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1. PURPOSE

THE PURPOSE OF THE DIDPC FUNCTION TEST IS TO CHECK THE OPERATION OF THE DIGITAL INPUT SECTION UNDER DIRECT PROGRAM CONTROL. STORAGE PROTECT VIOLATE IS CHECKED FOR PROPER INTERRUPT AND DSW. THE DSW IS FURTHER CHECKED FOR ITS ABILITY TO RESET. DIGITAL INPUT GROUPS ARE CHECKED FOR DATA BY BOTH READING AND SENSING. PROCESS INTERRUPTS ARE CHECKED BY OUTPUTTING THE PISW WHENEVER A P.I. IS RECEIVED. THE PISW WILL BE READ AND SENSED ON ALTERNATE INTERRUPTS. THE PISW IS ALSO CHECKED FOR ITS ABILITY TO RESET.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

A. THIS PROGRAM MUST RUN UNDER CONTROL OF THE DIAGNOSTIC MONITOR. THE DIAGNOSTIC MONITOR PROGRAM USES 2047 STORAGE WORDS, AND THIS PROGRAM USES 1174 STORAGE WORDS.

B. PROGRAM EDIT

THE PROPER EDIT CARDS MUST BE ADDED AT THE END OF THIS PROGRAM DECK. SEE EDIT PROCEDURES IN APPENDIX (PARAGRAPH 6.1)

2.2 EQUIPMENT REQUIREMENTS

A. THE EQUIPMENT REQUIRED BY THE DIAGNOSTIC MONITOR IS ALSO REQUIRED FOR THIS PROGRAM.
B. AT LEAST 1 DIGITAL INPUT GROUP AND DI ADAPTER WITH OR WITHOUT DATA CHANNEL ADAPTER. DI GROUPS MAY BE CONTACT, VOLTAGE OR A COMBINATION OF THE TWO.
C. AT LEAST 1 PROCESS INTERRUPT GROUP AND ADAPTER. THE PROCESS INTERRUPT GROUPS MAY BE EITHER CONTACT OR VOLTAGE OR A COMBINATION OF THE TWO.

NOTE

IF PROCESS INTERRUPT IS NOT AVAILABLE, PROPER EDITING WILL BYPASS THE P.I CHECK. SEE APPENDIX PARAGRAPH 6.1.

3.0 OPERATING PROCEDURE

3.1 PROGRAM LOADING

STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE.

3.2 PROGRAM OPERATION

STANDARD MONITOR OPERATING PROCEDURES APPLY. THESE PROCEDURES ARE SUMMARIZED HERE. SEE D.M. USE PROCEDURE FOR DETAILS.

1. CLEAR STORAGE.
2. LOAD DIAGNOSTIC MONITOR.
3. SELECT MODE OF EXECUTION.
4. SELECT MONITOR CONTROL OPTIONS.
5. SELECT PROGRAM OPTIONS FROM.

   TABLE 0 PROGRAM CONTROL FUNCTION
   TABLE 1 ROUTINE SELECT FUNCTION
   TABLE 2 DI GROUP SELECT FUNCTIONS.
   TABLE 3 PISW READ/SENSE SELECT FUNCTION.

6. INSTRUCT MONITOR TO EXECUTE.

TABLE 0 CONTROL FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	
0 0 1 0 0 1 0 1	1. SET FUNCTION CC IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DESIRED CONTROL OPTIONS IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
.....1	1..TERMINATE PROGRAM
1.....	BYPASS DATA PRINTOUTS,IE. D MESSAGES

TABLE 1 ROUTINE SELECT FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	
0 1 1 0 0 1 0 1	1. SET FUNCTION C1 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2-7. 3. SET OPTION IN DATA ENTRY SWITCH 15. 4. PRESS CONSOLE INTERRUPT.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
.....1	1..LOOP ROUTINE 1

NOTE- WITHOUT LOOPING, ROUTINE 1 WILL BE RUN ONLY ONCE AT THE START OF THE PROGRAM. ONCE ROUTINE 2 IS STARTED,IT WILL BE CONTINOUSLY LOOPED AUTOMATICALLY.

TABLE 2 DI AND PISW GROUP SELECT FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	
1 0 1 0 0 1 0 1	1. SET FUNCTION 1C IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2-7. 3. SET SELECTION IN DATA ENTRY SWITCHES. 4. PRESS CONSOLE INTERRUPT.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
0 C 0 0 0 C C	1..SELECT NEXT SEQUENTIAL DI GROUP
X X X X X X X	1..SELECT THE DI GROUP WHOSE ADDRESS IS XXXXXXX

NOTE- FOR LOAD AND GO OPERATION,PROGRAM WILL SELECT AND RUN DI GROUP ADDRESS CC40 AND THE PISW'S WHICH ARE DEFINED IN THE EDIT FIELD.

TABLE 3 PISW READ/SENSE SELECT FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	
1 1 1 3 3 1 0 1	1. SET FUNCTION 11 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE PROGRAM SWITCHES 2-7. 3. SET OPTION IN DATA ENTRY SWITCH 15. 4. PRESS CONSOLE INTERRUPT.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
.....0	0..READ PISW
.....1	1..SENSE PISW

3.3 PROGRAM HALTS

THIS PROGRAM HAS NO HALTS.

3.4 PROGRAM TERMINATION

A. STANDARD MONITOR TERMINATION.

B. TERMINATE PROGRAM SWITCH - USE THIS OPTION WHEN RUNNING IN BOOTSTRAP MODE AND LOADING OF NEXT PROGRAM IS DESIRED.

4. PRINTOUTS

4.1 DATA MESSAGES

PID	MID	RID	RAD	DGRP ADRS	DATA
250C	0C01	0002	XXXX	XXXX	XXXX

PRINTOUT INDICATES DATA READ ON 1ST READ FOLLOWING SPECIFIED DI GROUP ADDRESS SELECTION. DATA RECEIVED IS SAVED AS A COMPARE WORD FOR FOLLOWING READS ON THE SAME REGISTER.

