117446 10 000452 037020 117767 0117767.

0117450 10 000454 151105 -----  
 0117451 10 000455 054217 ----- 0117670

0117452

0117452 10 000456 003601 000120  
 0117454  
 0117454 10 000460 037020 117767 0117767

0117456 10 000462 103072 -----

21 # FIRST CHECK IF THE SPEED TEST IS NOT RUN  
 22 TBS TABLTOP(RA1),S(FATAL) # WAS THE 2ND LAST BLOCK NO GOOD?  
 23 BC ERRORS # IF YES THERE WAS AN ERROR

25 SEGRPT 76  
 -001- 26 # THIS IS PART OF SEGMENT 76  
 27 SEGINC  
 -001- 28 AN R8,1 # ADD 1 TO THE SEGMENT IN R8  
 -001- 29 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S  
 -002- 30 BSA DISPLAY

32 TBS N(CATP)(RAD),S(CATP) # IS THE BIT SET?  
 33 BC ERRORS # THEN BRANCH TO ERRORS (THE TAPE IS TOO SHORT)

36 SEGIN 80  
 -001- 37 # \*\*\*\*\*  
 -001- 38 # INITIALIZE THE SEGMENT NUMBER TO 80  
 -001- 39 # \*\*\*\*\*

-001- 41 LI R8,80 # LOAD SEGMENT NUMBER 80 INTO R8  
 -001- 42 CALL DISPLAY # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S  
 -002- 43 BSA DISPLAY

45 LN R3,FSTY1ENT # SET UP R3 WITH AN INDEX TO THE FIRST Y+1 BLOCK

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117457                                01 Y1CHCK
0117457 10 000463 142503 -----      03      LX      R4,R3(RA1)      # LOAD R4 WITH THE STATUS WORD POINTED TO BY
                                           R3
0117460 10 000464 014104 -----      05      TZ      R4      # TEST IF R4 EQUALS 0 (THIS BLOCK WAS
                                           # READABLE IF R4=0)
0117461 10 000465 055006 ----- 0117467 07      BNC     REPAIR      # IF IT IS NOT ZERO THERE WAS AN ERROR
0117462                                09 ENDTEST
                                           11 # THIS CHECK WILL SEE IF THE TEST IS FINISHED.
0117462 10 000466 103465 000016      13      CI      R3,LSTY1ENT      # IS R3 INDEXING THE ENTRY FOR BLOCK Y+1,
                                           TRACK ADDR. 3
15 # *****
16 # THIS IS THE EXIT CHECK FOR THIS LOOP
17 # *****
0117464 10 000470 054151 ----- 0117635 18      BC      REPOSITI      # IF IT IS, BRANCH TO REPOSITION THE TAPE
0117465 10 000471 004462 -----      19      AN      R3,NXTY1ENT      # POINT TO THE NEXT Y BLOCK IN THE TABLE.
0117466 10 000472 053771 ----- 0117457 20      B      Y1CHCK      # BRANCH TO CHECK THE NEXT STATUS WORD

```

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH

W77D

0117467

01 REPAIR

03 # FIRST STEP IN REWRITING THIS BLOCK IS TO READ THE BLOCK, THEN  
 04 # BACKSPACE THE TRANSPORT TO THE BEGINING OF THE BLOCK. THIS  
 05 # PROCEDURE SHOULD NEGATE ANY ERRORS IN THE TRANSPORT'S SPEED  
 06 # BEFORE THE BLOCK IS REWRITTEN. THIS CAUTION IS TAKEN BECAUSE  
 07 # IT IS PROBABLY AN EARLIER SPEED ERROR WHICH CAUSED THIS BLOCK  
 08 # TO BE UNREADABLE, WITH LITTLE GUARENTEE THAT THE ERROR IS FIXED.

12 # FIRST SET UP SOME POINTERS

0117467 10 000473 140146 -----  
 0117470 10 000474 004541 -----

14 L R6,N(BLKADDR)(RAO) # GET THE BLOCK NUMBER FROM THE TABLE  
 15 AN R6,1 # ADD 1 TO IT, SO IT EQUALS Y+1

19 # NOW CALCULATE WHICH TRACK SHOULD BE REPAIRED BY LOOKING AT  
 20 # THE INDEX IN R3 (R3 = 10, 12, OR 14). R3 IS LOADED INTO R1 TO  
 21 # CALCULATE THE TRACK. FIRST 8 IS SUBTRACTED FROM R1 (R1 NOW = 2, 4,  
 22 # OR 6. THIS IS 2 TIMES THE TRACK). R1 IS DIVIDED BY 2 (R1 NOW =  
 23 # 1, 2, OR 3) AND SHIFT IT INTO THE TRACK ADDRESS'S BIT POSITION.

25 # NOTE : SPECIAL ATTENTION \*\*\*\*\* IF THE TABLE INDEXING CHANGES  
 26 # IN ANY WAY, THIS ALGORITHM M U S T ALSO BE CHANGED

0117471 10 000475 006023 -----  
 0117472 10 000476 003420 177770  
 0117474 10 000500 010421 -----

28 LR R1,R3 # LOAD R1 WITH THE CURRENT INDEX  
 29 SI R1,8 # R1 NOW = 2, 4, OR 6.  
 30 RRN R1,1 # DIVIDE THE CURRENT INDEX BY 2 (BY ROTATING  
 RIGHT 1)  
 32 RLN R1,S(TRK) # SHIFT THE CALCULATED TRACK INTO THE TRACK  
 BIT  
 34 NI R1,M(TRK) # MAKE SURE EVERYTHING BUT THE TRACK BITS = 0

0117475 10 000501 010425 -----

0117476 10 000502 003422 014000

36 # THEN THE CALCULATED TRACK ADDRESS (R1) AND THE CALCULATED BLOCK  
 37 # ADDRESS (R6) ARE LOGICALLY 'OR'ED TOGETHER

0117500 10 000504 014541 -----

39 OR R6,R1 # LOGICALLY 'OR' THE TRACK AND THE BLOCK  
 NUMBER

0117501 10 000505 003044 -----

44 # SET UP R2 WITH A FLAG TO THE HARD ERROR CHECKER SO IT WILL  
 45 # EXPECT A FAILURE ON THE THIS FIRST REREAD OF BLOCK Y  
 46 LN R2,4 # TELL THE CHECK AFTER THE READ THAT THIS  
 SHOULD FAIL

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117502          01 RPARRD
0117502          03          SEGMULT 80,83
-001- 04 # THIS SECTION OF CODE MAKES-UP SEGMENTS 80 AND 83
0117502 10 000506 154047 ----- 0117551          06          BC          RP2BKSP          # THE REREAD WAS GOOD.
0117503          07          CALL          READSUB          # REREAD BLOCK Y+1
0117503 10 000507 037020 120045 0120045 -001- 08          BSA          READSUB
          10 # FIRST CHECK IF R2 = 4. IF IT DOES THEN THIS WAS EXPECTED
          11          CI          R2,4          # WAS IT FLAGGED FOR AN ERROR EXPECT
0117505 10 000511 103445 000004          12          BC          RPWRIT          # IF YES, GO TO THE BACKSPACE/WRITE
0117507 10 000513 054004 ----- 0117513          14 # CHECK R2 FOR A HARD ERROR INDICATION. IF IT IS NOT = 0 BACKSPACE
          15 # AND TRY AGAIN.
0117510 10 000514 036040 117542 0117542          17          BX          R2,RPRDBKSP
0117512 10 000516 053156 ----- 0117670          18          B          ERRORS          # IF R2 = 0, THERE IS A HARD READ ERROR

0117513          22 RPWRIT
0117513 10 000517 103042 -----          24 # THIS IS THE START OF THE WRITE FOR BLOCK Y+1
          25          LN          R2,2          # SET UP R2 WITH A BX COUNTER FOR HARD ERROR
          INDICATION
0117514          28 RPWRBKSP
0117514          30          CALL          BACKSUB          # THIS BACKSPACE WILL SETUP THE WRITE OF Y+1
0117514 10 000520 137020 117776 0117776 -001- 31          BSA          BACKSUB
0117516 10 000522 155152 ----- 0117670          32          BNC          ERRORS          # GO TO ERROR RETURN BECAUSE BACKSPACE WAS
          FATAL
0117517          37          SEGRPT 81
-001- 38 # THIS IS PART OF SEGMENT 81
          39          SEGINC
0117517 10 000523 004601 -----          -001- 40          AN          R8,1          # ADD 1 TO THE SEGMENT IN R8
0117520          -001- 41          CALL          DISPLAY          # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117520 10 000524 037020 117767 0117767 -002- 42          BSA          DISPLAY
          44 # THIS IS THE REPAIR WRITE OF Y+1

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117522          01      CALL  WRITESUB      # WRITE A BLOCK OF GENERATED DATA ONTO THE
                                     TAPE
0117522 10 000526 137020 120017 0120017 -001- 03      BSA  WRITESUB
0117524 10 000530 154012 ----- 0117536      04      BC   RPRDBK      # THE WRITE WAS GOOD

06 # THIS BRANCH IS TAKEN WHEN A FATAL ERROR IN THE WRITE ROUTINE HAS
07 # BEEN DETECTED. THE BX COUNTER IN R2 IS USED TO DECIDE IF THE FATAL
08 # WRITE WAS A SOFT OR HARD ERROR. IF R2=0 IT IS A HARD ERROR AND
09 # THIS PART OF THIS TEST HAS FAILED.

0117525          11      SEGDEC 1,Y
-001- 12 # SUBTRACT 1 FROM R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
-001- 13      SN   R8,1      # SUBTRACT 1 FROM THE SEGMENT IN R8
0117526          -001- 14      CALL  DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117526 10 000532 037020 117767 0117767 -002- 15      BSA  DISPLAY

0117530 10 000534 136040 117514 0117514      17      BX   R2,RPWRBKSP      # IS R2 = 0, IF NO TRY AGAIN.
0117532          18      SEGINC 1,Y
-001- 19 # ADD 1 TO R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT
-001- 20      AN   R8,1      # ADD 1 TO THE SEGMENT IN R8
0117532 10 000536 004601 ----- -001- 21      CALL  DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117533          -001- 22      BSA  DISPLAY
0117533 10 000537 037020 117767 0117767 -002- 22

0117535 10 000541 153133 ----- 0117670      24      B    ERRORS      # THIS BLOCK CAN NOT BE READ AFTER THE WRITE

0117536          28 RPRDBK

0117536          30      SEGRPT 82
-001- 31 # THIS IS PART OF SEGMENT 82
0117536          32      SEGINC
0117536 10 000542 104601 ----- -001- 33      AN   R8,1      # ADD 1 TO THE SEGMENT IN R8
0117537          -001- 34      CALL  DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117537 10 000543 037020 117767 0117767 -002- 35      BSA  DISPLAY

37 # THIS IS THE START OF THE LOOP WHICH READS THE BLOCK THAT
38 # WAS WRITTEN ON THE UNREADABLE BLOCK Y+1.

0117541 10 000545 103042 -----      40      LN   R2,2      # SET UP THE BX COUNTER

0117542          42 RPRDBKSP

0117542          44      CALL  BACKSUB      # THIS BACKSPACE WILL SETUP THE READ OF Y+1
0117542 10 000546 137020 117776 0117776 -001- 45      BSA  BACKSUB
0117544 10 000550 155124 ----- 0117670      46      BNC  ERRORS      # GO TO ERROR RETURN BECAUSE BACKSPACE WAS
                                     FATAL

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPM

W77D

0117545		01	SEGRNT 83		
		-001- 02	# THIS IS PART OF SEGMENT 83		
0117545		03	SEGINC		
0117545	10 000551 004601	-----			
		-001- 04	AN R8,1		# ADD 1 TO THE SEGMENT IN R8
0117546		-001- 05	CALL DISPLAY		# SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117546	10 000552 037020 117767 0117767	-002- 06	BSA DISPLAY		
0117550	10 000554 153732	-----	0117502	08	B RPARRD
					# BACKSPACE IS GOOD. GO TO READ BLOCK Y+1

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPH W77D

```

0117551          01 RP2BKSP
0117551          03      SEGINT 83
-001- 04 # *****
-001- 05 # INITIALIZE THE SEGMENT NUMBER TO 83
-001- 06 # *****

0117551 10 000555 103601 000123      -001- 08      LI      R8,83          # LOAD SEGMENT NUMBER 83 INTO R8
0117553          -001- 09      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117553 10 000557 037020 117767 0117767 -002- 10      BSA    DISPLAY

12 # THIS SECTION WILL BACKSPACE THE TAPE 2 BLOCKS, REWRITE BLOCK Y
13 # AND REREAD BLOCK Y+1. IF BLOCK Y+1 CAN NOT BE READ THERE IS A
14 # SPEED ERROR IN THE TRANSPORT.

16 # IT IS NOT NECESSARY TO SET UP A BX COUNTER ON THE WRITE BECAUSE
17 # 1) THE WRITE CIRCUITS HAVE PASS THE WRITE TESTS, AND THE TEST
18 # WHICH WAS RUN ON THE BLOCK Y+1, AND 2) THE DATA WHICH IS BEING
19 # WRITTEN IS EXPENDABLE (NEVER HAS TO BE READ ERROR FREE)
20 # THEREFORE, THIS WRITE WILL FAIL WITH A SOFT (FATAL) ERROR.

24 # FIRST SET UP A BX COUNTER FOR THE 2 BACKSPACES

0117555 10 000561 103041 -----      26      LN      R2,1          # THIS WILL REPEAT 2 TIMES (IF NO ERRORS
                                         OCCUR)

0117556          29      SEGMULT 84,85
-001- 30 # THIS SECTION OF CODE MAKES-UP SEGMENTS 84 AND 85

0117556          32      SEGINC
0117556 10 000562 004601 -----      -001- 33      AN      R8,1          # ADD 1 TO THE SEGMENT IN R8
0117557          -001- 34      CALL   DISPLAY      # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117557 10 000563 037020 117767 0117767 -002- 35      BSA    DISPLAY

0117561          37 RP2BS

0117561          40      CALL   BACKSUB      # BACKSPACE FOR Y+1 AND Y (ANY TRACK)
0117561 10 000565 137020 117776 0117776 -001- 41      BSA    BACKSUB
0117563 10 000567 155105 ----- 0117670 42      BNC    ERRORS          # GO TO ERROR MESSAGE RETURN BECAUSE
                                         BACKSPACE WAS FATAL

45 # CHECK THE BX COUNTER FOR 0. IF IT IS, THEN THE REWRITE IS READY
0117564 10 000570 036040 117561 0117561 46      BX      R2,RP2BS          # IF R2 NOT = 0, BACKSPACE AGAIN

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPM W77D

```

0117566          01      SEGPRNT 86
-001- 02 # THIS IS PART OF SEGMENT 86
0117566          03      SEGINC
0117566 10 000572 004601 ----- -001- 04      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117567          05      CALL    DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117567 10 000573 037020 117767 0117767 -002- 06      BSA     DISPLAY

08 # IF R2 = 0, THEN THE TAPE IS POSITIONED TO REWRITE BLOCK Y
09 # R6 IS POINTING AT THE Y+1 BLOCK OF DATA, AND NEEDS TO BE
10 # DECREMENTED BY 1 TO POINT TO BLOCK Y, THEN GENDATA IS CALLED.

0117571 10 000575 104157 -----          12      SN      R6,1      # SUBTRACT 1 FROM R6
0117572          13      CALL    WRITESUB    # WRITE A BLOCK OF GENERATED DATA ONTO THE
                                                TAPE
0117572 10 000576 037020 120017 0120017 -001- 15      BSA     WRITESUB
0117574 10 000600 155074 ----- 0117670          16      BNC     ERRORS      # IF THE WRITE WAS FATAL, AND WILL BOMB ON A
                                                SOFT ERROR

0117575          19      SEGPRNT 87
-001- 20 # THIS IS PART OF SEGMENT 87
0117575          21      SEGINC
0117575 10 000601 004601 ----- -001- 22      AN      R8,1      # ADD 1 TO THE SEGMENT IN R8
0117576          23      CALL    DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117576 10 000602 037020 117767 0117767 -002- 24      BSA     DISPLAY

26 # CHECK IF THE BLOCK Y+1, WHICH WAS JUST WRITTEN AND READ FROM
27 # THE TAPE CAN STILL BE READ FROM THE TAPE AFTER THE BLOCK Y WAS
28 # WRITTEN. IF IT IS READABLE (NO SPEED ERROR), CHECK IF THE TEST
29 # IS OVER, IF IT IS NOT READABLE THEN THERE IS A SPEED ERROR.

31 # SET UP SOME POINTERS. 1) IS A BX COUNTER TO DETECT HARD ERRORS
32 # ON THE READ, AND 2) IS THE TRACK/BLOCK ID IN R6

0117600 10 000604 103042 -----          34      LN      R2,2      # SET UP THE BX COUNTER IN R2
0117601 10 000605 004541 -----          35      AN      R6,1      # AJUST THE BLOCK NUMBER IN R6

0117602          37 RPREREAD

0117602          39      CALL    READSUB    # READ BLOCK Y+1
0117602 10 000606 137020 120045 0120045 -001- 40      BSA     READSUB
0117604 10 000610 154016 ----- 0117622          41      BC      RPFINIBS    # THE READ WAS GOOD, BACKSPACE THE TAPE

43 # CHECK R2 FOR A HARD ERROR INDICATION. IF IT IS NOT = 0 BACKSPACE
44 # AND TRY AGAIN. IF IT IS, THERE IS A SPEED ERROR

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COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPM W77D

01 # IF R2 NOT EQUAL TO 0, USE SPECIAL BACKSPACE AND RETRY THE READ

0117605	10	000611	036040	117610	0117610	03	BX	R2,RPRRDBS	# IF R2 IS NOT = 0, RETRY THE READ
0117607	10	000613	053061	-----	0117670	04	B	ERRORS	# IF IT IS THE REREAD OF Y+1 IS FATAL (SPEED ERROR)

09 # BACKSPACE TO SET UP THE REREAD OF BLOCK Y+1.

0117610						11	RPRRDBS		
0117610						13	SEGRPT 88		
						-001- 14	# THIS IS PART OF SEGMENT 88		
0117610						15	SEGINC		
0117610	10	000614	104601	-----		-001- 16	AN R8,1	# ADD 1 TO THE SEGMENT IN R8	
0117611						-001- 17	CALL DISPLAY	# SHOW THE SEGMENT ON THE SSP'S L.E.D.'S	
0117611	10	000615	037020	117767	0117767	-002- 18	BSA DISPLAY		
0117613						20	CALL BACKSUB	# THIS BACKSPACE WILL BE USED ONLY AFTER AN ERROR	
0117613	10	000617	137020	117776	0117776	-001- 22	BSA BACKSUB		
0117615	10	000621	155053	-----	0117670	23	BNC ERRORS	# GO TO ERROR RETURN BECAUSE BACKSPACE WAS FATAL	
0117616						25	SEGDEC 1,Y		
						-001- 26	# SUBTRACT 1 FROM R8, TO SET-UP THE ENTRY TO THE NEXT SEGMENT		
0117616	10	000622	004217	-----		-001- 27	SN R8,1	# SUBTRACT 1 FROM THE SEGMENT IN R8	
0117617						-001- 28	CALL DISPLAY	# SHOW THE SEGMENT ON THE SSP'S L.E.D.'S	
0117617	10	000623	037020	117767	0117767	-002- 29	BSA DISPLAY		
0117621	10	000625	153761	-----	0117602	31	B RPREREAD	# BACKSPACE IS GOOD. GO TO REREAD BLOCK Y+1	

35 RPFINIBS

0117622						37	SEGRPT 89		
						-001- 38	# THIS IS PART OF SEGMENT 89		
0117622						39	SEGINC 2		
0117622	10	000626	104602	-----		-001- 40	AN R8,2	# ADD 2 TO THE SEGMENT IN R8	
0117623						-001- 41	CALL DISPLAY	# SHOW THE SEGMENT ON THE SSP'S L.E.D.'S	
0117623	10	000627	037020	117767	0117767	-002- 42	BSA DISPLAY		

44 # THIS BACKSPACE IS TO PUT THE TRANSPORT BACK TO WHERE IT SHOULD  
 45 # BE, BETWEEN THE BLOCKS Y AND Y+1.

COMMON TAPE MAINTENANCE

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SUPPORTING SUBROUTINES

CTAPM W77D

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0117625          01      CALL   BACKSUB      # THIS POSITIONS THE TAPE BETWEEN BLOCKS Y
                                                AND Y+1
0117625 10 000631 137020 117776 0117776 -001- 03      BSA   BACKSUB
0117627 10 000633 155041 ----- 0117670 04      BNC   ERRORS      # GO TO ERROR RETURN BECAUSE BACKSPACE WAS
                                                FATAL
06 # *****
07 # THIS IS THE EXIT FROM THIS LOOP
08 # *****
0117630          09      SEGINT 80
-001- 10 # *****
-001- 11 # INITIALIZE THE SEGMENT NUMBER TO 80
-001- 12 # *****

0117630 10 000634 003601 000120 -001- 14      LI    R8,80      # LOAD SEGMENT NUMBER 80 INTO R8
0117632          -001- 15      CALL  DISPLAY    # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117632 10 000636 037020 117767 0117767 -002- 16      BSA   DISPLAY

0117634 10 000640 153626 ----- 0117462 18      B     ENDTEST    # THE BACKSPACE WAS GOOD, CHECK IF THE TEST
                                                IS OVER

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 140

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

```

0117635          01 REPOSITI
0117635          03          SEGINT 95
-001- 04 # *****
-001- 05 # INITIALIZE THE SEGMENT NUMBER TO 95
-001- 06 # *****

0117635 10 000641 103601 000137 -001- 08          LI          R8,95          # LOAD SEGMENT NUMBER 95 INTO R8
0117637 -001- 09          CALL        DISPLAY        # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117637 10 000643 037020 117767 0117767 -002- 10          BSA          DISPLAY

          12 # REPOSITION THE TAPE TO BLKMAX
0117641 10 000645 103421 000527 MASACS          14          LI          R1,BLKMAX          # SET-UP R1 FOR THE POSITION

          16 DINSERT NOTE ' POSITION DIAGT # POSITION THE TO BLKMAX
          17 DDELETE NOTE 4
          18          BSA          REQR
          19          DATA        0(175100)
0117643 10 000647 037020 126350 CTAPH          20 REPOS
0117645 10 000651 175100 -----
0117646

          22 DINSERT NOTE ' CALL WAIT
          23 DINSERT NOTE ' CALL REQR # SUBROUTINE REQR IS IN PROGRAM CTAPH
          24 DDELETE NOTE 6
          25          BSA          WAIT
          26          BSA          REQR
          27          DATA        0(176300)
          28          BPAX        RO
0117654 10 000660 153003 ----- 0117657          29          B          LASTCALL          # WHEN THE POSITION HAS COMPLETED GO TO
          # END!THE TEST
0117655 10 000661 153013 ----- 0117670          31          B          ERRORS          # THE POSITION HAD AN ERROR
0117656 10 000662 153770 ----- 0117646          32          B          REPOS          # THE POSITON IS NOT FINISHED

0117657          34 LASTCALL

0117657          36          SEGRPT 96
-001- 37 # THIS IS PART OF SEGMENT 96
          38          SEGINC
0117657 10 000663 104601 ----- -001- 39          AN          R8,1          # ADD 1 TO THE SEGMENT IN R8
0117660 -001- 40          CALL        DISPLAY        # SHOW THE SEGMENT ON THE SSP'S L.E.D.'S
0117660 10 000664 037020 117767 0117767 -002- 41          BSA          DISPLAY

          43 # CALL THE SUBROUTINE TO RESET THE SPECIAL SET-UPS
0117662          44          CALL        SYSCLOSE
0117662 10 000666 137020 117754 0117754 -001- 45          BSA          SYSCLOSE
0117664 10 000670 155004 ----- 0117670          46          BNC          ERRORS          # IF THE 'CF' SET THERE WAS AN ERROR IN THE
          # RAP-UP
          48 # *****
          49 # THIS IS THE EXIT FROM THIS TEST

```

COMMON TAPE MAINTENANCE

PR-10958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 141

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

01 # \*\*\*\*\*

03 # THE TEST HAS PASTED ALL THE TESTS (APT) SO GET RESTORE THE

04 # REGISTERS FROM THE STACK AND EXIT THIS TEST

05 GA # 'GET-ALL' THE REGISTERS

06 BL CONTRTN # IF THERE WAS NO ERROR THIS TEST IS DONE

0117665 10 000671 071400 -----  
0117666 10 000672 037000 130570 0130570

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 142

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

0117670

01 ERRORS

03 # THE FIRST THING WHICH IS DONE IS TO BACKSPACE THE TAPE TWO BLOCKS.  
 04 # THIS IS A PRECAUTION USED TO AVOID ANY ACCIDENTAL ABANDONNING OF  
 05 # THE TAPE WHILE IT IS OVER ANY UNREADABLE BLOCKS OF DATA.  
 06 # (BLOCKS WHICH MAY HAVE BEEN DESTROYED BY TEST 6)

0117670	10	000574	103041	-----	08	LN	R2,1		# SET UP R2 TO BE USED AS A BX COUNTER
0117671					09	BKSPLOP2			
0117671	10	000675	103641	006415	10	LI	R10,TBS		# LOAD R10 WITH A BACKSPACE (TRACK ADDR. 0).
0117673					11	CALL	SENDMIO		
0117673	10	000677	037020	111050 CSYSUB	-001-	12	BSA	SENDMIO	
0117675					13	CALL	WAIT3S		# WAIT 1 SECOND BEFORE CONTINUING
0117675	10	000701	137020	132232 0132232	-001-	14	BSA	WAIT3S	
0117677	10	000703	136040	117671 0117671		15	BX	R2,BKSPLOP2	# MUST DO 2 BACKSPACES

19 # BEFORE GOING TO PROCESS THE ERROR, CLEAN UP THE LOSE ENDS.

0117701 10 000705 062105 -----

21 ZBS N(CATP)(RAO),S(CATP) # ZERO THE CATP BIT (JUST A PRECAUTION)

23 # STACK R7 (THE CURRENT TEST) AND R8 (THE CURRENT SEGMENT) INTO  
 24 # THE HOLD-GET AREA SO THE MONITOR KNOWS WHAT FAILED

0117702	10	000706	072567	-----	26	HN	R7,7		# STACK R7 IN THE HOLD/GET AREA FOR RETURN TO THE MONITOR
0117703	10	000707	010614	-----	28	RLN	R8,4		# THIS WILL PUT R8 IN THE EXPECTED POSITION FOR ERRMSGPO
0117704	10	000710	072610	-----	30	HN	R8,8		# STACK R8 IN THE HOLD/GET AREA FOR RETURN TO THE MONITOR
0117705	10	000711	071400	-----	32	GA			# RESTORE THE REGISTERS FOR THE MONITOR FROM THE HOLD/GET AREA
0117706					35	CALL	SYSCLOSE		
0117706	10	000712	037020	117754 0117754	-001-	36	BSA	SYSCLOSE	
0117710	10	000714	137000	132000 0132000		37	BL	ERRMSGPO	# BRANCH TO THE REGULAR ERROR LEG
						38	# SPLIT_SOURCE_HERE		

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 143

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

```

0117712          01 SYSTSET
                03 # THIS SUBROUTINE IS A SYSTEM DEPENDENT ROUTINE USED TO SET-UP ANY
                04 # NECESSARY INFORMATION TO THE SYSTEM THIS DIAGNOSTIC IS USED IN.
                06 # THE CTAPH SET-UP INCLUDES SETTING UP AN INTERFACE FROM
                07 # THE DIAGNOSTIC TO THE TAPE HANDLER

0117712          11 # *****
                12
                13 # THE SPECIAL REGISTER USE IS AS FOLLOWS
                14 #      RO      DEVICE ADDRESS OF THE TAPE IN QUESTION
                15 #      R1      SCRATCH OR THE BLOCK NUMBER FOR THE SEIZE
                16 #      R2-R11  NEVER USED
                17 #      RAO     NEVER USED
                18 #      RA1     ADDRESS OF THE TAPE CONTROL BLOCK AND THE TAPE UNIT
                19 #      STATUS WORDS (TCBADR OR TUSTAT)
0117712          20
0117712          21 # *****
0117712          22
0117712          23 # WHEN THIS SUBROUTINE IS EXITED, THE RETURN PROCESS USED WILL
0117712          24 # INVOLVE A RETURN CODE IN RO AND A SET OR CLEAR OF THE 'CF'
0117712          25
0117712          26 # WHEN THE RETURN CODE EQUALS 0, THE 'CF' EQUALS 1 (SET)
0117712          27 # WHEN THE RETURN CODE EQUALS ANYTHING ELSE OTHER THEN 0 THE CF
0117712          28 # EQUALS 0 (CLEARED)
0117712          29
0117712          30 # *****

                34 # SET-UP THE DIAGNOSTIC'S INTERFACE TO CTAPH.

0117712          36      BEGIN          # START BY SAVING THE REGISTERS
0117712 10 000716 171420 ----- -002- 37      HA

0117713 10 000717 030400 043102 CTSD      39      LL      RO,N(TPNO)+PAGSCR # SET-UP THE SEIZE WITH THE DEVICE NUMBER IN
                                                RO
0117715 10 000721 003421 000527 MASACS    41      LI      R1,BLKMAX      # R1 IS THE BLOCK THE TRANSPORT IS OVER AFTER
                                                THE SEIZE
0117717 10 000723 037020 126205 CTAPH    43      SEIZE  DIAGT      # GET CONTROL OF THE TAPE HANDLER (CTAPH)
0117721 10 000725 174030 ----- -002- 44      BSA    OPENTCB
-001- 45      VFD    5,DIAGT 1,0 1,0 2,0 3,1 1,1

```

COMMON TAPE MAINTENANCE

PR-1C958-50

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TDC. DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

```

0117722
01 SETTST
02 DINSERT NOTE ' CALL WAIT
03 DINSERT NOTE ' STATST DIAGT # GET THE STATUS OF THE TAPE (CTAPH)
04 DDELETE NOTE 6
05 BSA WAIT
06 BSA REQR
07 DATA 0(176300)
08 BPAX RD
09 B TCBFIXUP # IF THERE WAS NO ERROR (THE CF = 1) CONTINUE
10 RE-URN 1
11 BTSAGN 1
12 B SETTST # THE SEIZE WAS NOT FINISHED

W0117722 10 000726 137020 002422 CBLM
W0117724 10 000730 137020 126350 CTAPH
0117726 10 000732 176300 -----
0117727 10 000733 156000 -----
0117730 10 000734 153003 ----- 0117733
0117731
0117731 10 000735 156441 -----
0117732 10 000736 153770 ----- 0117722

0117733
16 TCBFIXUP
0117733 10 000737 131420 043317 CTSD
0117735 10 000741 061745 -----
0117736 10 000742 062767 -----
0117737 10 000743 062747 -----
0117740 10 000744 003421 003777
0117742 10 000746 002427 003777

0117744 10 000750 040470 -----
0117745 10 000751 003462 000003
0117747 10 000753 031400 043337 CTSD
0117751 10 000755 043403 -----

0117752 10 000756 062720 -----
0117753
0117753 10 000757 056440 -----

0117754
39 SYSCLOSE
41 # THIS ROUTINE US A SYSTEM DEPENDENT ROUTINE USED TO "UNDO"
42 # ANY INITIALIZATION THE "SYSTSET" ROUTINE DID
44 # IN THE CTAPH SYSTEM THE "UNDO"ING WHICH IS DONE IS TO CLOSE THE
45 # TAPE HANDELER.