PID	MID	RID	RAD	DGRP ADRS	CMP WORD	PRSNT DATA
250C	0C02	0002	XXXX	XXXX	XXXX	XXXX

PRINTOUT OCCURS WHENEVER THE DATA JUST READ FROM THE SPECIFIED ADDRESS IS NOT THE SAME AS THE DATA USED AS THE COMPARE WORD. WHENEVER THIS PRINTOUT OCCURS, THE DATA INDICATED AS PRESENT DATA WILL BE SAVED AS THE NEW COMPARE WORD.

PID	MID	RID	RAD	PISW ADRS	READ PISW SENSE
2500	0C03	0002	XXXX	XXXX	XXXX 000X

PRINTOUT OCCURS EACH TIME A PROCESS INTERRUPT IS RECEIVED FROM THE INDICATED PI GROUP. THE PISW INDICATES THE BIT WHICH CAUSED THE INTERRUPT THE READ SENSE INDICATOR WILL BE 0000 IF THE DATA WAS READ AND 0CC1 IF THE DATA WAS SENSED. READING AND SENSING OF THE PISW ALTERNATES WITH EACH INTERRUPT.

DI DPC FUNCTION TEST

4.2 ERROR MESSAGES

PID	MID	RID	RAD	DGRP ADRS	DSW
2500	ECC1	0001	XXXX	CC40	XXXX

MESSAGE INDICATES A LOST INTERRUPT WHEN VIOLATING PROTECTED STORAGE. DI GROUP ADDRESS C040 IS USED DURING THE READ. THE DSW INDICATES THE DI STATUS AFTER THE READ.

PID	MID	RID	RAD	DGRP READ SENS ADRS	DATA	DATA
2500	EQ02	0002	XXXX	XXXX	XXXX	XXXX

DI GROUP READ/SENSE COMPARE ERROR. THE DI GROUP IS READ AND SENSED ON EACH PASS OF THE ROUTINE. THE DATA SHOULD BE THE SAME.

PID	MID	RID	RAD	DGRP ADRS	DSW
2500	EC03	0001	XXXX	CC4C	XXXX

DI INDICATES BUSY WHILE OPERATING IN DIRECT PROGRAM CONTROL MODE.

PID	MID	RID	RAD	PISW ADRS	PISW
2500	EC04	0002	XXXX	XXXX	XXXX

THE PISW DID NOT RESET WHEN READ OR SENSED. THE PISW IS SENSED FOLLOWING A READ OR SENSE TO CHECK FOR RESET. THE PISW GIVEN IS THE RESULT OF THIS SENSE.

PID	MID	RID	RAD	DGRP PROT ACT ADRS	DATA	DATA
2500	EC05	0001	XXXX	0C4C	FFFF	XXXX

THIS PRINTOUT OCCURS IF, WHILE RUNNING THE STORAGE PROTECT TEST, THE PROTECTED AREA IS MODIFIED BY A READ. THE PROTECTED DATA IS FFFF, AND THE MODIFIED DATA AS INDICATED.

PID	MID	RID	RAD	DGRP ADRS	DSW	LAST DATA
2500	EC06	0002	XXXX	XXXX	XXXX	XXXX

ANY INTERRUPT, OTHER THAN A PROCESS INTERRUPT, THAT OCCURS DURING ROUTINE 2 (DPC OPERATION) CONSTITUTES AN ERROR. THE DSW INDICATES THE CAUSE OF THE INTERRUPT. LAST DATA, IS THE CONTENTS OF THE READ IN AREA. DGRP ADDRESS IS THE PRESENT DI GROUP BEING USED.

DI DPC FUNCTION TEST

PID	MID	RID	RAD	DGRP ADRS	DSW
2500	EC07	0001	XXXX	004C	XXXX

THE WRONG DSW WAS RECEIVED FOLLOWING A STORAGE PROTECT VIOLATE INTERRUPT.

PID	MID	RID	RAD	DGRP ADRS	DSW	DSW
2500	EC08	000X	XXXX	XXXX	XXXX	XXXX

THIS PRINTOUT OCCURS IF THE DSW FAILED TO RESET AFTER BEING SENSED IN INTERRUPT. THE DSW IS SENSED TWICE, AND IT IS THE RESULT OF THE SECOND SENSE THAT APPEARS IN THE MESSAGE.

5. COMMENTS.

THE DIDPC FUNCTION TEST IS MADE UP OF TWO ROUTINES. EACH ROUTINE CONTAINS ITS OWN CONTROL.

ROUTINE 1 IS USED TO CHECK STORAGE PROTECT VIOLATION, AND WILL NORMALLY BE RUN ONLY ONCE WHEN THE PROGRAM IS INITIALLY EXECUTED. ROUTINE 1 CAN BE LOOPED IF DESIRED (SEE TABLE 2) BUT THIS OPTION MUST BE REQUESTED PRIOR TO EXECUTING THE PROGRAM. ONCE ROUTINE 1 IS LOOPING, THE LOOP MAY BE TERMINATED BY SETTING ALL DATA ENTRY SWITCHES OFF, AND PLACING FUNCTION 01 PLUS P.I.D. 25 IN THE SENSE/PROGRAM SWITCHES AND PRESSING CONSOLE INTERRUPT. AT THE COMPLETION OF THE ROUTINE 1 PASS IN PROGRESS, THE PROGRAM WILL GO TO ROUTINE 2.

TO CHECK STORAGE PROTECT VIOLATION A TEST WORD OF FFFF/16 IS STORED IN THE READ IN AREA USED BY THE PROGRAM. THE READ IN AREA IS THEN STORAGE PROTECTED AND AN XIO READ COMMAND ISSUED TO DI GROUP ADDRESS 40. IF A S.P.V. INTERRUPT DOES NOT OCCUR, ERROR MESSAGE E001 WILL BE PRINTED. IF AN INTERRUPT IS RECEIVED, THE DSW IS CHECKED FOR BIT 1 BEING ON. FOLLOWING THE INTERRUPT CHECK, THE PROTECTED AREA IS CHECKED TO INSURE IT CONTAINS THE TEST WORD FFFF/16. IF IT DOES NOT, AN ERROR MESSAGE WILL RESULT.