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 145

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPM

W77D

01 # THIS IS A DIAGNOSTIC CLOSE ROUTINE. IT IS EXECUTED WHEN  
 02 # THE DIAGNOSTIC HAS DECIDED TO CLOSE THE TAPE HANDLER EITHER  
 03 # BECAUSE OF A FAILURE WHICH IS CAUSING THE DIAGNOSTIC TO CLOSE  
 04 # OR AS THE END OF THE DIAGNOSTIC IF THE TEST RAN ATP

0117754		06	BEGIN		
0117754	10 000760 171420 -----	-002-	07	HA	
0117755	10 000761 003401 000017		09	LI	RO,15 # SET UP RO FOR CLEAR WORDS
0117757	10 000763 031420 043317 CTSD		10	LAL	R1,TCBADR,RA1 # SET UP RA1 WITH THE ADDRESS OF THE TCB FO CLEAR WORDS
			12	DINSERT NOTE	' CALL CLR_WRDS # ZERO THE TCB
			13	DDELETE NOTE	2
W0117761	10 000765 037020 110734 CSYSUB		14	BSA	CLR WRDS
0117763	10 000767 103401 000007		15	LI	RO,IDLE # PREPARE TO SET UP THE IDLE STATE IN THE TCB
0117765	10 000771 044400 -----		16	ST	RO,N(REQ)(RA1)
0117766			17	RETURN	0
0117766	10 000772 056440 -----	-001-	18	BTSAGN	0

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE D6 PAGE 146

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH

W77D

```

0117767          01 DISPLAY
                  03 # THIS IS A SYSTEM ROUTINE TO DISPLAY THE SEGMENT NUMBER ON THE
                  04 # SYSTEM STATUS PANEL.
0117767          06 # *****
0117767          07
                  08 # THE REGISTER USE IN THIS SUBROUTINE IS AS FOLLOWS
0117767          09
                  10 #      RD-R6  UNUSED
                  11 #      R7    THE CURRENT TEST NUMBER
                  12 #      R8    THE CURRENT SEGMENT NUMBER
                  13 #      R9-R11 UNUSED
                  14 #      RA0-RA1 UNUSED
0117767          15
                  16 # *****
0117767          18      BEGIN
0117767 10 000773 171420 ----- -002- 19      HA
0117770 10 000774 010614 ----- 21      RLN      R8,4
0117771 10 000775 016170 003760 22      IRM      R7,R8,0(3760)      # DISPLAY SEGMENT IN BITS 4-7.
0117773 10 000777 034560 043463 CTSD 23      STL      R7,MSFPROG
0117775          24      RETURN
0117775 10 001001 056420 ----- -001- 25      BTSAG

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 147

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH

W77D

```

0117776      01 BACKSUB
              02 # THIS SUBROUTINE IS CALLED TO BACKSPACE THE TAPE VIA THE HANDLER

0117776      04 # *****
05
0117776      06 # IN THIS SUBROUTINE THE REGISTERS ARE USED THIS WAY
07
0117776      08 #      RD      SCRATCH AND THE RETURN CODE TO THE MAINLINE (OUTPUT)
09 #      R1-R5    UNUSED (UNCHANGED)
10 #      R6      THE TRACK/BLOCK ID (INPUT)
11 #      R7-R11  UNUSED (UNCHANGED)
12 #      RAO     UNUSED (UNCHANGED)
13 #      RA1     SET-UP WITH THE ADDRESS OF THE TCB
14
0117776      15 # *****
16
0117776      17 # THIS SUBROUTINE CONTAINS A COMMON STATUS CHECKING LEG WHICH
18 # IS NECESSARY TO POLL THE TAPE HANDLER TO CHECK WHEN THE BASE
19 # LEVEL LOOP HAS COMPLETED THE CURRENT REQUEST TO CTAPH. THIS
20 # ROUTINE AS WELL AS THE READ AND WRITE SUBROUTINES USE THE LOOP
21 # STARTING WITH THE LABEL "STATEST" TO CHECK THE STATUS OF THE
22 # CURRENT CALL TO "REQR"
23
0117776      24 # WHEN THIS SUBROUTINE IS EXITED, THE RETURN PROCESS USED WILL
25 # INVOLVE A RETURN CODE IN RD AND A SET OR CLEAR OF THE 'CF'
26
0117776      27 # WHEN THE RETURN CODE EQUALS 0, THE 'CF' EQUALS 1 (SET)
28 # WHEN THE RETURN CODE EQUALS ANYTHING ELSE OTHER THEN 0 THE CF
29 # EQUALS 0 (CLEARED)
30
0117776      31 # *****

0117776      33          BEGIN          # START BY SAVING THE REGISTERS
0117776 10 001002 171420 ----- -002- 34          HA

0117777 10 001003 031400 043317 CTSD    36          LAL      RD,TCBADR,RA1    # SET-UP THE TCBADR WITH THE TCB ADDRESS
0120001 10 001005 002546 014000        37          STM      R6,N(TRACK)(RA1),M(TRACK) # STORE THE TRACK FROM R6 TO THE TCB
                                          38 DINSERT NOTE ' BACKSP DIAGT    # BACKSPACE
0120003 10 001007 037020 126350 CTAPH  39 DDELETE NOTE 4
0120005 10 001011 176100 -----        40          BSA      REQR
                                          41          DATA    0(176100)

0120006      43 STATEST

0120006      45 DINSERT NOTE ' CALL WAIT
0120006      46 DINSERT NOTE ' STATST DIAGT    # CHECK THE TAPE HANDLER FOR STATUS
0120006      47 DDELETE NOTE 6
0120006 10 001012 137020 002422 CBLM    48          BSA      WAIT
0120010 10 001014 137020 126350 CTAPH  49          BSA      REQR

```

COMMON TAPE MAINTENANCE

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TDC DIAGNOSTIC PROGRAM.

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SUPPORTING SUBROUTINES

CTAPM

W77D

0120012	10	001016	176300	-----		01	DATA	0(176300)	
0120013	10	001017	156000	-----		02	BPAX	RO	
0120014							04	DIAGINT	
0120014							06	RETURN	0
0120014	10	001020	156440	-----	-001-	07	BTSAGN	0	
0120015							08	RETURN	1
0120015	10	001021	156441	-----	-001-	09	BTSAGN	1	
0120016	10	001022	153770	-----		10	B	STATEST	
					0120006				

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 149

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPM

W77D

```

0120017          01 WRITESUB
                  03 # THIS SUBROUTINE IS CALLED TO WRITE TO THE TAPE VIA THE HANDLER
                  05 # *****
0120017          06
0120017          07 # IN THIS SUBROUTINE THE REGISTERS ARE USED THIS WAY
0120017          08
0120017          09 #   R0   SCRATCH AND A RETURN CODE VIA A BACKSUB STATUS LEG
0120017          10 #   R1-R5  UNUSED (UNCHANGED)
0120017          11 #   R6   THE TRACK/BLOCK ID (INPUT)
0120017          12 #   R7-R11  UNUSED (UNCHANGED)
0120017          13 #   RAO  UNUSED (UNCHANGED)
0120017          14 #   RA1  SET-UP WITH THE ADDRESS OF THE TCB
0120017          15
0120017          16 # *****
0120017          17
0120017          18 # THIS SUBROUTINE IS DESIGNED TO MAKE A REQUEST TO THE TAPE HANDLER
0120017          19 # TO PERFORM A "WRITE ABSOLUTE" AND THEN BRANCH TO THE STATUS
0120017          20 # CHECKING LEG OF THE BACKSPACE ROUTINE (BACKSUB).
0120017          21
0120017          22 # *****
0120017          24   BEGIN          # START BY SAVING THE REGISTERS
0120017 10 001023 171420 ----- -002- 25   HA
0120020 10 001024 031400 043317 CTSD    27   LAL   R0,TCBADR,RA1   # SET-UP THE TCBADR WITH THE TCB ADDRESS
0120022 10 001026 002546 014000        28   STM   R6,N(TRACK)(RA1),M(TRACK) # STORE THE TRACK FROM R6 TO THE TCB
0120024          30   CALL   GENDATA      # CALL THE ROUTINE TO GENERATE THE UNIQUE
0120024 10 001030 037020 120032 0120032 -001- 32   BSA   GENDATA      # CALL THE ROUTINE TO GENERATE THE UNIQUE
0120024          33 DINSERT NOTE ' WRTAB DIAGT # WRITE
0120024          34 DDELETE NOTE 4
0120026 10 001032 137020 126350 CTAPH    35   BSA   REQR
0120030 10 001034 174740 -----        36   DATA 0(174740)
0120031 10 001035 153755 ----- 0120006  37   B     STATST      # BRANCH TO THE STATUS CHECKING ROUTINE IN
0120031          37          BACKSUB
0120032          42 GENDATA
0120032          43 # THIS IS A SUBROUTINE USED BY THE WRITE SUBROUTINE TO CREATE
0120032          44 # A UNIQUE BLOCK OF DATA IN THE I/O BUFFER.
0120032          45 # THIS IS DONE BY ENTERING THE TRACK/BLOCK ID (ALWAYS THE FIRST
0120032          46 # WORD OF ANY BLOCK ON TAPE) FOLLOWED BY THE NINE WORDS MAKING-UP
0120032          47 # THE SYSTEM CLOCK.

```

COMMON TAPE MAINTENANCE

PR-10958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 150

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

```

0120032, 01 # *****
0120032 02 # THE REGISTERS ARE
03 # THE REGISTERS ARE
04 #
05 # R0-R1 UNUSED
06 # R2 SCRATCH AND A BX COUNTER
07 # R3-R5 UNUSED
08 # R6 DATA (TRACK/BLOCK ID AND CLOCK) TO THE BUFFER
09 # R7-R11 UNUSED
10 # RAO ADDRESS OF YEARS (UP DATED WITH EACH DATA TRANSFER)
11 # RA1 ADDRESS OF I_OBUF (UP DATED WITH EACH DATA TRANSFER)
12 #
13 # *****
0120032 15 BEGIN # START BY SAVING THE REGISTERS
0120032 10 001036 171420 ----- -002- 16 HA
0120033 10 001037 131440 045265 LAYOUT 17 LAL R2,I_OBUF-1,RA1 # SET-UP THE ADJUSTED BASE ADDRESS OF I_OBUF
0120035 10 001041 031040 043451 CTSD 18 LAL R2,YEARS-1,RA0 # SET-UP THE ADJUSTED BASE ADDRESS OF YEARS
0120037 10 001043 003051 ----- 19 LN R2,9 # LOAD R2 WITH THE BX COUNTER
0120040 21 GENLOOP
0120040 10 001044 145541 ----- 23 STA R6,1(RA1) # STORE R6 (WITH THE DATA) IN THE I_O BUFFER
0120041 10 001045 041141 ----- 24 LA R6,1(RAO) # GET THE NEXT WORD FROM THE CLOCK
0120042 10 001046 036040 120040 0120040 25 BX R2,GENLOOP # IF R2 NOT = 0, CONTINUE THE LOOPING
0120044 26 RETURN
0120044 10 001050 056420 ----- -001- 27 BTSAG

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 151

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPM W77D

```

0120045      01 READSUB
03 # THIS SUBROUTINE IS CALLED TO READ A BLOCK VIA THE HANDLER
05 # *****
06
0120045      07 # IN THIS SUBROUTINE THE REGISTERS ARE USED THIS WAY
08
0120045      09 #      RO      SCRATCH AND A RETURN CODE VIA A BACKSUB STATUS LEG
10 #      R1-R5    UNUSED (UNCHANGED)
11 #      R6      THE TRACK/BLOCK ID (INPUT)
12 #      R7-R11  UNUSED (UNCHANGED)
13 #      RAD     UNUSED (UNCHANGED)
14 #      RA1     SET-UP WITH THE ADDRESS OF THE TCB
15
0120045      16 # *****
0120045      17
18 # THIS SUBROUTINE IS DESIGNED TO MAKE A REQUEST TO THE TAPE HANDLER
19 # TO PERFORM A "READ 1 BLOCK" AND THEN BRANCH TO THE STATUS
20 # CHECKING LEG OF THE BACKSPACE ROUTINE (BACKSUB).
21
0120045      22 # *****

0120045      24      BEGIN      # START BY SAVING THE REGISTERS
0120045 10 001051 171420 ----- -002- 25      HA

0120046 10 001052 031400 043317 CTSD      27      LAL      RO,TCBADR,RA1      # SET-UP THE TCBADR WITH THE TCB ADDRESS
0120050 10 001054 002546 014000          28      STM      R6,N(TRACK)(RA1),M(TRACK) # STORE THE TRACK FROM R6 TO THE TCB
29      DINSERT NOTE      ' RD1BLK DIAGT,DIAGINT # READ 1 BLOCK FROM THE TAPE
30      DDELETE NOTE      4
0120052 10 001056 037020 126350 CTAPH      31      BSA      REQR
0120054 10 001060 174400 120014 0120014  32      ADDR      DIAGINT,DIAGT*(7)+RD1BLK*(3)
0120056 10 001062 153730 ----- 0120006  33      B          STATEST      # BRANCH TO THE STATUS CHECKING ROUTINE IN
34      B          BACKSUB
0120056      35      ENDP      NR          # 13668
-001- 36      NOTE      ***** LAST PATCH ADDRESS USED IS 001062 *****
-001- 37      NOTE      ***** NUMBER OF PATCH WORDS USED IS 563 (DECIMAL) *****

0120056      40      CPATCH3 BGNP      0(162)      # 12339
-001- 41      NOTE      CPATCH3 'CSECT'
-001- 42      NOTE      ***** PATCH AREA BEGINS AT 000162 *****

0115255      45      PATCH2
0115255 06 000162 103542 003777          46      NI      R6,M(BLKADDR)
0115257 06 000164 044146 -----          47      ST      R6,N(BLKADDR)(RAD)
0115260 06 000165 037000 117016 0117016  48      BL      RETURN2
0115260          49      ENDP      NR          # 12339

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 152

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPH W77D

-001- 01  
-001- 02

NOTE  
NOTE

\*\*\*\*\* LAST PATCH ADDRESS USED IS 000166 \*\*\*\*\*  
\*\*\*\*\* NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) \*\*\*\*\*

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH

ISSUE 06 PAGE 153

TDC DIAGNOSTIC PROGRAM.  
SUPPORTING SUBROUTINES

9:34:51 2/07/81 \*\*\*\*

CTAPM W77D

```

01 IN IOD CHL=MTC
02 DGN:TAPE #A#,TST #B;C
03 T"12"
04 XRUN TAPE DIAGNOSTICS.X
05 T"INPUT FIELDS"
06 a/2/$THE TAPE DATA CONTROLLER TO BE TESTED.
07 b/2/$THE TEST TO BE RUN. $IF NOT SPECIFIED,
08 RUN ALL TESTS. $STOP AT FIRST FAILURE.
09 $RANGE IS FROM 1 TO 6.
10 c/2/$ACTION OPTIONS.
11 #UCL# $RUN ALL TESTS AND PRINT ALL FAILURES.
12 #RPT# $RUN UNDER REPEAT MODE.
13 #STP# $RUN UNDER STEP MODE.
14 T"13"
15 #NGH/2/$ERROR IN INPUT SYNTAX.
16 #RL#/2/$INPUT LATER, TAPE BUSY OR
17 CONFLICTING FUNCTION INPROGRESS.
18 #IP#/2/$MESSAGE ACCEPTED.
19 T"14"
20 #PR-1C958 CTAPM# $TAPE DIAGNOSTICS.
21 .IODEND

```

```

25 IN IOD CHL=MTC
26 ABT:DGN TAPE!
27 T"12"
28 XABORT TAPE DIAGNOSTICS.X
29 T"INPUT FIELDS"
30 $NONE
31 T"13"
32 #NGH/2/$TAPE DIAGNOSTICS NOT IN PROGRESS
33 #IP#/2/$MESSAGE ACCEPTED
34 T"14"
35 #PR-1C958 CTAPM# $TAPE DIAGNOSTICS.
36 #PR-1C910 CDGMM# $DIAGNOSTIC MONITOR
37 .IODEND

```