THE STORAGE PROTECT BIT IS CLEARED AT THE END OF ROUTINE 1, IN THE INITIALIZATION ROUTINE AND IN THE END ROUTINE.

ROUTINE 2 IS USED TO CHECK DIGITAL INPUT GROUPS AND PROCESS INTERRUPTS. ROUTINE 2 WILL CONTINOUSLY LOOP UNTIL THE PROGRAM IS DEEXECUTED.

INPUT DATA CAN BE INSERTED INTO THE DIGITAL INPUT GROUPS AT THE SCREW DOWN TERMINATIONS BY MANUALLY SIMULATING CONTACT OPERATION OR VOLTAGE CHANGES. PROCESS INTERRUPTS MAY BE INITIATED IN THE SAME MANNER.

DIGITAL INPUTS

ROUTINE 2 WILL BEGIN OPERATION BY READING AND SENSING DI GROUP ADDRESS 40 AND PRINTING THE DATA RECEIVED ON THE OUTPUT DEVICE. IF A REQUEST FOR A SPECIFIC DI GROUP WAS MADE PRIOR TO PROGRAM EXECUTION, IT WILL BE HONORED ON THE SECOND PASS OF THE ROUTINE. ONCE A REQUEST IS HONORED, THE ROUTINE WILL CONTINUE TO LOOP WITH THAT REQUEST, UNTIL A NEW REQUEST IS RECEIVED.

WHEN A REQUEST IS RECEIVED, AND A SPECIFIC DI GROUP ADDRESS IS SPECIFIED, THE ADDRESS WILL BE CHECKED TO INSURE THAT IT IS NOT LESS THAN 40 AND NOT GREATER THAN THE ADDRESS ENTERED IN THE DI EDIT CARD. IF THE REQUESTED ADDRESS IS NOT WITHIN THESE LIMITS, THE PROGRAM WILL AUTOMATICALLY SELECT DI GROUP ADDRESS 40.

DI DPC FUNCTION TEST

WHEN A DI GROUP CHANGE IS REQUESTED, AND AN ADDRESS IS NOT SPECIFIED, THE PROGRAM WILL SELECT THE NEXT SEQUENTIAL DI GROUP, PROVIDED ITS ADDRESS IS NOT GREATER THAN THE ADDRESS SPECIFIED IN THE DI EDIT CARD. IF THE NEXT SEQUENTIAL DI GROUP ADDRESS IS GREATER THAN THE ONE SPECIFIED ON THE EDIT CARD, THE PROGRAM WILL SELECT ADDRESS 40. IN THIS MANNER A CONTINUOUS LOOP IS CREATED FOR SEQUENTIAL SELECTION OF DI GROUPS.

THE DI GROUPS ARE BOTH READ AND SENSED ON EACH PASS OF ROUTINE 2. THE READ AND SENSE DATA IS CHECKED TO INSURE THAT THEY ARE THE SAME. AN ERROR MESSAGE RESULTS IF THEY ARE NOT.

THE DATA RECEIVED ON THE FIRST READ AFTER THE DI GROUP IS SELECTED, WILL BE PRINTED ON THE OUTPUT DEVICE. THE DATA IS PRINTED TO INDICATE INITIAL REGISTER CONTENTS BEFORE ANY MANUAL DATA IS INSERTED INTO THE SELECTED GROUP.

THE FIRST READ DATA IS ALSO SAVED AS THE INITIAL COMPARE WORD TO WHICH ALL SUBSEQUENT READ DATA IS COMPARED. WHEN THE REGISTER CONTENTS CHANGE AND A NO COMPARE OCCURS, DATA MESSAGE D002 WILL BE PRINTED, AND THE DATA CAUSING THE NO COMPARE WILL BE SAVED AS A NEW COMPARE WORD. IN THIS MANNER, THE PROGRAM WILL PRINT ANY DETECTED CHANGE OF A BIT OR BITS FROM 0 TO 1 OR FROM 1 TO 0.

ANY DI INTERRUPT RECEIVED DURING ROUTINE 2 WILL RESULT IN AN ERROR PRINTOUT.

PROCESS INTERRUPT

PROCESS INTERRUPTS, WHEN RECEIVED, RESULT IN THE READING OR SENSING OF THE PISW ASSOCIATED WITH THE PISW GROUP CAUSING THE INTERRUPT. READING OR SENSING IS AN OPERATOR SELECT FUNCTION (REFER TO TABLE 3) THE PISW CONTENT IS PRINTED ON THE OUTPUT DEVICE FOLLOWING EACH PROCESS INTERRUPT RECEIVED. FAILURE OF A PISW GROUP TO CAUSE AN INTERRUPT IS INDICATED BY THE LACK OF A D003 PRINTOUT.

IMMEDIATLY FOLLOWING THE READ OR SENSE OF THE PISW, IT IS SENSED AGAIN TO CHECK FOR PROPER RESET. FAILURE TO RESET RESULTS IN AN ERROR MESSAGE.

IF A PROCESS INTERRUPT OCCURS FROM A PISW GROUP NOT PRESENTLY SELECTED, OR IF THE SELECTED PISW GROUP INTERRUPTS TO THE WRONG LEVEL, THE INTERRUPT WILL BE SERVICED BY THE DIAGNOSTIC MONITOR. THIS WILL BE INDICATED BY THE MONITOR PRINTING MESSAGE E009.

NOTE

IT IS POSSIBLE FOR THE DIDPC PROGRAM TO INDICATE FALSE PISW CONTENTS IN MESSAGE D003 IF THE FOLLOWING CONDITIONS OCCUR SIMULTANEOUSLY.

1. TWO PROCESS INTERRUPTS ARE RECEIVED AT THE SAME TIME. ONE INTERRUPT TO BE SERVICED BY THE DIAG. MONITOR, AND THE OTHER TO BE SERVICED BY THE DIDPC FUNCTION TEST.

2. THE PROCESS INTERRUPT BEING SERVICED BY THE DIAG MONITOR IS ON A HIGHER INTERRUPT LEVEL THAN THE PROCESS INTERRUPT TO BE SERVICED BY THE DIDPC PROGRAM.

3. THE PISW ADDRESS WHICH CAUSED THE INTERRUPT BEING SERVICED BY THE MONITOR IS 1 LESS THEN THE PISW ADDRESS CAUSING THE INTERRUPT TO BE SERVICED BY THE DIDPC PROGRAM.

   DUE TO THE MANNER IN WHICH THE DIAG MONITOR MUST RESET THE DSW OR PISW ON INTERRUPTS IT HANDLES, BOTH PISW'S WILL BE RESET UNDER THE ABOVE CONDITIONS. CONSEQUENTLY, WHEN THE DIDPC PROGRAM SERVICES ITS PROCESS INTERRUPT, THE PISW WILL BE 0000, AND IT WILL BE INDICATED AS SUCH IN MESSAGE D003.

6.1 EDIT PROCEDURE

THE FOLLOWING EDIT PROCEDURE IS FOR CARD INPUT. THE EDIT PROCEDURE FOR PAPER TAPE INPUT IS LOCATED IN THE PAPER TAPE EDIT UTILITY PROGRAM DOCUMENTATION. THE PROPER EDIT CARDS MUST BE THE LAST CARDS IN THIS PROGRAM DECK. THE FOLLOWING FORMS ARE PROVIDED TO AID IN MANUALLY PREPARING THESE EDIT CARDS OR UPDATING EXISTING EDIT CARDS. IF IT IS NECESSARY TO PREPARE OR MODIFY EDIT CARDS, FILL IN THE NECESSARY DATA IN THE FORMS PRIOR TO PUNCHING THE CARDS. CARD COLUMNS THAT ARE SHADED SHOULD BE LEFT BLANK.

DDEF STANDS FOR DEVICE DEFINITION EDIT FIELD. IT INCLUDES:
1. THE INTERRUPT LEVEL ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 00-17).
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 0-F).

THE LAST EDIT CARD IS THE "END EDIT CARD". THE INFORMATION IN THIS CARD INCLUDES: 1. AN "E" IN COLUMN 1. 2. THE PID FOR THIS PROGRAM (COL. 2-3). 3. A TERMINATOR WORD OF "FFFF" (COL. 7-10).

COLUMN	PROGRAM ID (1-5)	CARD SEQUENCE NUMBER (7-10)	NUMBER OF ENTRIES (1-C) (12-15)	DI DDEF ENTRY 1: INTERRUPT LEVEL (HEX) (17-18)	DI DDEF ENTRY 1: ILSW BIT (HEX) (19)	DI DDEF ENTRY 1: CHANNEL (OR F) (20)	GROUP ADDRESS ENTRY 2: ADDR OF HIGHEST AVAIL DI GROUP (IN HEX) (22-25)	PISW DDEF ENTRY 3: INTERRUPT LEVEL (HEX) (27-28)	ENTRY 3: ILSW BIT (HEX) (29)	ENTRY 3: CHANNEL (OR F) (30)	PISW DDEF ENTRY 4: INTERRUPT LEVEL (HEX) (32-33)	ENTRY 4: ILSW BIT (HEX) (34)	ENTRY 4: CHANNEL (OR F) (35)
CARD 0	E 2 5 0 0	E D 0 0	0 0 0 3	0 2	2	8	0 0 6 F	F F	F	F			F
CARD 1	E 2 5 0 0	E D 0 1	0 0										
CARD 2	E 2 5 0 0	E D 0 2	0 0										
END	E 2 5 0 0	F F F F											

COLUMN	ENTRY 5: INTERRUPT LEVEL (HEX) (37-38)	ENTRY 5: ILSW BIT (39)	ENTRY 5: CHANNEL (40)	ENTRY 6: INTERRUPT LEVEL (42-43)	ENTRY 6: ILSW BIT (44)	ENTRY 6: CHANNEL (45)	ENTRY 7: INTERRUPT LEVEL (47-48)	ENTRY 7: ILSW BIT (49)	ENTRY 7: CHANNEL (50)	ENTRY 8: INTERRUPT LEVEL (52-53)	ENTRY 8: ILSW BIT (54)	ENTRY 8: CHANNEL (55)	ENTRY 9: INTERRUPT LEVEL (57-58)	ENTRY 9: ILSW BIT (59)	ENTRY 9: CHANNEL (60)	ENTRY A: INTERRUPT LEVEL (62-63)	ENTRY A: ILSW BIT (64)	ENTRY A: CHANNEL (65)	ENTRY B: INTERRUPT LEVEL (67-68)	ENTRY B: ILSW BIT (69)	ENTRY B: CHANNEL (70)	ENTRY C: INTERRUPT LEVEL (72-73)	ENTRY C: ILSW BIT (74)	ENTRY C: CHANNEL (75)
CARD 0			F			F			F			F			F			F			F			F
CARD 1																								
CARD 2																								
END																								

CARD 0 — CARD 0 SHOULD ALWAYS CONTAIN AT LEAST 3 ENTRIES. THE 1ST ENTRY IS THE DI DDEF AND THE 2ND IS THE ADDRESS OF THE HIGHEST DI GROUP AVAILABLE. (ADDR. ARE 40-FF) IF PROCESS INTERRUPTS ARE NOT TO BE CHECKED, THEN THE 3RD ENTRY SHOULD BE FFFF; OTHERWISE, PISW DDEF INFORMATION BEGINS WITH THE 3RD ENTRY...SEE NOTE 1.

CARDS 1 AND 2 — CARDS 1 AND 2 ARE USED TO ENTER PISW INFORMATION WHEN MORE THAN 9 PISW'S ARE AVAILABLE. THE DDEF'S START IN ENTRY 1 AND SHOULD BE IN THE FORMAT SHOWN FOR CARD 1. SEE NOTE 1.

CARD END — CARD END IS THE "END EDIT CARD". PUNCH EXACTLY AS IS SHOWN.

NOTE 1. — SINCE THE PISW EDIT FIELD IS VARIABLE, THE DIDPC PROGRAM REQUIRES A TERMINATOR TO INDICATE THE END OF THIS FIELD; THEREFORE, THE ENTRY FOLLOWING THE LAST PISW DDEF MUST BE FFFF.