```

41 OUT IOD ALM=0 PRI=0 CHL=MTC
42 DGN TAPE #AA BB CC DD EE FF
43 T"02"
44 XRESPONSE ASSOCIATED WITH FAILING TAPE DIAGNOSTICS.X
45 T"03"
46 aA/2/$FAILING TAPE DATA CONTROLLER.
47 bB/2/$FAILING TEST NUMBER.
48 cC/2/$FAILING SEGMENT NUMBER.
49 dD/2/$R9 AT POINT OF FAILURE

```

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 154

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

SUPPORTING SUBROUTINES

CTAPM

W77D

01 eE/2/\$R10 AT POINT OF FAILURE.  
 02 fF/2/\$R11 AT POINT OF FAILURE.  
 03 T"04"  
 04 \$REFER TO #TDC TLM#.  
 05 T"05"  
 06 #PR-1C958 CTAPM# \$TAPE DIAGNOSTICS.  
 07 .IODEND

I

11 OUT IOD ALM=0 PRI=0 CHL=MTC  
 12 DGN TAPE #AA BB  
 13 T"02"  
 14 XGENERAL TAPE MESSAGE USED TO INDICATE THAT A  
 15 FUNCTION ATP'ED, COMPLETED .  
 16 T"03"  
 17 AA/2/\$TAPE NUMBER  
 18 bb/2/\$IF EQUAL TO #ATP# TEST RUNS WITHOUT FAILURE FOUND.  
 19 bb/2/\$IF EQUAL TO #COMPL#, INDICATES THE TERMINATION  
 20 OF A DIAGNOSTIC SEQUENCE RUN UNDER UCL MODE.  
 21 T"04"  
 22 \$ IF ABORTED SEEK OUT WHY IN #CTAPH# OR #CBLM#.  
 23 T"05"  
 24 #PR-1C958 CTAPM# \$TAPE DIAGNOSTICS.  
 25 .IODEND

I

29 OUT IOD ALM=0 PRI=0 CHL=MTC  
 30 DGN TAPE #AA# ABT #BB  
 31 T"02"  
 32 XTAPE DIAGNOSTICS WERE ABORTED.  
 33 T"03"  
 34 AA/2/\$TAPE NUMBER  
 35 BB/2/\$EITHER 0 OR 1  
 36 0 INDICATES THAT MSF CONTROLLER  
 37 REQUESTED AN ABORT.  
 38 1 INDICATES THAT TEST 6 COULD  
 39 NOT ACCESS MATE UNIT TO  
 40 INITIATE TEST.  
 41 T"04"  
 42 \$IF ABORT 0 SEEK OUT WHY SYSTEM FORCED ABORT.  
 43 IF ABORT 1 SEEK OUT PROCEDURE IN TDC TLM FOR  
 44 RUNNING TAPE DIAG. IF BOTH TOCS  
 45 ARE OUT OF SERVICE.  
 46 T"05"  
 47 #PR-1C958 CTAPM T#APE DIAGNOSTICS.  
 48 .IODEND  
 49 INDEXGEN

0115260

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 155

TDC DIAGNOSTIC PROGRAM.

9:34:51 2/07/81 \*\*\*\*

CTAPM W77D

	SECTION TITLE	ADDRESS	WORD COUNT
-001- 04 #		000000	0
-001- 05 #	TDC DIAGNOSTIC PROGRAM.	000000	1298
-001- 06 #	TLM B SECTION COMMENTS.	000000	59
-001- 07 #	DIAGNOSTIC TTY MESSAGE HANDLER.	000000	149
-001- 08 #	DIAGNOSTIC MONITOR	000225	111
-001- 09 #	TEST 1 SPI INTERFACE TEST	000404	229
-001- 10 #	TEST 2 BUFFER UNIT TEST	000751	167
-001- 11 #	TEST 3 TAPE UNIT CONTROLLER TEST	001220	140
-001- 12 #	TEST 4 MINI-RECORDER READ TEST.	001434	178
-001- 13 #	TEST 5 MISCELLANEOUS RECORDER FUNCTIONS.	001716	129
-001- 14 #	TEST 6 MINI-RECORDER WRITE TEST.	002117	195
-001- 15 #	SUPPORTING SUBROUTINES		

-001- 19 # THE TOTAL LENGTH OF THIS ASSEMBLY IS 01298  
 20 CTAPM MAXSIZE 0,73  
 21 TAPEDGN MAXSIZE 0,2422

COMMON TAPE MAINTENANCE

PR-10958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 156

## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

## LISTING OF INDIVIDUAL PATCHES

CTAPH W77D

0115260	**/**/**/012002/**/**/**	-002- 01	PBEGIN	PROG=CTAPH	CSECT=	ORG=	TRNO=12002	SERNOB=64200
		02 # DO A	REPACK	AT FIRST	DIAGNOSTIC	ATTEMPT ONLY		
		03	TCEND					
		-001- 04	NOTE	*****				
0115260	**/**/**/011799/**/**/**	-002- 11	PBEGIN	PROG=CTAPH			TRNO=11799	SERNOB=62088
		12 # FIX	ERROR IN	THE TAPE	DIAGNOSTIC	FAILURE MESSAGE.		
		13	TCEND					
		-001- 14	NOTE	*****				
0115260	**/**/**/012958/**/**/**	-002- 21	PBEGIN	PROG=CTAPH			TRNO=12958	SERNOB=48533
		22 # CHANGE	CONSTANT	FOR TINIT	ORDER			
		23	TCEND					
		-001- 24	NOTE	*****				

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 157

PATCH HISTORY

LISTING OF INDIVIDUAL PATCHES

CTAPM W77D

0115260  
0115260

\*/\*\*\*/013668/\*\*/\*\*  
-002- 01 PBEGIN PROG=CTAPM TRNO=13668 SERNOB=49569  
02 # THIS PATCH MUST BE FOLLOWED BY PATCH 49741 TR 13669  
03 # THIS PATCH IS DESIGNED TO 1) ALLOW THE TDC DIAGNOSTIC TO RUN  
04 # REGARDLESS OF THE STATUS OF ITS MATE'S STATUS 2) CUT DOWN ON  
05 # WARE PARTLY CAUSED BY THE DIAGNOSTIC ESPECIALLY THE WARE CAUSED  
06 # TO THE MIDDLE OF THE SYSTEM DATA AREA, AND 3) WILL GREATLY  
07 # REDUCE THE DANGER OF DESTROYING SYSTEM DATA ON THE TAPE WHICH  
08 # MAKES THE TAPE USELESS (CAN NOT BE USED TO BOOTSTRAP)  
09 # THE NEXT ENTRY WITH THE SAME BLOCK NUMBER  
10 TCEND  
-001- 11 NOTE \*\*\*\*\*

0115260

\*/\*\*\*/012339/\*\*/\*\*  
-002- 18 PBEGIN PROG=CTAPM TRNO=12339 SERNOB=51172  
19 # THIS PATCH WILL OVER WRITE PART OF PATCH 49569, TROUBLE REPORT  
20 # 13668. THIS PATCH WILL SOLVE THE PROBLEM OF TAPE DIAGNOSTICS  
21 # FAILING IF A CALL STORE WORD IN TABLE IS NOT CLEARED BEFORE  
22 # THE DIAGNOSTIC IS CALLED.  
23 TCEND  
-001- 24 NOTE \*\*\*\*\*

COMMON TAPE MAINTENANCE

PR-1C958-50

PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

LISTING OF INDIVIDUAL PATCHES

CTAPH W77D

```

0115260,  **/**/**/790117/**/**/  -002- 01      PBEGIN  PROG=CTAPH      TRNO=790117  SERNOB=67787
02
03 # NAME      HNW
04 # DATE      11-27-79
05 # MR        2E790117
06 # ABST.     ABORTING TAPE DIAGNOSTICS HANGS TAPE HANDLER
0115260      07      TCEND
-001- 08      NOTE *****
0115260      15      END

```

COMMON TAPE MAINTENANCE

PR-1C958-50



## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPM	W77D
0020013	A	BCLRBRF		LIBNUM=12 44-14, 56-34		
0120013	A	BCLROCN		LIBNUM=12 41-07, 48-14, 54-02, 57-47, 106-24		
0060013	A	BFILL	9-03	42-43, 45-24		
	17	R BHC		W=1 S=1 N=0 CL=1 LIBNUM=7 28-19, 29-12		
0160013	A	BINIT		LIBNUM=12 37-01, 46-37, 47-45, 53-41		
0131162	L	BKSPLOP	66-18	66-25		
0131674	L	BKSPLOP1	98-12	98-19		
0117671	L	BKSPLOP2	143-09	143-15		
'CRCTBL+6'	T	BLKADDR		W=13 S=0 N=6 CL=2 99-41, 99-42, 111-26, 113-07, 116-27, 119-29, 125-34, 133-14, 152-46, 152-47		
MASACS	V	BLKMAX	5-13	76-03, 99-01, 99-44, 110-25, 141-14, 144-41		
0000000	A	BOFL	10-34	W=1 S=16 N=0 CL=3 45-35		
0131512	L	BOOTST	78-23	77-48		
0000000	A	BOT	10-12	W=1 S=16 N=0 CL=3 61-17, 62-10, 71-48, 77-45, 79-39		
0127736	L	BPAXTOTST	24-10	23-32, 25-48		
0000000	A	BR	10-27	W=1 S=7 N=0 CL=3 42-40, 45-35		
0000161	A	BRXT		LIBNUM=7 28-28		
0042013	A	BSLDON		LIBNUM=12 38-01, 47-48, 53-44, 105-37		
0000013	A	BSTAT		LIBNUM=12 43-02, 45-31		
0050013	A	BSTFON	9-02	39-27, 48-06, 54-06		
0044013	A	BSUNLDON		LIBNUM=12 41-02, 48-11, 57-44, 106-20		
0140013	A	BSWB		LIBNUM=12 39-35, 41-16, 42-32, 54-11		
0000013	A	BUFDEV	9-12	37-04, 38-04, 39-21, 39-22, 40-02, 41-05, 42-39, 42-40, 42-41, 45-35, 46-40		
0130225	L	BUFFER	36-01	24-18		
MASACS	V	BUFLEN	5-14	111-24, 113-20, 116-40, 121-12, 123-28, 127-24		
0132050	L	BXT	104-27	104-22		
TTYTBL	X	CXOMPL	23-16	23-16		
0132171	L	CALW	107-25	107-32		
0131633	L	CALW1	96-08	96-22		
'CRCTBL+5'	T	CATP		W=1 S=4 N=5 CL=2 109-43, 113-42, 128-17, 131-32, 143-21		
0117436	L	CHKFINI	130-09	128-18, 128-26		
0117325	L	CHKSTAT	125-39	128-03, 130-18		
0131576	L	CHECK	94-15			
0000005	A	CHKPOINT	27-05	29-23, 30-36, 32-02, 33-24, 34-34, 36-07, 37-07, 38-10, 39-46, 41-23, 43-10, 44-26, 45-38, 46-43, 49-08, 50-08, 51-15, 52-33, 54-15, 55-35, 56-47, 58-10, 60-12, 61-20, 62-24, 63-40, 65-10, 66-29, 67-43, 68-46, 71-12, 72-30, 73-31, 74-41, 76-32, 78-32		
0117327	L	CHKSTAT	126-01	125-36		
CSYSUB	V	CLR_WRDS	4-21	146-14		
0000007	A	CLRTABX	88-03	92-38		
0131566	L	CLRTBL	92-42	92-47		
0132217	L	CLWT	108-03	108-10		
0000000	A	COMD	10-50	W=4 S=10 N=0 CL=3 50-05		
0127673	L	COMPO	22-45	24-02		

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 161

9:34:51 2/07/81 \*\*\*\*

## PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
t.<(+)8 !\$*); -;/ %X_>? :#@'=" ab cdefghi n<(+ + jklmnopqr x)z#-stuvw xyz+L[>=012 3456789+],]# -Cabcdefghi )jklmno pqr \ s tuvwxyz 0123456789 T CONLC 0131150 L CONREAD 'n				LIBNUM=10 65-08 64-45		
z te<hplix v\$fgs -al ix_>k jo#b'd" ab cdefghi n<(+ + jklmnopqr x)z#-stuvw xyz+L[>=012 3456789+],]# -CABCDEFghi )JKLMNO PQR \ S TUVWXYZ 0123456789 T CONSC 0130125 L CONTEST 0127574 L CONTI 0127637 L CONTINU 0130572 L CONTROL 0130570 L CONTRTN 0131535 L CONTRTNX 0111432 L CPATCH 0112562 L CPATCH1 0114107 L CPATCH2 0115073 L CPATCH3				LIBNUM=10 29-29 29-16 19-02 18-39, 18-40, 19-01 20-45 20-21 49-01 24-19 48-22 35-38, 59-16, 70-01, 79-42, 142-06 79-41 1-37 21-13, 24-36 1-38 1-39 1-40 95-18, 152-41		

## COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 162

PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
0121236	L	CPATCH7	1-41			
'BUFLEN'	T	CRC		111-24, 113-20, 116-40, 121-12, 123-28, 127-24		
'CRCTBL+15'	T	CRCXTR		W=20 S=0 N=17 CL=2 88-03		
0117230	L	CRCSTORE	121-01	120-11		
'PAGSCR+0'	T	CRCTBL		W=20 S=0 N=0 CL=2 92-36, 93-04		
'CRCTBL+8'	T	CRCTOYD		W=20 S=0 N=10 CL=2 88-03, 88-04, 92-36		
'CRCTBL+9'	T	CRCT1Y0		W=20 S=0 N=11 CL=2 88-05		
'CRCTBL+10'	T	CRCT1Y1		W=20 S=0 N=12 CL=2 88-07		
'CRCTBL+11'	T	CRCT2Y0		W=20 S=0 N=13 CL=2		
'CRCTBL+12'	T	CRCT2Y1		W=20 S=0 N=14 CL=2 88-10		
'CRCTBL+13'	T	CRCT3Y0		W=20 S=0 N=15 CL=2 88-06		
'CRCTBL+14'	T	CRCT3Y1		W=20 S=0 N=16 CL=2 88-08, 88-10		
0	U	CTAPH				
0127526	L	CTAPH	1-31	18-01		
0127717	L	CURRENT	23-28	22-41, 25-44		
'CRCTBL+3'	T	CURTST		W=20 S=0 N=3 CL=2 19-29, 21-19, 23-29, 23-30, 23-42		
0	U	D				
TTYTBL	X	DXGN	25-15	25-15, 103-38		
0000000	A	DDT	10-09	W=1 S=13 N=0 CL=3		
0131041	L	DECKREAD	60-01	24-20		