CAUTION: INSURE THAT THE PISW INTERRUPT LEVELS ENTERED CORRESPOND TO THE INTERRUPT LEVELS EDITED INTO THE DIAGNOSTIC MONITOR.

```
0000                    ORG     *+2047                                  82500000
                        *                                               82500010
                        *                   ********************        82500020
                        *                   MONITOR EQUATE TABLE        82500030
                        *                   ********************        82500040
                        *                                               82500050
012C                    BEGIN EQU   300                                 82500060
012D                    START EQU   BEGIN+1                             82500070
012E                    END   EQU   START+1                             82500080
012F                    LOG   EQU   END+1                               82500090
0130                    ERROR EQU   LOG+1                               82500100
0131                    REQDV EQU   ERROR+1                             82500110
0132                    RELDV EQU   REQDV+1                             82500120
0133                    CRCK  EQU   RELDV+1                             82500130
                        *                   **************************  82500140
                        *                   DIDPC PROGRAM STATUS TABLE  82500150
                        *                   **************************  82500160
                        *                                               82500170
07FF 0  2500            PID   DC    /2500       PROGRAM ID              82500180
0800 0  0000            RID   DC    0           ROUTINE NUMBER          82500190
0801 0  0000            RAD   DC    0           ROUTINE ADDRESS         82500200
0802 0  0000            SW0   DC    0           FUNCTION 00 ENTRY       82500210
0803 0  0000            SW1   DC    0           FUNCTION 01 ENTRY       82500220
0804 0  0000            SW2   DC    0           FUNCTION 10 ENTRY       82500230
0805 0  0000            SW3   DC    0           FUNCTION 11 ENTRY       82500240
0806 1  0A1D            IPA   DC    INIDI       INITIALIZATION ADDRS    82500250
0807 1  0A69            LPA   DC    DIDPC       LOOP PROGRAM ADDRESS    82500260
0808 1  0C8E            EPA   DC    DIEND       END PROGRAM ADDRESS     82500270
0809 0  0000            MLSCF DC    0           INTERRUPT SEQ CONTRL    82500280
080A 0  0000                  DC    0           MAIN LINE SEQ CONTRL    82500290
080B 0  FFFF            TERM  DC    /FFFF                               82500300
                        *                                               82500310
                        *               **MONITOR EDIT CONSTANTS**      82500320
                        *                                               82500330
080C 1  0C9D                  DC    PEND                                82500340
080D 0  0000                  DC    0                                   82500350
080E 0  0000                  DC    0                                   82500360
080F 0  0000                  DC    0                                   82500370
0810 0  0000                  DC    0                                   82500380
0811 0  0000                  DC    0                                   82500390
                        *                                               82500400
                        *               ** DIDPC EDIT DATA **           82500410
                        *                                               82500420
0812    001B            EDIT  BSS   27          EDIT FIELD              82500430
                        *                                               82500440
                        *                   ********************        82500450
                        *                   PI INTERRUPT ROUTINES       82500460
                        *                   ********************        82500470
                        *                                               82500480
082D 0  0000            DVA00 DC    0           DEVICE ASSIGNMENT       82500490
082E 0  0000                  DC    0           INTERRUPT ENTRY     IE  82500500
082F 01 C4000995              LD    L PICMN     SAVE COMMON ROUTINE     82500510
0831 0  D009                  STO   ETY00       *ENTRY CONTENTS         82500520
0832 0  6300                  LDX   3 0         SET PI TABLE POINTER    82500530
0833 01 44000995              BSI   L PICMN     COMMON ROUTINE CALL SRC 82500540
0835 1  082D                  DC    DVA00                               82500550
0836 0  C004                  LD    ETY00       RESTORE COMMON RTN.     82500560
0837 01 D4000995              STO   L PICMN     *ENTRY ADDRESS          82500570
0839 01 4C80082E              BSC   I DVA00+1   RETURN TO USER      IX  82500580
                        *                                               82500590
083B 0  0000            ETY00 DC    0           ENTRY CONTENTS HOLD     82500600
                        *                                               82500610
083C 0  0000            DVA01 DC    0           DEVICE ASSIGNMENT       82500620
083D 0  0000                  DC    0           INTERRUPT ENTRY     IE  82500630
083E 01 C4000995              LD    L PICMN     SAVE COMMON ROUTINE     82500640
0840 0  D009                  STO   ETY01       *ENTRY CONTENTS         82500650
0841 0  6302                  LDX   3 2         SET PI TABLE POINTER    82500660
0842 01 44000995              BSI   L PICMN     COMMON ROUTINE CALL SRC 82500670
```



```
0844 1  083C                  DC    DVA01                               82500680
0845 0  C004                  LD    ETY01       RESTORE COMMON RTN.     82500690
0846 01 D4000995              STO   L PICMN     *ENTRY ADDRESS          82500700
0848 01 4C80083D              BSC   I DVA01+1   RETURN TO USER      IX  82500710
                        *                                               82500720
084A 0  0000            ETY01 DC    0           ENTRY CONTENTS HOLD     82500730
                        *                                               82500740
084B 0  0000            DVA02 DC    0           DEVICE ASSIGNMENT       82500750
084C 0  0000                  DC    0           INTERRUPT ENTRY     IE  82500760
084D 01 C4000995              LD    L PICMN     SAVE COMMON ROUTINE     82500770
084F 0  D009                  STO   ETY02       *ENTRY CONTENTS         82500780
0850 0  6304                  LDX   3 4         SET PI TABLE POINTER    82500790
0851 01 44000995              BSI   L PICMN     COMMON ROUTINE CALL SRC 82500800
0853 1  084B                  DC    DVA02                               82500810
0854 0  C004                  LD    ETY02       RESTORE COMMON RTN.     82500820
0855 01 D4000995              STO   L PICMN     *ENTRY ADDRESS          82500830
0857 01 4C80084C              BSC   I DVA02+1   RETURN TO USER      IX  82500840
                        *                                               82500850
0859 0  0000            ETY02 DC    0           ENTRY CONTENTS HOLD     82500860
                        *                                               82500870
085A 0  0000            DVA03 DC    0           DEVICE ASSIGNMENT       82500880
085B 0  0000                  DC    0           INTERRUPT ENTRY     IE  82500890
085C 01 C4000995              LD    L PICMN     SAVE COMMON ROUTINE     82500900
085E 0  D009                  STO   ETY03       *ENTRY CONTENTS         82500910
085F 0  6306                  LDX   3 6         SET PI TABLE POINTER    82500920
0860 01 44000995              BSI   L PICMN     COMMON ROUTINE CALL SRC 82500930
0862 1  085A                  DC    DVA03                               82500940
0863 0  C004                  LD    ETY03       RESTORE COMMON RTN.     82500950
0864 01 D4000995              STO   L PICMN     *ENTRY ADDRESS          82500960
0866 01 4C80085B              BSC   I DVA03+1   RETURN TO USER      IX  82500970
                        *                                               82500980
0868 0  0000            ETY03 DC    0           ENTRY CONTENTS HOLD     82500990
                        *                                               82501000
0869 0  0000            DVAC4 DC    0           DEVICE ASSIGNMENT       82501010
086A 0  0000                  DC    0           INTERRUPT ENTRY     IE  82501020
086B 01 C4000995              LD    L PICMN     SAVE COMMON ROUTINE     82501030
086D 0  D009                  STO   ETY04       *ENTRY CONTENTS         82501040
086E 0  6308                  LDX   3 8         SET PI TABLE POINTER    82501050
086F 01 44000995              BSI   L PICMN     COMMON ROUTINE CALL SRC 82501060
0871 1  0869                  DC    DVA04                               82501070
0872 0  C004                  LD    ETY04       RESTORE COMMON RTN.     82501080
0873 01 D4000995              STO   L PICMN     *ENTRY ADDRESS          82501090
0875 01 4C80086A              BSC   I DVA04+1   RETURN TO USER      IX  82501100
                        *                                               82501110
0877 0  0000            ETY04 DC    0           ENTRY CONTENTS HOLD     82501120
                        *                                               82501130
0878 0  0000            DVA05 DC    0           DEVICE ASSIGNMENT       82501140
0879 0  0000                  DC    0           INTERRUPT ENTRY     IE  82501150
087A 01 C4000995              LD    L PICMN     SAVE COMMON ROUTINE     82501160
087C 0  D009                  STO   ETY05       *ENTRY CONTENTS         82501170
087D 0  630A                  LDX   3 10        SET PI TABLE POINTER    82501180
087E 01 44000995              BSI   L PICMN     COMMON ROUTINE CALL SRC 82501190
0880 1  0878                  DC    DVA05                               82501200
0881 0  C004                  LD    ETY05       RESTORE COMMON RTN.     82501210
0882 01 D4000995              STO   L PICMN     *ENTRY ADDRESS          82501220
0884 01 4C800879              BSC   I DVA05+1   RETURN TO USER.     IX  82501230
                        *                                               82501240
0886 0  0000            ETY05 DC    0           ENTRY CONTENTS HOLD     82501250
                        *                                               82501260
0887 0  0000            DVA06 DC    0           DEVICE ASSIGNMENT       82501270
0888 0  0000                  DC    0           INTERRUPT ENTRY     IE  82501280
0889 01 C4000995              LD    L PICMN     SAVE COMMON ROUTINE     82501290
088B 0  D009                  STO   ETY06       *ENTRY CONTENTS         82501300
088C 0  630C                  LDX   3 12        SET PI TABLE POINTER    82501310
088D 01 44000995              BSI   L PICMN     COMMON ROUTINE CALL SRC 82501320
088F 1  0887                  DC    DVA06                               82501330
0890 0  C004                  LD    ETY06       RESTORE COMMON RTN.     82501340
0891 01 D4000995              STO   L PICMN     *ENTRY ADDRESS          82501350
```

DI DPC FUNCTION TEST

```
0893 01 4C800888      BSC  I  DVA06+1    RETURN TO USER       IX   82501360
                *                                                  82501370
0895 0  0000    ETY06 DC      0          ENTRY CONTENTS HOLD       82501380
                *                                                  82501390
0896 0  0000    DVA07 DC      0          DEVICE ASSIGNMENT         82501400
0897 0  0000          DC      0          INTERRUPT ENTRY      IE   82501410
0898 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82501420
089A 0  D009          STO     ETY07      *ENTRY CONTENTS           82501430
089B 0  630E          LDX  3  14         SET PI TABLE POINTER      82501440
089C 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82501450
089E 1  0896          DC      DVA07                                82501460
089F 0  C004          LD      ETY07      RESTORE COMMON RTN.       82501470
08A0 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82501480
08A2 01 4C800897      BSC  I  DVA07+1    RETURN TO USER       IX   82501490
                *                                                  82501500
08A4 0  0000    ETY07 DC      0          ENTRY CONTENTS HOLD       82501510
                *                                                  82501520
08A5 0  0000    DVA08 DC      0          DEVICE ASSIGNMENT         82501530
08A6 0  0000          DC      0          INTERRUPT ENTRY      IE   82501540
08A7 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82501550
08A9 0  D009          STO     ETY08      *ENTRY CONTENTS           82501560
08AA 0  6310          LDX  3  16         SET PI TABLE POINTER      82501570
08AB 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82501580
08AD 1  08A5          DC      DVA08                                82501590
08AE 0  C004          LD      ETY08      RESTORE COMMON RTN.       82501600
08AF 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82501610
08B1 01 4C8008A6      BSC  I  DVA08+1    RETURN TO USER       IX   82501620
                *                                                  82501630
08B3 0  0000    ETY08 DC      0          ENTRY CONTENTS HOLD       82501640
                *                                                  82501650
08B4 0  0000    DVA09 DC      0          DEVICE ASSIGNMENT         82501660
08B5 0  0000          DC      0          INTERRUPT ENTRY      IE   82501670
08B6 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82501680
08B8 0  D009          STO     ETY09      *ENTRY CONTENTS           82501690
08B9 0  6312          LDX  3  18         SET PI TABLE POINTER      82501700
08BA 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82501710
08BC 1  08B4          DC      DVA09                                82501720
08BD 0  C004          LD      ETY09      RESTORE COMMON RTN.       82501730
08BE 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82501740
08C0 01 4C8008B5      BSC  I  DVA09+1    RETURN TO USER       IX   82501750
                *                                                  82501760
08C2 0  0000    ETY09 DC      0          ENTRY CONTENTS HOLD       82501770
                *                                                  82501780
08C3 0  0000    DVA10 DC      0          DEVICE ASSIGNMENT         82501790
08C4 0  0000          DC      0          INTERRUPT ENTRY      IE   82501800
08C5 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82501810
08C7 0  D009          STO     ETY10      *ENTRY CONTENTS           82501820
08C8 0  6314          LDX  3  20         SET PI TABLE POINTER      82501830
08C9 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82501840
08CB 1  08C3          DC      DVA10                                82501850
08CC 0  C004          LD      ETY10      RESTORE COMMON RTN.       82501860
08CD 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82501870
08CF 01 4C8008C4      BSC  I  DVA10+1    RETURN TO USER       IX   82501880
                *                                                  82501890
08D1 0  0000    ETY10 DC      0          ENTRY CONTENTS HOLD       82501900
                *                                                  82501910
08D2 0  0000    DVA11 DC      0          DEVICE ASSIGNMENT         82501920
08D3 0  0000          DC      0          INTERRUPT ENTRY      IE   82501930
08D4 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82501940
08D6 0  D009          STO     ETY11      *ENTRY CONTENTS           82501950
08D7 0  6316          LDX  3  22         SET PI TABLE POINTER      82501960
08D8 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82501970
08DA 1  08D2          DC      DVA11                                82501980
08DB 0  C004          LD      ETY11      RESTORE COMMON RTN.       82501990
08DC 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82502000
08DE 01 4C8008D3      BSC  I  DVA11+1    RETURN TO USER       IX   82502010
                *                                                  82502020
08E0 0  0000    ETY11 DC      0          ENTRY CONTENTS HOLD       82502030
```