```

t.<(+18
!S*)?
- /
'X_>?
: #a' = "
n < (+
+
x) ± m --
e L [ ≥ 012
3456789 + j ] x
- ABCDEFGHI
) JKLMNO
PQR \ S
TUVWXYZ
0123456789

```

0000000	A	DELLC	10-03	LIBNUM=10 W=6 S=0 N=0 CL=3 50-05		
CTAPH	V	DGNRMV	5-05	103-30		
BLMMA	V	DGNTAPE	4-15	19-15, 20-26		
0000007	A	DIAGBITS		W=2 S=16 N=7 CL=3 LIBNUM=12 22-18, 22-43, 23-41, 62-16, 62-17, 72-05, 72-06, 145-20, 145-21		
0120014	L	DIAGINT	149-04	152-32		
CTAPH	V	DIAGST	5-06	24-11		

COMMON TAPE MAINTENANCE

PR-1C958-50

## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPM	W77D
0000037	A	DIAGT		LIBNUM=12 144-45,152-32		
MASACS	V	DIRLOC	5-15			
MASACS	V	DIRTRK	5-17			
0117767	L	DISPLAY	147-01	89-23, 92-08, 92-25, 94-26, 96-06, 96-39, 97-06, 98-08, 99-13,109-19,110-06,111-10,112-10,112-29,112-38,113-17,113-49,115-26,115-38,116-10,116-34,118-21,119-08,120-07,120-22,120-30,120-43,121-09,121-46,122-15,122-24,122-32,122-47,123-25,123-40,124-10,126-25,127-04,127-21,127-36,128-15,128-32,129-14,129-25,129-39,130-07,131-30,131-43,134-42,135-15,135-22,135-35,136-06,137-10,137-35,138-06,138-24,139-18,139-29,139-42,140-16,141-10,141-41		
0127625	L	DOLU	20-14	20-24		
0131467	L	EMGSTP	78-01	77-46, 79-40		
0117462	L	ENDTEST	132-09	140-18		
0000007	A	ENDTRK		W=2 S=13 N=7 CL=3 LIBNUM=12 76-03, 76-04		
	O	U EOS				
0000000	A	EOT	10-06	W=1 S=10 N=0 CL=3 61-17, 94-20, 96-41		
0131655	L	EOTCHK	96-32	96-17		
'CRCTBL+5'	T	ERGOT		W=1 S=1 N=5 CL=2 23-43, 23-44, 26-13		
0000005	A	ERNA		W=1 S=16 N=5 CL=3 LIBNUM=12 145-19		
0117121	L	ERRBKSP	115-24	115-20		
0117413	L	ERRBKSP2	129-06	128-47		
0130112	L	ERRSPCK	29-18	28-44		
0130075	L	ERRMSGCL	28-46	28-42, 29-21, 29-28		
0132000	L	ERRMSGPO	103-05	35-43, 59-18, 76-19, 76-28, 78-18,105-23,143-37		
0130221	L	ERRMSGPOX	35-39	29-15, 30-31, 31-45, 33-14, 33-16, 33-20, 33-22, 34-32, 37-05, 38-05, 39-26, 39-32, 39-40, 41-06, 41-12, 41-15, 42-31, 42-47, 43-08, 44-13, 44-19, 44-22, 45-36, 46-41, 47-44, 48-05, 48-21, 50-06, 51-13, 52-26, 54-01, 54-05		
0117670	L	ERRORS	143-01	96-30,116-01,126-14,126-43,127-09,127-28,128-48,129-19,129-46,131-23,131-33,134-18,134-32,135-24,135-46,137-42,138-16,139-04,139-23,140-04,141-31,141-46		
0117132	L	ERROR1	115-45	109-12,109-47,110-33,112-01,113-08,116-28,118-10,119-44,120-35,120-48,121-38,122-34,123-14,123-30		
0131653	L	ERROR2	96-28	92-15, 95-46, 96-44, 97-08		
0132204	L	ERRSTOP	107-40	107-37		
0132157	L	ERXIT	106-49	106-23,106-27,106-38,106-41		
	O	J ESS2	1-10			
	1	J ESS2E	1-09			
'CRCTBL+5'	T	FAIL		W=1 S=3 N=5 CL=2 25-28, 26-14,103-24		
0127775	L	FAILOK	25-24	22-27		
0132117	L	FAILURE	106-03	105-48		
0131610	L	FASTFOR	95-01	94-21		
0000001	A	FATAL	88-01	99-07,112-40,115-22,131-22		
	1	J FIELD	1-09			
0000000	A	FILL	10-35	W=1 S=17 N=0 CL=3 42-39		
0130463	L	FLLAGN	45-23	45-30		
0000012	A	FSTY1ENT	88-07	131-45		
0120032	L	GENDATA	150-42	150-32		
0120040	L	GENLOOP	151-21	151-25		
0131315	L	GO	72-25	72-19		
LAYOUT	V	I_OBUF	4-41	62-19, 64-39, 66-26, 68-40, 72-13, 99-24,110-10,111-24,113-02,113-20,116-21,116-40,121-12,123-28,127-24,151-17		
0000007	A	IDLE		LIBNUM=12 146-15		

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 164

## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
000000	A	IDLTST		LIBNUM=12 20-20		
'ILLEGAL CON DITIONAL IN THE IF MACRO'	T	IFERROR1				
'DATA > 0 OR DATA < 0 IS MEANINGLESS , USE DATA = = 0'	T	IFERROR2				
'TWO CONSTAN TS ARE BEING COMPARED IN IF MACRO'	T	IFERROR3				
'AN ITEM WAS COMPARED TO SOMETHING O THER THAN A CONSTANT'	T	IFERROR4				
'DESTINATION OF AN = STA TEMENT IS A CONSTANT'	T	IFERROR5				
'ATTEMPTING TO SET ITEM = TO SOMETHI NG OTHER THA N A CONSTANT'	T	IFERROR6				
'ITEM MAY ON LY USE THE = AND = COND ITIONALS'	T	IFERROR7				
000014	A	INDEXCNTR	3-09	12-33, 17-25, 19-32, 26-32, 35-44, 48-26, 59-19, 70-02, 79-43, 100-08, 156-01		
'TDC DIAGNOS TIC PROGRAM.'	T	INDEXTITLE1				
'TEST 6 MINI -RECORDER WR ITE TEST.'	T	INDEXTITLE10				
'SUPPORTING SUBROUTINES'	T	INDEXTITLE11				
''	T	INDEXTITLE12				
'TLM B SECTI ON COMMENTS.'	T	INDEXTITLE2				
'DIAGNOSTIC TTY MESSAGE HANDLER.'	T	INDEXTITLE3				
'DIAGNOSTIC MONITOR'	T	INDEXTITLE4				
'TEST 1 SPI INTERFACE T						

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 165

9:34:51 2/07/81 \*\*\*\*

## PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
EST'	T	INDEXTITLE5				
'TEST 2 BUF FER UNIT TES T'	T	INDEXTITLE6				
'TEST 3 TAPE UNIT CONTRO LLER TEST'	T	INDEXTITLE7				
'TEST 4 MINI -RECORDER RE AD TEST.'	T	INDEXTITLE8				
'TEST 5 MISC ELLANEOUS RE CORDER F'NCT IONS.'	T	INDEXTITLE9				
0040007	A	INIT		LIBNUM=12 21-41, 30-27, 59-07, 67-37, 78-02, 96-24,103-43,107-41		
CTAPH	V	INITTAPE	5-07 21-06,103-47			
0000000	A	INTOFF	10-29 W=1 S=11 N=0 CL=3			
'CRCTBL+5'	T	INTSBR	W=1 S=0 N=5 CL=2 44-12, 56-44			
'MTC 68-15 M INI-RECORDER 0'	T	JK00				
'MTC 60-15 M INI-RECORDER 1'	T	JK01				
'MTC 68-31 J K10 BUFFER U NIT CIRCUIT'	T	JK100				
'MTC 60-31 J K10 BUFFER U NIT CIRCUIT'	T	JK101				
'MTC 68-29 J K11 BUFFER U NIT CIRCUIT'	T	JK110				
'MTC 60-29 J K11 BUFFER U NIT CIRCUIT'	T	JK111				
'MTC 68-28 J K12 BUFFER U NIT CIRCUIT'	T	JK120				
'MTC 60-28 J K12 BUFFER U NIT CIRCUIT'	T	JK121				
'MTC 68-27 J K13 BUFFER U NIT CIRCUIT'	T	JK130				
'MTC 60-27 J K13 BUFFER U NIT CIRCUIT'	T	JK131				
'MTC 68-22 J						

## COMMON TAPE MAINTENANCE

PR-1C958-50

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## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPM	W77D
K16 TAPE UNI						
T CONTROLLER	T	JK160				
'MTC 60-22 J						
K16 TAPE UNI						
T CONTROLLER	T	JK161				
'MTC 68-21 J						
K17 TAPE UNI						
T CONTROLLER	T	JK170				
'MTC 60-21 J						
K17 TAPE UNI						
T CONTROLLER	T	JK171				
'MTC 68-20 J						
K18 TAPE UNI						
T CONTROLLER	T	JK180				
'MTC 60-20 J						
K18 TAPE UNI						
T CONTROLLER	T	JK181				
'MTC 68-19 J						
K19 TAPE UNI						
T CONTROLLER	T	JK190				
'MTC 60-19 J						
K19 TAPE UNI						
T CONTROLLER	T	JK191				
'MTC 68-34 J						
K5 SERIAL PE						
RIPHERAL INT						
ERFACE CIRCU						
IT'	T	JK50				
'MTC 60-34 J						
K5 SERIAL PE						
RIPHERAL INT						
ERFACE CIRCU						
IT'	T	JK51				
'MTC 68-33 J						
K6 SERIAL PE						
RIPHERAL INT						
ERFACE CIRCU						
IT'	T	JK60				
'MTC 60-33 J						
K6 SERIAL PE						
RIPHERAL INT						
ERFACE CIRCU						
IT'	T	JK61				
'MTC 68-32 J						
K7 SERIAL PE						
RIPHERAL INT						
ERFACE CIRCU						
IT'	T	JK70				
'MTC 60-32 J						

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPM ISSUE 06 PAGE 167

PATCH HISTORY		DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
VALUE	T NAME				
K7 SERIAL PE RIPHERAL INT ERFACE CIRCU IT'	T JK71				
'MTC 68-17 J K8 BUS TERMI NATOR CIRCUI T'	T JK80				
'MTC 60-17 J K8 BUS TERMI NATOR CIRCUI T'	T JK81				
'MTC 68-16 J K9 BUS TERMI NATOR CIRCUI T'	T JK90				
'MTC 60-16 J K9 BUS TERMI NATOR CIRCUI T'	T JK91				
0000007 A LASTBLK		W=13 S=0 N=7 CL=3 LIBNUM=12	76-04,145-22,145-23		
0117657 L LASTCALL		141-34 141-29			
0025730 A LDPARX		LIBNUM=7 28-30			
0132161 L LEDPROT		107-07 62-13, 72-02			
0130366 L LODOTH		42-28 42-36			
0000000 A LODST		10-30 W=1 S=12 N=0 CL=3	38-04, 42-39, 42-40, 42-41, 42-46, 43-06, 44-17		
0132076 L LOD1HLF		105-31 39-25, 42-30, 47-43			
0000005 A LOGBLK		W=13 S=0 N=5 CL=3 LIBNUM=12	76-02		
'BUFSTAT'	T LONAM_ACTIV				
'CRCTBL'	T LONAM_ATOP				
'CRCTBL'	T LONAM_BLKADD				
	R				
'BUFSTAT'	T LONAM_BOFL				
'TAPSTAT'	T LONAM_BOT				
'BUFSTAT'	T LONAM_BR				
'CRCTBL'	T LONAM_CATP				
'TAPPRI'	T LONAM_CMD				
'CRCTBL'	T LONAM_CRCEXT				
	R				
'PAGSCR'	T LONAM_CRCTBL				
'CRCTBL'	T LONAM_CRCTOY				
	0				
'CRCTBL'	T LONAM_CRCT1Y				
	0				
'CRCTBL'	T LONAM_CRCT1Y				
	1				
'CRCTBL'	T LONAM_CRCT2Y				
	0				
'CRCTBL'	T LONAM_CRCT2Y				

COMMON TAPE MAINTENANCE

PR-1C958-50

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## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
				1		
'CRCTBL'	T	LONAM_CRCT3Y				
				0		
'CRCTBL'	T	LONAM_CRCT3Y				
				1		
'CRCTBL'	T	LONAM_CURTST				
'TAPSTAT'	T	LONAM_DDT				
'TAPSTAT'	T	LONAM_DEVICE				
				DE		
'TAPSTAT'	T	LONAM_EOT				
'CRCTBL'	T	LONAM_ERGOT				
'CRCTBL'	T	LONAM_FAIL				
'BUFSTAT'	T	LONAM_FILL				
'BUFSTAT'	T	LONAM_INTOFF				
'CRCTBL'	T	LONAM_INTSBR				
'BUFSTAT'	T	LONAM_LODST				
'TAPSTAT'	T	LONAM_MOP				
'TAPPRI'	T	LONAM_MSTP				
'TAPSTAT'	T	LONAM_MTCE				
'CRCTBL'	T	LONAM_PASS				
'BUFSTAT'	T	LONAM_PPE				
'BUFSTAT'	T	LONAM_RDY				
'TAPSTAT'	T	LONAM_REWND				
'STATUS'	T	LONAM_STAEXT				
				R		
'CRCTBL'	T	LONAM_STATSV				
'PAGSCR'	T	LONAM_STATUS				
'STATUS'	T	LONAM_STATOY				
				0		
'STATUS'	T	LONAM_STAT1Y				
				0		
'STATUS'	T	LONAM_STAT1Y				
				1		
'STATUS'	T	LONAM_STAT2Y				
				0		
'STATUS'	T	LONAM_STAT2Y				
				1		
'STATUS'	T	LONAM_STAT3Y				
				0		
'STATUS'	T	LONAM_STAT3Y				
				1		
'BUFSTAT'	T	LONAM_STUFF				
'TAPSTAT'	T	LONAM_TIM				
'TAPSTAT'	T	LONAM_TOR				
'CRCTBL'	T	LONAM_TPNO				
'TAPPRI'	T	LONAM_TPR				
'CRCTBL'	T	LONAM_TRK				
'TAPPRI'	T	LONAM_TRKH				
'TAPPRI'	T	LONAM_TRKL				

COMMON TAPE MAINTENANCE

PR-10958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 169

## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
'CRCTBL'	T	LONAM_TSTNO				
'TAPSTAT'	T	LONAM_TUR				
'BUFSTAT'	T	LONAM_UNST				
'TAPSTAT'	T	LONAM_WENBL				
0000015	A	LSTYDENT	88-06	121-14		
0000016	A	LSTY1ENT	88-08	118-25,130-11,132-13		
CTVTAB	V	MXSFBAT		LIBNUM=10 20-28		
14	P	MXSFBATX_XCB				
		LM		LIBNUM=10		
0000006	A	MAXNO	9-11	18-28, 23-31		
0000231	A	MCHBXF		LIBNUM=7 28-34		
0000223	A	MCHTRXT		LIBNUM=7 29-03		
0026472	A	MCHTRXMCHBX		LIBNUM=7 28-32		
TTYAPP	V	MFAD	4-11	26-19		
<pre> ( 18 !s*); ? : #0'=" ab cdefghi n&lt;&lt;+ + jklmnopqr n) s= -stuvw xyz+L [ &gt;= 012 3A56789+ , ] # -CABCDEF GHI )JKLMNO PQR \ S TUVWXYZ 0123456789 ' T MICODETR LIBNUM=7 0131255 L MISCT 71-01 24-21 0000000 A MOP 10-13 W=1 S=17 N=0 CL=3 0132236 L MOREWAIT 108-43 109-01 '3E790207' T MRNO CBLM V MSFBAT 4-30 CTSD V MSFPROG 4-44 27-05, 29-26, 30-39, 32-05, 33-27, 34-37, 36-07, 37-10, 38-13, 39-49, 41-26, 43-13, 44-29, 45-41, 46-46, 49-08, 50-11, 51-18, 52-36, 54-18, 55-38, 57-01, 58-13, 60-12, 61-23, 62-27, 63-43, 65-13, 66-32, 67-46, 68-49, 71-12, 72-33, 73-34, 74-44, 76-35, 78-35, 147-23 CBLM V MSFREQ 4-29 19-17 0000000 A MSTP 10-48 W=1 S=6 N=0 CL=3 50-04, 50-05 0000000 A MTCE 10-10 W=1 S=14 N=0 CL=3 51-11, 51-12, 59-14 0130067 L MYSLF 28-39 28-40 0132234 L MYWAIT 108-33 63-36, 77-32, 108-21, 108-27 </pre>						

## COMMON TAPE MAINTENANCE

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## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
0127533	L	NEX	18-10	18-07		
0132137	L	NEXHLF	106-30	106-46		
0127537	L	NEXT	18-15	18-12		
0131423	L	NEXTSTP	76-23			
0117155	L	NEXTT	116-44	115-28		
0117100	L	NEXXT	113-26	112-41		
0117134	L	NOERROR1	116-04	115-43		
0127676	L	NOFLG	22-48	26-29, 26-31		
0131271	L	NOLED	72-04	71-49		
0000360	A	NOPXF		LIBNUM=7		29-03
0132141	L	NORD	106-32	106-42		
0117003	L	NOSPEED	109-27	99-15		
0131443	L	NXTBK	77-25	77-33		
0130270	L	NXTLOAD	39-23	39-44		
0130326	L	NXTUNL	41-01	41-21		
0000002	A	NXTY1ENT	88-10	121-24, 132-19		
0127612	L	OKREQ	19-22	19-18		
CTAPH	V	OPENTCB	144-44	144-44		
0130015	L	OPTLOK	26-01	25-29		