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```
                *                                                  82502040
08E1 0  0000    DVA12 DC      0          DEVICE ASSIGNMENT         82502050
08E2 0  0000          DC      0          INTERRUPT ENTRY      IE   82502060
08E3 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82502070
08E5 0  D009          STO     ETY12      *ENTRY CONTENTS           82502080
08E6 0  6318          LDX  3  24         SET PI TABLE POINTER      82502090
08E7 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82502100
08E9 1  08E1          DC      DVA12                                82502110
08EA 0  C004          LD      ETY12      RESTORE COMMON RTN.       82502120
08EB 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82502130
08ED 01 4C8008E2      BSC  I  DVA12+1    RETURN TO USER       IX   82502140
                *                                                  82502150
08EF 0  0000    ETY12 DC      0          ENTRY CONTENTS HOLD       82502160
                *                                                  82502170
08F0 0  0000    DVA13 DC      0          DEVICE ASSIGNMENT         82502180
08F1 0  0000          DC      0          INTERRUPT ENTRY      IE   82502190
08F2 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82502200
08F4 0  D009          STO     ETY13      *ENTRY CONTENTS           82502210
08F5 0  631A          LDX  3  26         SET PI TABLE POINTER      82502220
08F6 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82502230
08F8 1  08F0          DC      DVA13                                82502240
08F9 0  C004          LD      ETY13      RESTORE COMMON RTN.       82502250
08FA 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82502260
08FC 01 4C8008F1      BSC  I  DVA13+1    RETURN TO USER       IX   82502270
                *                                                  82502280
08FE 0  0000    ETY13 DC      0          ENTRY CONTENTS HOLD       82502290
                *                                                  82502300
08FF 0  0000    DVA14 DC      0          DEVICE ASSIGNMENT         82502310
0900 0  0000          DC      0          INTERRUPT ENTRY      IE   82502320
0901 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82502330
0903 0  D009          STO     ETY14      *ENTRY CONTENTS           82502340
0904 0  631C          LDX  3  28         SET PI TABLE POINTER      82502350
0905 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82502360
0907 1  08FF          DC      DVA14                                82502370
0908 0  C004          LD      ETY14      RESTORE COMMON RTN.       82502380
0909 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82502390
090B 01 4C800900      BSC  I  DVA14+1    RETURN TO USER       IX   82502400
                *                                                  82502410
090D 0  0000    ETY14 DC      0          ENTRY CONTENTS HOLD       82502420
                *                                                  82502430
090E 0  0000    DVA15 DC      0          DEVICE ASSIGNMENT         82502440
090F 0  0000          DC      0          INTERRUPT ENTRY      IE   82502450
0910 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82502460
0912 0  D009          STO     ETY15      *ENTRY CONTENTS           82502470
0913 0  631E          LDX  3  30         SET PI TABLE POINTER      82502480
0914 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82502490
0916 1  090E          DC      DVA15                                82502500
0917 0  C004          LD      ETY15      RESTORE COMMON RTN.       82502510
0918 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82502520
091A 01 4C80090F      BSC  I  DVA15+1    RETURN TO USER       IX   82502530
                *                                                  82502540
091C 0  0000    ETY15 DC      0          ENTRY CONTENTS HOLD       82502550
                *                                                  82502560
091D 0  0000    DVA16 DC      0          DEVICE ASSIGNMENT         82502570
091E 0  0000          DC      0          INTERRUPT ENTRY      IE   82502580
091F 01 C4000995      LD   L  PICMN      SAVE COMMON ROUTINE       82502590
0921 0  D009          STO     ETY16      *ENTRY CONTENTS           82502600
0922 0  6320          LDX  3  32         SET PI TABLE POINTER      82502610
0923 01 44000995      BSI  L  PICMN      COMMON ROUTINE CALL  SRC  82502620
0925 1  091D          DC      DVA16                                82502630
0926 0  C004          LD      ETY16      RESTORE COMMON RTN.       82502640
0927 01 D4000995      STO  L  PICMN      *ENTRY ADDRESS            82502650
0929 01 4C80091E      BSC  I  DVA16+1    RETURN TO USER       IX   82502660
                *                                                  82502670
092B 0  0000    ETY16 DC      0          ENTRY CONTENTS HOLD       82502680
                *                                                  82502690
092C 0  0000    DVA17 DC      0          DEVICE ASSIGNMENT         82502700
092D 0  0000          DC      0          INTERRUPT ENTRY      IE   82502710
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092E 01 C4C00955          LD    L  PICMN    SAVE COMMON ROUTINE          82502720
0930 0  D009              STO      ETY17    *ENTRY CONTENTS              82502730
0931 0  6322              LDX   3  34       SET PI TABLE POINTER         82502740
0932 01 44000995          BSI   L  PICMN    COMMON ROUTINE CALL  SRC     82502750
0934 1  092C              DC       DVA17                                 82502760