```

t.<<(AON
  X$*);
-S/
,%_>?
:#@'L" ab
cdefghi n<<+
+ jklmnopqr
n)z-m--stuvw
xyz+Lr[>e012
3456789+J_]z
-(IBCLEFGHI
  )JKLMNO
PQR \ S
LLLMLYZ
0123456789

```

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
0130637	L	OPTR		
0001261	A	ORDON	52-18	52-31
0001272	A	ORG_000000	109-09	
0000203	A	ORG_000020	110-18	
0000203	A	ORG_000031	21-09	
0000214	A	ORG_000037	21-45	
0001073	A	ORG_000072	95-24	
0000234	A	ORG_000141	24-31	
0001602	A	ORG_000162	152-45	

COMMON TAPE MAINTENANCE

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9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 171

## PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
0000205	A	ORG_000212	21-19			
0000236	A	ORG_000417	24-42			
0000633	A	ORG_001671	78-20			
0000646	A	ORG_001716	80-14			
0001071	A	ORG_001777	95-14			
0001131	A	ORG_002102	99-36			
0001137	A	ORG_002157	103-02			
0132106	L	OROUT	105-42	105-49		
0131314	L	OTHER	72-23	74-39		
CTVTAB	V	PXMRY		LIBNUM=10		25-11
14	P	PXMRYX_XTTYA				
		PP		LIBNUM=10		
CTSD	V	PAGSCR	4-43	19-25, 20-47, 23-30, 24-44, 92-36, 92-37, 93-04, 93-05, 144-39		
'CRCTBL+5'	T	PASS		W=1 S=2 N=5 CL=2 22-26, 22-38, 48-23		
0115255	L	PATCH2	152-45	110-23		
TTYAPP	V	PMRY	25-11			
0000000	A	POSOK		W=1 S=15 N=0 CL=3 LIBNUM=12		75-47, 145-30
CTAPH	V	POSST	5-09	76-06		
0000000	A	PPE	10-26	W=1 S=6 N=0 CL=3		
0132017	L	PUTAWAY	103-34	23-19		
0132015	L	PUTAWAY1	103-31	103-27		
CTVTAB	V	RXEQR		LIBNUM=10		20-19
14	P	RXEQRX_XCTAP				
		H		LIBNUM=10		
14	P	RA0		LIBNUM=3		19-05, 19-25, 19-26, 19-27, 19-29, 20-47, 20-48, 21-19, 22-26, 22-38, 22-39, 22-47, 22-49, 23-13, 23-29, 23-42, 23-43, 23-44, 24-01, 24-13, 25-28, 25-35, 25-37, 25-41, 26-08, 26-11, 26-13, 26-14, 26-15, 26-26, 26-27, 44-12, 48-23, 56-44, 92-36, 92-44, 93-04, 99-42, 103-24, 103-25, 103-26, 109-43, 111-25, 111-26, 113-21, 113-42, 116-41, 119-29, 121-13, 123-27, 125-34, 127-25, 128-17, 131-32, 133-14, 143-21, 151-18, 151-24, 152-47
16	P	RA1		LIBNUM=3		20-46, 21-01, 21-02, 21-26, 21-36, 22-18, 22-43, 22-46, 23-01, 23-41, 24-12, 24-14, 24-23, 25-34, 25-36, 25-39, 25-40, 26-07, 26-10, 26-12, 26-25, 52-13, 52-21, 52-24, 62-16, 62-17, 63-37, 67-40, 72-05, 72-06, 75-45, 75-46, 75-47, 75-48, 76-02, 76-04, 76-07, 76-20, 76-25, 76-26, 92-37, 92-45, 93-05, 99-08, 103-35, 103-36, 103-48, 103-49, 105-22, 105-23, 105-24, 105-25, 113-32, 117-05, 119-27, 121-25, 126-03, 128-22, 131-22, 132-03, 145-18, 145-19, 145-20, 145-21, 145-23, 145-25, 145-27, 145-28, 145-30, 146-10, 146-16, 148-36, 148-37, 150-27, 150-28, 151-17, 151-23, 152-27, 152-28
0117034	L	RDSTAT	111-31	118-30		
0000000	A	RDY	10-28	W=1 S=10 N=0 CL=3		37-04, 38-04, 39-22, 40-02, 42-39, 42-40, 42-41, 45-35, 46-40
0000002	A	RD1BLK		LIBNUM=12		152-32
0131721	L	READOK	99-20	99-06		
0120045	L	READSUB	152-01	99-05, 109-46, 112-15, 115-09, 122-02, 126-30, 128-41, 134-08, 138-40		
0117316	L	READ2	124-01	121-19		
MASACS	V	REDKON	5-16	77-30		
0000000	A	REDON		W=1 S=16 N=0 CL=3 LIBNUM=12		26-30
0130405	L	REFILL	42-42	44-24		
0117467	L	REPAIR	133-01	132-07		
0111650	L	REPAKWT	21-23	21-27		
0000007	A	REPK		W=1 S=15 N=7 CL=3 LIBNUM=12		21-36, 103-49
0117646	L	REPOS	141-20	141-32		

COMMON TAPE MAINTENANCE

PR-1C958-50

## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
0117635	L	REPOSITI	141-01	132-18		
0000000	A	REQ		W=4 S=0 N=0 CL=3 LIBNUM=12 146-16		
CTAPH	V	REQR	20-19	141-18, 141-26, 145-06, 148-40, 148-49, 150-35, 152-31		
CTAPH	V	REQSTP	5-08	21-26, 21-26		
0132070	L	RESETAD	105-21	105-17		
0130036	L	RESETAT	26-24	23-45		
0127725	L	RETFAIL	23-39	26-16		
0117016	L	RETURN2	110-24	152-48		
0000000	A	R'WND	10-11	W=1 S=15 N=0 CL=3		
**	T	RMK_ACTIV				
**	T	RMK_ATOP				
' BLOCK NUMB						
ER OF THE 2N						
D LAST BLOCK						
' OF THE TAPE'						
**	T	RMK_BLKADDR				
**	T	RMK_BOFL				
**	T	RMK_BOT				
**	T	RMK_BR				
' USED IN TE						
ST 6 ONLY'						
**	T	RMK_CATP				
' COMMAND DE						
CODER'						
**	T	RMK_COMD				
' THE EXTRA						
CRC TABLE LO						
CCATION'						
**	T	RMK_CRCEXTR				
' EQUATE THE						
CRC TABLE T						
O THE FIRST						
ENTRY OF PA						
GSCR'						
**	T	RMK_CRCTBL				
' THE CRC FO						
R TRACK ADDR						
. 0, BLOCK Y'						
**	T	RMK_CRCTOYO				
' THE CRC FO						
R TRACK ADDR						
. 1, BLOCK Y'						
**	T	RMK_CRCT1YO				
' THE CRC FO						
R TRACK ADDR						
. 1, BLOCK Y						
+1'	T	RMK_CRCT1Y1				
' THE CRC FO						
R TRACK ADDR						
. 2, BLOCK Y'						
**	T	RMK_CRCT2YO				
' THE CRC FO						
R TRACK ADDR						
. 2, BLOCK Y						
+1'	T	RMK_CRCT2Y1				
' THE CRC FO						
R TRACK ADDR						

COMMON TAPE MAINTENANCE

PR-1C958-50

## PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
. 3, BLOCK Y	T	RMK_CRCT3Y0		
' THE CRC FO				
R TRACK ADDR				
. 3, BLOCK Y				
+1'	T	RMK_CRCT3Y1		
'	T	RMK_CURTST		
'	T	RMK_DDT		
'	T	RMK_DEVICODE		
'	T	RMK_EOT		
' TEST FAILE				
D'	T	RMK_ERGOT		
' FAIL REPOR				
T BIT'	T	RMK_FAIL		
'	T	RMK_FILL		
'	T	RMK_INTOFF		
' INTERRUPT				
GENERATED'	T	RMK_INTSBR		
'	T	RMK_LODST		
'	T	RMK_MOP		
' MAINTENANC				
E STOP ENABL				
E'	T	RMK_MSTP		
'	T	RMK_MTCE		
' TEST PASS				
REPORT BIT'	T	RMK_PASS		
'	T	RMK_PPE		
'	T	RMK_RDY		
'	T	RMK_REWND		
' THE EXTRA				
STATUS TABLE				
LOCATION'	T	RMK_STAEXTR		
'	T	RMK_STATSV		
' EQUATE THE				
STATUS TABLE				
TO THE MIDD				
LE OF PAGSRC'	T	RMK_STATUS		
' THE STATUS				
FOR TRACK A				
DDR. 0, BLOC				
K Y'	T	RMK_STAT0Y0		
' THE STATUS				
OF TRACK AD				
DR. 1, BLOC				
Y'	T	RMK_STAT1Y0		
' THE STATUS				
OF TRACK AD				
DR. 1, BLOC				
Y+1'	T	RMK_STAT1Y1		
' THE STATUS				

COMMON TAPE MAINTENANCE

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## PATCH HISTORY

9:34:51 2/07/81 \*\*\*\*

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPH	W77D
OF TRACK AD DR. 2, BLOCK Y'	T	RMK_STAT2YO				
' THE STATUS OF TRACK AD DR. 2, BLOCK Y+1'	T	RMK_STAT2Y1				
' THE STATUS OF TRACK AD DR. 3, BLOCK Y'	T	RMK_STAT3YO				
' THE STATUS OF TRACK AD DR. 3, BLOCK Y+1'	T	RMK_STAT3Y1				
..	T	RMK_STUFF				
..	T	RMK_TIM				
..	T	RMK_TOR				
..	T	RMK_TPNO				
' TRANSPORT READY'	T	RMK_TPR				
' TRACK BITS OF THE TRAC K/BLOCK ID'	T	RMK_TRK				
' TRACK BITS '	T	RMK_TRKH				
' TRACK BITS '	T	RMK_TRKL				
..	T	RMK_TSTNO				
..	T	RMK_TUR				
..	T	RMK_UNST				
..	T	RMK_WENBL				
0117443	L	RPARCK	131-01	130-16		
0117502	L	RPARRD	134-01	136-08		
0117622	L	RPFINIBS	139-35	138-41		
0117536	L	RPRDBK	135-28	135-04		
0117542	L	RPRDBKSP	135-42	134-17		
0117602	L	RPREREAD	138-37	139-31		
0117610	L	RPRRDBS	139-11	139-03		
TTYTBL	V	RPT	4-02	18-06		
0117514	L	RPWRBKSP	134-28	135-17		
0117513	L	RPWRIT	134-22	134-12		
0117551	L	RP2BKSP	137-01	134-06		
0117561	L	RP2BS	137-37	137-46		
0127611	L	RTN_RL	19-19	19-10		
0132047	L	RTN_T	104-23	104-29		
0132043	L	RTORD	104-16	104-31		
O R RO			LIBNUM=3	18-05, 18-08, 18-13, 20-11, 20-25, 20-26, 20-46, 20-47, 21-02, 21-19, 21-20,		
				22-39, 22-40, 22-42, 22-43, 23-29, 23-31, 23-40, 23-41, 23-42, 24-15, 24-16, 24-22, 24-23,		

COMMON TAPE MAINTENANCE

PR-1C958-50

9:34:51 2/07/81 TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET CTAPH ISSUE 06 PAGE 175

## PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPM	W77D
				25-34, 25-38, 25-39, 25-40, 25-41, 25-42, 25-45, 26-07, 26-09, 26-10, 26-11, 26-12, 26-17, 26-25, 28-22, 28-38, 28-40, 29-19, 29-20, 31-44, 33-21, 50-04, 50-05, 51-11, 51-12, 52-13, 52-24, 52-25, 61-16, 61-17, 68-40, 68-41, 68-43, 72-13, 72-18, 75-45, 75-46, 75-48, 76-01, 76-02, 76-06, 76-07, 76-12, 76-16, 76-20, 76-21, 76-25, 76-26, 76-27, 92-36, 92-37, 93-04, 93-05, 95-11, 96-18, 103-48, 104-19, 104-43, 105-23, 107-24, 107-28, 108-02, 108-06, 108-42, 108-46, 141-28, 144-39, 145-08, 145-27, 145-28, 146-09, 146-15, 146-16, 148-36, 149-02, 150-27, 152-27		
0000123	A	ROXF		LIBNUM=7 28-28		
1	R	R1		LIBNUM=3 18-24, 18-25, 18-26, 18-28, 18-29, 18-31, 18-33, 18-35, 18-37, 18-38, 22-46, 23-03, 24-11, 24-12, 25-36, 25-37, 62-18, 62-19, 72-14, 72-18, 76-03, 76-04, 99-07, 99-08, 99-44, 103-33, 103-35, 109-10, 110-25, 110-30, 110-31, 113-02, 113-07, 116-21, 116-22, 116-27, 123-27, 123-29, 127-25, 127-26, 133-28, 133-29, 133-30, 133-32, 133-34, 133-39, 141-14, 144-41, 145-18, 145-22, 145-23, 146-10		
12	R	R10		LIBNUM=3 19-28, 19-29, 21-41, 28-48, 30-27, 31-41, 33-08, 33-17, 34-28, 35-32, 37-01, 38-01, 39-27, 39-35, 41-02, 41-07, 41-16, 42-32, 42-43, 43-02, 44-14, 45-24, 45-31, 46-37, 47-45, 47-48, 48-02, 48-06, 48-11, 48-14, 48-17, 50-01, 51-07, 52-21, 52-27, 53-41, 53-44, 53-47, 54-02, 54-06, 54-11, 55-19, 55-23, 55-29, 56-34, 56-37, 57-44, 57-47, 58-01, 59-07, 59-10, 61-13, 62-21, 64-41, 64-43, 64-44, 64-46, 64-47, 65-04, 66-19, 67-32, 67-37, 69-02, 71-45, 72-08, 72-26, 73-25, 74-27, 74-34, 77-24, 77-42, 78-02, 78-07, 78-13, 78-25, 79-36, 94-17, 95-03, 95-41, 96-13, 96-24, 98-14, 103-43, 104-28, 104-30, 105-37, 105-40, 106-20, 106-24, 106-29, 107-17, 107-33, 107-41, 107-44, 143-10		
0000152	A	R10XT		LIBNUM=7 28-34		
13	R	R11		LIBNUM=3 28-47, 29-20, 30-30, 33-15, 33-21, 37-04, 38-04, 39-30, 39-38, 39-43, 41-05, 41-10, 41-20, 42-35, 42-46, 43-06, 44-17, 44-23, 45-35, 46-40, 48-20, 50-05, 51-12, 52-25, 58-04, 59-14, 61-17, 62-10, 69-07, 71-48, 73-28, 74-37, 77-45, 77-47, 78-16, 79-39, 94-20, 95-45, 96-16, 96-41, 96-43, 104-28, 106-39, 107-01, 107-36		
2	R	R2		LIBNUM=3 19-15, 20-48, 20-49, 21-01, 23-05, 25-35, 25-36, 25-39, 26-08, 26-10, 26-26, 38-15, 39-41, 41-19, 42-27, 52-14, 52-31, 76-12, 76-16, 77-23, 77-33, 95-11, 96-18, 98-10, 98-19, 103-20, 103-36, 104-15, 104-31, 105-40, 105-41, 105-49, 106-39, 106-43, 106-45, 107-24, 107-28, 108-02, 108-06, 108-42, 108-46, 111-33, 112-31, 115-02, 115-20, 119-37, 120-24, 121-31, 122-26, 126-05, 126-37, 128-34, 128-47, 133-46, 134-11, 134-17, 134-25, 135-17, 135-40, 137-26, 137-46, 138-34, 139-03, 143-08, 143-15, 151-17, 151-18, 151-19, 151-25		
3	R	R3		LIBNUM=3 19-05, 19-06, 22-47, 23-01, 23-07, 26-27, 26-28, 26-30, 39-21, 39-30, 39-31, 40-02, 41-05, 41-10, 41-11, 42-39, 42-46, 42-48, 65-05, 66-15, 67-31, 68-42, 68-43, 72-17, 74-39, 92-38, 92-44, 92-45, 92-47, 103-22, 105-43, 105-46, 111-23, 111-25, 111-35, 113-21, 113-32, 113-33, 116-41, 117-05, 118-25, 119-25, 119-27, 121-13, 121-14, 121-24, 121-25, 123-27, 125-35, 126-03, 127-25, 127-38, 128-01, 128-22, 130-11, 130-17, 131-45, 132-03, 132-13, 132-19, 133-28, 145-25, 145-26, 145-28		
4	R	R4		LIBNUM=3 24-13, 24-14, 39-22, 39-38, 39-39, 42-40, 43-06, 43-07, 45-22, 45-30, 64-39, 64-40, 64-41, 65-05, 66-15, 66-17, 66-25, 66-26, 75-46, 76-26, 103-38, 106-31, 106-42, 112-40, 113-22, 113-32, 115-22, 116-42, 117-05, 119-27, 120-34, 121-25, 122-17, 123-12, 126-03, 126-42, 128-22, 128-24, 132-03, 132-05		
5	R	R5		LIBNUM=3 20-13, 20-24, 42-41, 44-17, 44-18, 72-16, 72-24, 103-40, 111-24, 111-25, 113-20, 113-21, 116-40, 116-41, 121-12, 121-13, 123-28, 123-29, 127-24, 127-26		
6	R	R6		LIBNUM=3 18-26, 19-25, 22-49, 23-01, 24-44, 72-15, 72-24, 72-26, 92-40, 92-44, 92-45, 99-01, 99-24, 99-41, 99-42, 103-25, 106-33, 106-36, 109-10, 109-21, 110-10, 110-31, 111-26, 111-36, 113-07, 116-27, 119-29, 119-30, 121-27, 125-34, 125-44, 133-14, 133-15, 133-39, 138-12, 138-35, 148-37, 150-28, 151-23, 151-24, 152-28, 152-46, 152-47		
7	R	R7		LIBNUM=3 18-20, 18-32, 23-10, 23-16, 25-02, 27-03, 27-05, 29-25, 29-26, 30-38, 30-39, 32-04, 32-05, 33-26, 33-27, 34-36, 34-37, 36-05, 36-07, 37-09, 37-10, 38-12, 38-13, 39-48,		

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VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPM	W77D
				39-49, 41-25, 41-26, 43-12, 43-13, 44-28, 44-29, 45-40, 45-41, 46-45, 46-46, 49-06, 49-08,		
				50-10, 50-11, 51-17, 51-18, 52-35, 52-36, 54-17, 54-18, 55-37, 55-38, 56-49, 57-01, 58-12,		
				58-13, 60-10, 60-12, 61-22, 61-23, 62-26, 62-27, 63-42, 63-43, 65-12, 65-13, 66-31, 66-32,		
				67-45, 67-46, 68-48, 68-49, 71-10, 71-12, 72-32, 72-33, 73-33, 73-34, 74-43, 74-44, 76-34,		
				76-35, 78-34, 78-35, 89-20, 103-14, 143-26, 147-22, 147-23		
10	R	R8		LIBNUM=3 18-29, 18-34, 19-26, 20-10, 29-14, 29-23, 29-24, 29-25, 30-36, 30-37, 30-38,		
				32-02, 32-03, 32-04, 33-24, 33-25, 33-26, 34-34, 34-35, 34-36, 37-07, 37-08, 37-09, 38-10,		
				38-11, 38-12, 39-46, 39-47, 39-48, 41-23, 41-24, 41-25, 43-10, 43-11, 43-12, 44-26, 44-27,		
				44-28, 45-38, 45-39, 45-40, 46-43, 46-44, 46-45, 50-08, 50-09, 50-10, 51-15, 51-16, 51-17,		
				52-33, 52-34, 52-35, 54-15, 54-16, 54-17, 55-35, 55-36, 55-37, 56-47, 56-48, 56-49, 58-10,		
				58-11, 58-12, 61-20, 61-21, 61-22, 62-24, 62-25, 62-26, 63-40, 63-41, 63-42, 65-10, 65-11,		
				65-12, 66-29, 66-30, 66-31, 67-43, 67-44, 67-45, 68-46, 68-47, 68-48, 72-30, 72-31, 72-32,		
				73-31, 73-32, 73-33, 74-41, 74-42, 74-43, 76-32, 76-33, 76-34, 78-32, 78-33, 78-34, 89-21,		
				92-06, 92-23, 94-24, 96-04, 96-37, 97-04, 98-06, 99-11, 103-13, 109-17, 110-04, 111-08, 112-08,		
				112-27, 112-36, 113-15, 113-47, 115-23, 115-36, 116-08, 116-32, 118-19, 119-06, 120-05, 120-20, 120-28,		
				120-41, 121-07, 121-44, 122-13, 122-22, 122-30, 122-45, 123-23, 123-38, 124-08, 126-23, 127-02, 127-19,		
				127-34, 128-13, 128-30, 129-12, 129-23, 129-37, 130-05, 131-28, 131-41, 134-40, 135-13, 135-20, 135-33,		
				136-04, 137-08, 137-33, 138-04, 138-22, 139-16, 139-27, 139-40, 140-14, 141-08, 141-39, 143-28, 143-30,		
				147-21, 147-22		
				LIBNUM=3 18-06, 18-11, 18-16, 18-18, 18-36, 19-27, 21-01		
11	R	R9		LIBNUM=10 48-04, 53-49, 104-18		
CTVTAB	V	SXENDIO				
14	P	SXENDIOX_XCS				
		YSUB				
0100007	A	SD		LIBNUM=10 48-17, 58-01, 106-29		
CSYSUB	V	SENDIO	4-23			
CSYSUB	V	SENDMIO	4-22			
0132064	L	SENDMIOM	105-04	31-43, 52-30, 55-32, 71-47, 94-19, 95-05, 95-44, 96-15, 96-26, 98-16, 103-45, 104-42, 105-16,		
				105-39, 106-22, 106-26, 107-19, 107-35, 107-43, 107-46, 143-12		
				30-29, 37-03, 38-03, 39-29, 39-37, 41-04, 41-09, 41-18, 42-34, 42-45, 43-05, 44-16, 45-26,		
				45-33, 46-39, 47-47, 48-01, 48-08, 48-13, 48-16, 48-19, 50-03, 51-10, 52-23, 53-43, 53-46,		
				54-04, 54-08, 54-13, 55-22, 55-25, 56-36, 56-39, 57-46, 57-49, 58-03, 59-09, 59-13, 61-15,		
				63-30, 65-01, 66-22, 67-34, 67-39, 69-06, 72-10, 72-28, 73-27, 74-30, 74-36, 77-27, 77-39,		
				77-44, 78-04, 78-09, 78-15, 79-33, 79-38		
0132042	L	SENDSFT	104-06	34-31, 35-34		
0131077	L	SENO	62-22	65-07		
0127777	L	SEQU	25-33	26-20		
0001622	A	SERNO_048533	157-22			
0001626	A	SERNO_049569	158-02			
0001632	A	SERNO_051172	158-19			
0001616	A	SERNO_062088	157-12			
0001612	A	SERNO_064200	157-02			
0001636	A	SERNO_067787	159-02			
0127605	L	SETALL1	19-14	19-07		
0127545	L	SETREQ	18-23	18-09, 18-14, 18-17		
0117722	L	SETTST	145-01	145-12		
0131070	L	SKIPLD	62-15	62-11		
0132056	L	SMTM	104-37	33-13, 33-19		
0127654	L	SNDINIT	21-35	21-21		
0000011	A	SNDYQENT	88-05	119-25, 128-01		
0130046	L	SPIBT	27-01	24-17		

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VALUE	T NAME	DEF/REF	ATTRIBUTES AND REFERENCES				
'TXAPE'	T SPWORD						
0000000	A SRFAL		W=1 S=11 N=0 CL=3	LIBNUM=12	63-37, 67-40		
0000216	A SS_RXT			LIBNUM=7	29-13		
0000213	A SS_SXT			LIBNUM=7	28-20		
0010007	A SST			LIBNUM=12	31-41		
'STATUS+15'	T STAEXTR		W=20 S=0 N=17 CL=2				
0132110	L STAR	105-45	105-46				
0120006	L STATEST	148-43	149-10, 150-37, 152-33				
0000012	A STATEWRD		W=20 S=0 N=12 CL=3	LIBNUM=12	24-12, 24-23, 76-07, 76-20		
0117164	L STATFINI	118-23	114-02				
0000011	A STATST			LIBNUM=12	20-20		
'CRCTBL+4'	T STATSV		W=20 S=0 N=4 CL=2		22-47, 25-37, 26-11, 26-27, 103-26		
'PAGSCR+16'	T STATUS		W=20 S=0 N=20 CL=2		92-37, 93-05		
'STATUS+8'	T STATOYO		W=20 S=0 N=10 CL=2		92-37		
'STATUS+9'	T STAT1Y0		W=20 S=0 N=11 CL=2				
'STATUS+10'	T STAT1Y1		W=20 S=0 N=12 CL=2				
'STATUS+11'	T STAT2Y0		W=20 S=0 N=13 CL=2				
'STATUS+12'	T STAT2Y1		W=20 S=0 N=14 CL=2				
'STATUS+13'	T STAT3Y0		W=20 S=0 N=15 CL=2				
'STATUS+14'	T STAT3Y1		W=20 S=0 N=16 CL=2				
TTYTBL	V STEP	4-03	18-11				
0132143	L STR	106-35	106-36				
0000000	A STUFF	10-32	W=1 S=14 N=0 CL=3		39-21, 39-22		
0132135	L STUNLD	106-28	106-11				
CSYSUB	V ST2_11	4-24	103-42				
0000000	A SV_REG						
0117754	L SYSCLOSE	145-39	24-43, 141-45, 143-36				
0117712	L SYSTSET	144-01	92-14				
	O U T						
TTYTBL	X TXAPE	25-16	25-16, 103-40				
CTVTAB	V TXIMCHK		LIBNUM=10		107-31, 108-09, 108-49		
14	P TXIMCHK_XCS						
	YSUB		LIBNUM=10				
CTVTAB	V TXIMOUT		LIBNUM=10		63-33, 76-10, 77-29, 107-22, 107-49, 108-19, 108-25, 108-31		
14	P TXIMOUT_XCS						
	YSUB		LIBNUM=10				
0000010	A TABLTOP	88-04	99-08, 111-23, 125-35, 131-22				
0127621	L TAPEDGN	1-32	6-01				
0116774	L TAPEPACH	109-09					
TDATA	V TAPETBL	5-01	18-24, 20-46				
0000010	A TAPNO		W=2 S=0 N=10 CL=3	LIBNUM=12	24-14, 145-25, 145-26		
0006415	A TBS			LIBNUM=12	64-47, 66-19, 77-24, 98-14, 107-17, 143-10		
0131752	L TBS1	101-19					
CTSD	V TCBADR	4-40	19-05, 21-02, 25-40, 26-12, 75-48, 103-48, 145-18, 146-10, 148-36, 150-27, 152-27				
0117733	L TCBFIXUP	145-16	145-09				
0131764	L TCCRC	101-34					
0131774	L TCMTC	101-46					
0131770	L TCWS	101-40					
0131740	L TDCORD	101-01	52-13				
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VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CTAPM	W77D
CTSD	V	TDCO	4-39			
BLHMA	V	TEMPINH_	4-16	95-25		
0000006	A	TEST	27-02	36-02, 49-05, 60-06, 71-06, 80-09		
0116774	L	TFAPCH2	1-43	99-45, 109-05		
0002415	A	TFF		LIBNUM=12 72-15, 95-03		
0131754	L	TFF1	101-22			
0004415	A	TFR		LIBNUM=12 72-16		
0131756	L	TFR1	101-25			
0000000	A	TIM	10-08	W=1 S=12 N=0 CL=3 69-07, 73-28, 74-37, 77-47, 78-16, 79-39, 95-45, 96-16, 107-36		
CSYSUB	V	TIMCHK	107-30	76-18, 96-21, 108-08, 108-48		
CSYSUB	V	TIMOUT	63-32	76-09, 95-09, 107-21, 107-48, 108-18, 108-24, 108-30		
0007215	A	TINIT	9-06	78-25		
0131776	L	TMAINT	101-49			
0000215	A	TMSTOP	9-04	50-01		
0000000	A	TOR	10-07	W=1 S=11 N=0 CL=3 96-43		
0600000	L	TPATCH	1-45			
'CRCTBL+0'	T	TPNO		W=20 S=0 N=0 CL=2 20-48, 22-49, 24-13, 25-35, 26-08, 26-26, 103-25, 144-39		
0000000	A	TPR	10-49	W=1 S=7 N=0 CL=3 50-05		
0001616	A	TR_011799	157-1?			
0001612	A	TR_012002	157-02			
0001632	A	TR_012339	158-19			
0001622	A	TR_012958	157-22			
0001626	A	TR_013668	158-02			
0001137	A	TR_11799	103-02			
0000214	A	TR_12002	21-09	21-19, 21-45		
0001602	A	TR_12339	99-36	110-18, 152-45		
0000633	A	TR_12958	78-20			
0001261	A	TR_13668	80-14	109-09		
0001073	A	TR_3E790207	95-14	95-24		
0001636	A	TR_790117	24-31	24-42, 159-02		
0000006	A	TRACK		W=2 S=13 N=6 CL=3 LIBNUM=12 148-37, 150-28, 152-28		
0003415	A	TRB		LIBNUM=12 62-21, 64-44, 72-08, 78-07, 107-44		
0131740	L	TRB1	101-04			
0131742	L	TRB2	101-07			
0131744	L	TRB3	101-10			
0131746	L	TRB4	101-13			
'CRCTBL+6'	T	TRK		W=2 S=13 N=6 CL=2 111-36, 119-30, 121-27, 125-44, 133-32, 133-34		
0000000	A	TRKH	10-52	W=2 S=16 N=0 CL=3		
0000000	A	TRKL	10-51	W=2 S=14 N=0 CL=3		
0117014	L	TRORG	21-09	21-45, 24-31, 78-20, 80-14, 95-14, 99-36, 103-02, 110-18		
0007415	A	TRT		LIBNUM=12 67-32		
0131760	L	TRT1	101-28			
0001015	A	TSCRC	9-05	56-37		
0002015	A	TSTAT		LIBNUM=12 51-07, 55-29, 59-10, 61-13, 69-02, 71-45, 73-25, 74-34, 77-42, 78-13, 79-36, 94-17, 95-41, 96-13, 107-33		
0000000	A	TSTATE		W=1 S=13 N=0 CL=3 LIBNUM=12 26-09, 26-28, 103-26		
'CRCTBL+1'	T	TSTNO		W=20 S=0 N=1 CL=2 19-26, 22-39, 25-41		
0000015	A	TSTOP		LIBNUM=12 52-27, 74-27		
0131772	L	TSTOPT	101-43			

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TTYTBL	V	TTY_IP	4-07	19-31		
LAYOUT	V	TTY_MFA	4-35	103-35		
TTYTBL	V	TTY_NG	4-05	18-43, 18-45, 18-47, 18-49		
TTYTBL	V	TTY_RL	4-06	19-13, 19-21		
	O	TTYAPP				
0000002	A	TTYO		LIBNUM=14 23-05, 23-07, 25-13, 25-14, 103-22		
0000004	A	TTYO_DEC		LIBNUM=14 23-05, 25-13, 103-20		
0000006	A	TTYO_L_X		LIBNUM=14 103-20, 103-22		
0000000	A	TTYO_WRD		LIBNUM=14 23-05, 25-13		
0000002	A	TTYOCNT	25-15			
	O	TTYTBL				
0000015	A	TUCDEV	9-13	50-04, 51-11, 51-12, 61-16		
0000000	A	TUR	10-05	W=1 S=7 N=0 CL=3 59-14, 61-16		
CTSD	V	TUSTAT	4-42	22-46, 25-34, 26-07, 26-25, 75-45, 76-25, 145-27		
0131750	L	TWIBG2	101-16			
0131537	L	TWRITE	80-01	24-24, 89-01		
0003015	A	TWSTP		LIBNUM=12 55-19		
0131766	L	TWSTPT	101-37			
0131762	L	TWT2	101-31	55-23		
TTYTBL	V	UCL	4-04	18-16, 23-13, 24-01, 26-15		
0132122	L	UNCHECK	106-12	44-21		
0132120	L	UNCHECK1	106-09	41-14		
0000000	A	UNST	10-31	W=1 S=13 N=0 CL=3 40-02, 41-05, 42-46, 43-06, 44-17, 45-35		
CTVTAB	V	WXAIT		LIBNUM=10 20-23, 21-25, 95-28, 107-27, 108-05, 108-45		
	14	P WXAITX_XCBLM		LIBNUM=10		
CBLM	V	WAIT	4-31	96-12, 141-25, 145-05, 148-48		
0131501	L	WAITIM	78-10	78-17		
0132224	L	WAIT1	108-16	39-34, 43-01, 45-28, 48-10, 52-20, 54-10, 55-28, 56-42, 69-04, 73-24, 76-15, 78-06, 78-12		
0132227	L	WAIT1S	108-22	22-02, 65-03, 66-24, 74-32		
0132232	L	WAIT3S	108-28	67-36, 72-12, 77-41, 79-35, 98-18, 143-14		
0131412	L	WAT	76-13	76-22		
0000000	A	WENBL	10-04	W=1 S=6 N=0 CL=3 51-11, 51-12, 61-16		
0117201	L	WRBKSP	119-40	120-24		
0120017	L	WRITESUB	150-01	120-10, 135-03, 138-15		
0117200	L	WRITE1	119-32	122-18, 123-45		
0131037	L	XERRMSGPOX	59-17	55-33, 56-45, 58-05, 59-15, 61-18, 62-14, 63-38, 64-42, 66-16, 67-41, 68-44, 69-08, 72-03, 73-29, 74-38		
0117040	L	YBS1	111-42	112-31		
0117331	L	YBS2	126-10	126-37		
0117352	L	YCHECK	127-13	126-31		
CTSD	V	YEARS	4-45	151-18		
0117246	L	YRRBKSP	121-34	122-26		
0117275	L	YRRNOERR	122-39	122-03		
0117064	L	YSAVE	112-45	112-16		
0000322	A	YTXF		LIBNUM=7 28-20, 29-13		
0117425	L	Y1BS2	129-31	128-42		
0117457	L	Y1CHCK	132-01	132-20		
0117110	L	Y1READ	115-01	113-43		
0117111	L	Y1READ1	115-06	116-12		

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VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
0117405	L	Y1READ2	128-38	129-27
0117140	L	Y1SAVE	116-16	115-10
0025712	A	ZBRX		LIBNUM=7 28-26
0025750	A	ZERX		LIBNUM=7 29-05
0026750	A	ZMINTX		LIBNUM=7 28-36, 29-07
1	J	3ACC	1-09	

CTAPM

W77D

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COUNT T NAME

DEF/REF REFERENCES

5 0 AI  
56 0 AN

LIBNUM=1 64-43,111-36,119-30,121-27,125-44  
LIBNUM=1 20-49, 92-23, 94-24, 96-04, 96-37, 97-04, 98-06, 99-11,109-17,110-04,110-30,  
111-35,112-08,112-36,113-15,113-33,113-47,115-23,115-36,116-32,118-19,120-05,120-28,120-41,  
121-07,121-24,121-44,122-13,122-30,122-45,123-23,123-38,126-23,127-02,127-19,127-34,127-38,  
128-13,129-12,129-37,130-05,130-17,131-28,132-19,133-15,134-40,135-20,135-33,136-04,137-33,  
138-04,138-22,138-35,139-16,139-40,141-39

1 0 AIS  
46 0 B

LIBNUM=1 23-30  
LIBNUM=1 18-09, 18-14, 18-39, 18-40, 19-01, 25-48, 26-20, 26-31, 29-16, 29-28, 59-16,  
65-07, 78-18, 94-28, 97-08,104-22,106-11,108-21,108-27,112-41,114-02,115-28,116-12,120-48,  
122-34,123-45,125-36,127-09,128-48,129-27,130-18,132-20,134-18,135-24,136-08,139-04,139-31,  
140-18,141-29,141-31,141-32,145-09,145-12,149-10,150-37,152-33

54 0 BC

LIBNUM=1 18-17, 19-07, 19-10, 20-12, 20-21, 21-27, 22-41, 24-02, 25-29, 25-44, 28-42,  
28-44, 29-15, 33-22, 35-38, 55-33, 62-11, 63-38, 64-45, 67-41, 69-08, 71-49, 72-19, 74-38,  
78-17, 96-22, 96-42, 96-44, 99-06,103-27,107-32,107-37,108-10,109-01,112-16,115-10,115-43,  
120-11,120-35,121-19,122-03,126-31,126-43,128-03,128-18,128-42,130-16,131-23,131-33,132-18,  
134-06,134-12,135-04,138-41

24 0 BL

LIBNUM=1 21-13, 21-29, 24-17, 24-18, 24-19, 24-20, 24-21, 24-24, 24-36, 24-46, 35-43,  
59-18, 70-01, 79-42, 95-18, 95-30, 96-30, 99-15, 99-45,110-23,116-01,142-06,143-37,152-48,

100 0 BNC

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26-16, 26-29, 29-21, 30-31, 31-45, 33-14, 33-16, 33-20, 34-32, 37-05, 38-05, 39-26, 39-32,  
39-40, 39-44, 41-06, 41-12, 41-15, 41-21, 42-31, 42-36, 42-47, 43-08, 44-13, 44-19, 44-22,  
44-24, 45-36, 46-41, 47-44, 48-05, 48-21, 50-06, 56-45, 58-05, 59-15, 61-18, 62-14, 64-42,  
66-16, 68-44, 72-03, 73-29, 76-19, 76-22, 76-28, 77-46, 77-48, 79-40, 92-15, 94-21, 95-46,  
96-17,104-29,105-17,105-48,106-23,106-27,106-38,106-41,106-46,109-12,109-22,109-47,110-33,  
112-01,113-08,113-43,116-28,118-10,118-30,119-44,121-38,122-18,123-14,123-30,126-14,127-28,  
128-26,129-19,129-46,132-07,134-32,135-46,137-42,138-16,139-23,140-04,141-46

5 0 BNCL  
7 0 BPAX  
233 0 BSA

LIBNUM=1 21-21, 51-13, 52-26, 54-01, 54-05  
LIBNUM=1 18-38, 24-16,104-19,104-43,141-28,145-08,149-02  
LIBNUM=1 19-09, 19-17, 21-06, 22-02, 23-19, 24-43, 26-19, 30-29, 31-43, 33-13, 33-19,  
34-31, 35-34, 37-03, 38-03, 39-25, 39-29, 39-34, 39-37, 41-04, 41-09, 41-14, 41-18, 42-30,  
42-34, 42-45, 43-01, 43-05, 44-16, 44-21, 45-26, 45-28, 45-33, 46-39, 47-43, 47-47, 48-01,  
48-08, 48-10, 48-13, 48-16, 48-19, 50-03, 51-10, 52-20, 52-23, 52-30, 53-43, 53-46, 54-04,  
54-08, 54-10, 54-13, 55-22, 55-25, 55-28, 55-32, 56-36, 56-39, 56-42, 57-46, 57-49, 58-03,  
59-09, 59-13, 61-15, 62-13, 63-30, 63-36, 65-01, 65-03, 66-22, 66-24, 67-34, 67-36, 67-39,  
69-04, 69-06, 71-47, 72-02, 72-10, 72-12, 72-28, 73-24, 73-27, 74-30, 74-32, 74-36, 76-15,  
76-18, 77-27, 77-32, 77-39, 77-41, 77-44, 78-04, 78-06, 78-09, 78-12, 78-15, 79-33, 79-35,  
79-38, 89-23, 92-08, 92-14, 92-25, 94-19, 94-26, 95-05, 95-09, 95-25, 95-44, 96-06, 96-12,  
96-15, 96-21, 96-26, 96-39, 97-06, 98-08, 98-16, 98-18, 99-05, 99-13,103-30,103-42,103-45,  
103-47,104-42,105-16,105-39,106-22,106-26,107-19,107-35,107-43,107-46,109-19,109-46,110-06,  
111-10,111-45,112-10,112-15,112-29,112-38,113-17,113-49,115-09,115-26,115-38,115-42,116-10,  
116-34,118-07,118-21,119-08,119-43,120-07,120-10,120-22,120-30,120-43,121-09,121-37,121-46,  
122-02,122-15,122-24,122-32,122-47,123-25,123-40,124-10,126-13,126-25,126-30,127-04,127-21,  
127-36,128-15,128-32,128-41,129-14,129-18,129-25,129-39,129-45,130-07,131-30,131-43,134-08,  
134-31,134-42,135-03,135-15,135-22,135-35,135-45,136-06,137-10,137-35,137-41,138-06,138-15,  
138-24,138-40,139-18,139-22,139-29,139-42,140-03,140-16,141-10,141-18,141-25,141-26,141-41,  
141-45,143-12,143-14,143-36,144-44,145-05,145-06,146-14,148-40,148-48,148-49,150-32,150-35,  
152-31

23 0 BSAI

LIBNUM=1 20-19, 20-23, 20-28, 21-25, 25-11, 48-04, 53-49, 63-33, 76-10, 77-29, 95-28,

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COUNT	T	NAME	DEF/REF	REFERENCES	CTAPM	W77D
2	0	BTSA	LIBNUM=1	104-18,107-22,107-27,107-31,107-49,108-05,108-09,108-19,108-25,108-31,108-45,108-49		
3	0	BTSAG	LIBNUM=1	105-19,105-27		
11	0	BTSAGN	LIBNUM=1	109-03,147-25,151-27		
			LIBNUM=1	106-02,106-03,106-48,107-03,107-39,108-12,145-11,145-33,146-18,149-07,149-09,		
19	0	BTSAN	LIBNUM=1	18-43, 18-45, 18-47, 18-49, 19-13, 19-21, 19-31, 20-30, 23-21, 24-04, 25-20,		
			LIBNUM=1	48-25,104-02,104-21,104-25,104-33,104-45,104-47,104-49		
26	0	BX	LIBNUM=1	20-24, 28-40, 45-30, 52-31, 66-25, 74-39, 77-33, 92-47, 98-19,104-31,105-46,		
			LIBNUM=1	105-49,106-36,106-42,112-31,115-20,120-24,122-26,126-37,128-47,134-17,135-17,137-46,139-03,		
			LIBNUM=1	143-15,151-25		
14	0	CI	LIBNUM=1	23-31, 37-04, 38-04, 45-35, 46-40, 48-20, 58-04, 64-44,118-25,121-14,128-01,		
			LIBNUM=1	130-11,132-13,134-11		
3	0	CIRM	LIBNUM=1	19-06, 59-14, 76-27		
5	0	COM	LIBNUM=1	33-17, 35-32, 39-41, 41-19, 62-18		
9	0	CR	LIBNUM=1	29-20, 39-30, 39-38, 41-10, 52-25,104-28,106-39,123-29,127-26		
11	0	CRM	LIBNUM=1	41-05, 42-46, 43-06, 44-17, 50-05, 51-12, 61-17, 64-41, 66-15,113-07,116-27		
1	0	EXR	LIBNUM=1	72-24		
1	0	FLZ	LIBNUM=1	33-21		
2	0	GA	LIBNUM=1	142-05,143-32		
1	0	GN	LIBNUM=1	65-04		
13	0	HA	LIBNUM=1	91-04,105-36,106-10,106-19,107-16,108-41,144-37,146-07,147-19,148-34,150-25,		
			LIBNUM=1	151-16,152-25		
6	0	HN	LIBNUM=1	64-46,105-24,105-25,107-01,143-26,143-30		
3	0	ICF	LIBNUM=1	18-33, 18-35, 18-37		
33	0	IRM	LIBNUM=1	29-25, 30-38, 32-04, 33-26, 34-36, 37-09, 38-12, 39-48, 41-25, 43-12, 44-28,		
			LIBNUM=1	45-40, 46-45, 50-10, 51-17, 52-35, 54-17, 55-37, 56-49, 58-12, 61-22, 62-26, 63-42, 65-12,		
			LIBNUM=1	66-31, 67-45, 68-48, 72-32, 73-33, 74-43, 76-34, 78-34,147-22		
22	0	L	LIBNUM=1	20-48, 21-19, 22-39, 22-47, 22-49, 23-29, 24-13, 25-35, 25-41, 26-08, 26-26,		
			LIBNUM=1	26-27, 28-27, 28-33, 29-02, 76-20,103-25,111-26,119-29,125-34,133-14,145-25		
3	0	LA	LIBNUM=1	52-21, 52-24,151-24		
28	0	LAL	LIBNUM=1	19-05, 20-46, 20-47, 21-02, 22-46, 25-34, 25-40, 26-07, 26-12, 26-25, 52-13,		
			LIBNUM=1	75-45, 75-48, 76-25, 92-36, 92-37, 93-04, 93-05,103-48,105-23,145-18,145-27,146-10,148-36,		
			LIBNUM=1	150-27,151-17,151-18,152-27		
2	0	LAX	LIBNUM=1	75-46,145-28		
130	0	LI	LIBNUM=1	21-41, 23-03, 23-05, 23-07, 23-10, 23-16, 24-44, 25-02, 26-09, 29-19, 30-27,		
			LIBNUM=1	31-41, 37-01, 38-01, 38-15, 39-21, 39-22, 39-27, 39-35, 40-02, 41-02, 41-07, 41-16, 42-27,		
			LIBNUM=1	42-32, 42-39, 42-40, 42-41, 42-43, 43-02, 44-14, 45-24, 46-37, 47-45, 47-48, 48-02, 48-06,		
			LIBNUM=1	48-11, 48-14, 48-17, 50-01, 50-04, 51-07, 51-11, 52-27, 53-41, 53-44, 53-47, 54-02, 54-06,		
			LIBNUM=1	54-11, 55-19, 55-29, 56-34, 56-37, 57-44, 57-47, 58-01, 59-07, 59-10, 61-13, 61-16, 62-21,		
			LIBNUM=1	64-47, 66-19, 67-32, 67-37, 69-02, 71-45, 72-08, 72-14, 72-15, 72-16, 73-25, 74-27, 74-34,		
			LIBNUM=1	76-01, 76-03, 77-23, 77-24, 77-42, 78-02, 78-07, 78-13, 78-25, 79-36, 89-20, 92-06, 92-38,		
			LIBNUM=1	94-17, 95-03, 95-41, 96-13, 96-24, 98-14, 99-01, 99-07, 99-44,103-20,103-22,103-33,103-38,		
			LIBNUM=1	103-40,103-43,105-37,105-41,106-20,106-24,106-29,106-31,107-17,107-33,107-41,107-44,110-25,		
			LIBNUM=1	111-08,112-40,115-22,119-06,124-08,131-41,137-08,140-14,141-08,141-14,143-10,144-41,145-22,		
			LIBNUM=1	146-09,146-15		
16	0	LL	LIBNUM=1	18-24, 55-23, 64-39, 68-40, 72-13, 99-24,110-10,111-24,113-02,113-20,116-21,		
			LIBNUM=1	116-40,121-12,123-28,127-24,144-39		
73	0	LN	LIBNUM=1	18-08, 18-13, 18-28, 19-15, 20-13, 24-11, 27-03, 28-22, 28-38, 29-23, 30-36,		
			LIBNUM=1	32-02, 33-24, 34-28, 34-34, 36-05, 37-07, 38-10, 39-46, 41-23, 43-10, 44-26, 45-22, 45-31,		

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COUNT	T	NAME	DEF/REF	REFERENCES	CTAPH	W770
20	0	LR	LIBNUM=1	45-38, 46-43, 49-06, 50-08, 51-15, 52-14, 52-33, 54-15, 55-35, 56-47, 58-10, 60-10, 61-20, 62-24, 63-40, 65-10, 66-17, 66-29, 67-43, 68-46, 71-10, 72-17, 72-30, 73-31, 74-41, 76-06, 76-32, 78-32, 98-10, 104-15, 105-43, 106-33, 111-23, 111-33, 115-02, 119-25, 119-37, 121-31, 125-35, 126-05, 128-34, 131-45, 133-46, 134-25, 135-40, 137-26, 138-34, 143-08, 151-19		
10	0	LX	LIBNUM=1	65-05, 72-26, 76-12, 76-16, 95-11, 96-18, 99-47, 99-48, 99-49, 100-01, 100-02, 100-03, 105-40, 107-24, 107-28, 108-02, 108-06, 108-42, 108-46, 133-28		
2	0	MI	LIBNUM=1	21-01, 25-36, 76-26, 119-27, 121-25, 123-27, 126-03, 127-25, 128-22, 132-03		
7	0	MIS	LIBNUM=1	28-24, 29-01		
8	0	NI	LIBNUM=1	28-16, 28-19, 29-09, 29-12, 33-10, 35-36, 35-41		
1	0	OR	LIBNUM=1	68-41, 68-42, 79-39, 99-41, 103-14, 133-34, 145-26, 152-46		
38	0	RLN	LIBNUM=1	133-39		
3	0	RRN	LIBNUM=1	24-15, 29-24, 30-37, 32-03, 33-25, 34-35, 37-08, 38-14, 39-47, 41-24, 43-11, 44-27, 45-39, 46-44, 50-09, 51-16, 52-34, 54-16, 55-36, 56-48, 58-11, 61-21, 62-25, 63-41, 64-40, 65-11, 66-30, 67-44, 68-47, 72-31, 73-32, 74-42, 76-33, 78-33, 104-30, 133-32, 143-28, 147-21		
5	0	SBN	LIBNUM=1	67-31, 103-13, 133-30		
8	0	SBS	LIBNUM=1	20-26, 26-30, 39-39, 43-07, 44-18		
1	0	SI	LIBNUM=1	22-18, 26-13, 48-23, 62-16, 72-05, 103-24, 109-43, 145-19		
1	0	SIO	LIBNUM=1	133-29		
3	0	SMIO	LIBNUM=1	105-44		
12	0	SN	LIBNUM=1	21-42, 28-37, 106-34		
6	0	SR	LIBNUM=1	18-25, 25-45, 112-27, 116-08, 116-22, 120-20, 122-22, 128-30, 129-23, 135-13, 138-12, 139-27		
17	0	ST	LIBNUM=1	18-26, 18-29, 68-43, 72-18, 109-10, 110-31		
2	0	STA	LIBNUM=1	19-26, 19-27, 19-29, 22-43, 23-41, 23-42, 24-12, 24-14, 24-23, 25-37, 26-11, 76-02, 76-07, 99-08, 99-42, 146-16, 152-47		
2	0	STAL	LIBNUM=1	103-36, 151-23		
40	0	STL	LIBNUM=1	19-25, 103-35		
5	0	STM	LIBNUM=1	27-05, 29-26, 30-39, 32-05, 33-27, 34-37, 36-07, 37-10, 38-13, 39-49, 41-26, 43-13, 44-29, 45-41, 46-46, 49-08, 50-11, 51-18, 52-36, 54-18, 55-38, 57-01, 58-13, 60-12, 61-23, 62-19, 62-27, 63-43, 65-13, 66-26, 66-32, 67-46, 68-49, 71-12, 72-33, 73-34, 74-44, 76-35, 78-35, 147-23		
11	0	STX	LIBNUM=1	76-04, 145-23, 148-37, 150-28, 152-28		
24	0	TBN	LIBNUM=1	23-01, 25-39, 26-10, 92-44, 92-45, 111-25, 113-21, 113-32, 116-41, 117-05, 121-13,		
16	0	TBS	LIBNUM=1	18-06, 18-11, 18-18, 20-11, 26-28, 31-44, 39-43, 41-20, 42-35, 44-23, 62-10, 69-07, 71-48, 73-28, 74-37, 77-45, 77-47, 78-16, 94-20, 95-45, 96-16, 96-41, 95-43, 107-36		
3	0	TIO	LIBNUM=1	21-26, 22-26, 23-13, 23-43, 24-01, 25-28, 26-15, 44-12, 56-44, 63-37, 67-40,		
1	0	THIO	LIBNUM=1	103-26, 113-42, 128-17, 131-22, 131-32		
20	0	TZ	LIBNUM=1	28-41, 105-47, 106-37		
3	0	ZBN	LIBNUM=1	28-43		
1	0	ZBR	LIBNUM=1	18-16, 18-20, 18-32, 18-34, 18-36, 21-20, 22-40, 25-42, 29-14, 30-30, 33-15,		
12	0	ZBS	LIBNUM=1	76-21, 106-43, 109-21, 120-34, 122-17, 123-12, 126-42, 128-24, 132-05		
19	0	ZR	LIBNUM=1	39-31, 41-11, 42-48		
			LIBNUM=1	28-25		
			LIBNUM=1	21-36, 22-38, 23-44, 26-14, 62-17, 72-06, 75-47, 103-49, 143-21, 145-20, 145-21,		
			LIBNUM=1	145-30		
			LIBNUM=1	18-05, 18-31, 19-28, 20-10, 20-25, 22-42, 23-40, 24-22, 25-38, 26-17, 28-47,		
			LIBNUM=1	28-48, 33-08, 89-21, 92-40, 105-22, 106-45, 113-22, 116-42		

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COUNT	FLAG	PAGE-LINE OF FLAG	CTAPH	W77D
2	I	155-12, 155-30		
2	F	24-17, 24-18		
14	W	95-09, 96-12, 96-21, 141-18, 141-25, 141-26, 145-05, 145-06, 146-14, 148-40, 148-48		

18 FLAG(S) FOUND IN THIS ASSEMBLY

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