0935 0  C004              LD       ETY17    RESTORE COMMON RTN.          82502770
0936 01 D4000995          STO   L  PICMN    *ENTRY ADDRESS               82502780
0938 01 4C80092D          BSC   I  DVA17+1  RETURN TO USER          IX    82502790
                *                                                       82502800
093A 0  0000      ETY17   DC       0        ENTRY CONTENTS HOLD          82502810
                *                                                       82502820
093B 0  0000      DVA18   DC       0        DEVICE ASSIGNMENT            82502830
093C 0  0000              DC       0        INTERRUPT ENTRY         IE   82502840
093D 01 C4000995          LD    L  PICMN    SAVE COMMON ROUTINE          82502850
093F 0  D009              STO      ETY18    *ENTRY CONTENTS              82502860
0940 0  6324              LDX   3  36       SET PI TABLE POINTER         82502870
0941 01 44000995          BSI   L  PICMN    COMMON ROUTINE CALL  SRC     82502880
0943 1  093B              DC       DVA18                                 82502890
0944 0  C004              LD       ETY18    RESTORE COMMON RTN.          82502900
0945 01 D4000995          STO   L  PICMN    *ENTRY ADDRESS               82502910
0947 01 4C80093C          BSC   I  DVA18+1  RETURN TO USER          IX    82502920
                *                                                       82502930
0949 0  0000      ETY18   DC       0        ENTRY CONTENTS HOLD          82502940
                *                                                       82502950
094A 0  0000      DVA19   DC       0        DEVICE ASSIGNMENT            82502960
094B 0  0000              DC       0        INTERRUPT ENTRY         IE   82502970
094C 01 C4000995          LD    L  PICMN    SAVE COMMON ROUTINE          82502980
094E 0  DC09              STO      ETY19    *ENTRY CONTENTS              82502990
094F 0  6326              LDX   3  38       SET PI TABLE POINTER         82503000
0950 01 44000995          BSI   L  PICMN    COMMON ROUTINE CALL  SRC     82503010
0952 1  094A              DC       DVA19                                 82503020
0953 0  C004              LD       ETY19    RESTORE COMMON RTN.          82503030
0954 01 D4000995          STO   L  PICMN    *ENTRY ADDRESS               82503040
0956 01 4C80094B          BSC   I  DVA19+1  RETURN TO USER          IX    82503050
                *                                                       82503060
0958 0  0000      ETY19   DC       0        ENTRY CONTENTS HOLD          82503070
                *                                                       82503080
0959 0  0000      DVA20   DC       0        DEVICE ASSIGNMENT            82503090
095A 0  0000              DC       0        INTERRUPT ENTRY         IE   82503100
095B 01 C4000995          LD    L  PICMN    SAVE COMMON ROUTINE          82503110
095D 0  D009              STO      ETY20    *ENTRY CONTENTS              82503120
095E 0  6328              LDX   3  40       SET PI TABLE POINTER         82503130
095F 01 44000995          BSI   L  PICMN    COMMON ROUTINE CALL  SRC     82503140
0961 1  0959              DC       DVA20                                 82503150
0962 0  C004              LD       ETY20    RESTORE COMMON RTN.          82503160
0963 01 D4000995          STO   L  PICMN    *ENTRY ADDRESS               82503170
0965 01 4C80095A          BSC   I  DVA20+1  RETURN TO USER          IX    82503180
                *                                                       82503190
0967 0  0000      ETY20   DC       0        ENTRY CONTENTS HOLD          82503200
                *                                                       82503210
0968 0  0000      DVA21   DC       0        DEVICE ASSIGNMENT            82503220
0969 0  0000              DC       0        INTERRUPT ENTRY         IE   82503230
096A 01 C4000995          LD    L  PICMN    SAVE COMMON ROUTINE          82503240
096C 0  D009              STO      ETY21    *ENTRY CONTENTS              82503250
096D 0  632A              LDX   3  42       SET PI TABLE POINTER         82503260
096E 01 44000995          BSI   L  PICMN    COMMON ROUTINE CALL  SRC     82503270
0970 1  0968              DC       DVA21                                 82503280
0971 0  C004              LD       ETY21    RESTORE COMMON RTN.          82503290
0972 01 D4000995          STO   L  PICMN    *ENTRY ADDRESS               82503300
0974 01 4C800969          BSC   I  DVA21+1  RETURN TO USER          IX    82503310
                *                                                       82503320
0976 0  0000      ETY21   DC       0        ENTRY CONTENTS HOLD          82503330
                *                                                       82503340
0977 0  0000      DVA22   DC       0        DEVICE ASSIGNMENT            82503350
0978 0  0000              DC       0        INTERRUPT ENTRY         IE   82503360
0979 01 C4000995          LD    L  PICMN    SAVE COMMON ROUTINE          82503370
097B 0  D009              STO      ETY22    *ENTRY CONTENTS              82503380
097C 0  632C              LDX   3  44       SET PI TABLE POINTER         82503390
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097D 01 44000995          BSI   L  PICMN    COMMON R JTINE CALL  SRC     82503400
097F 1  0977              DC       DVA22                                 82503410
0980 0  C004              LD       ETY22    RESTORE COMMON RTN.          82503420
0981 01 D4000995          STO   L  PICMN    *ENTRY ADDRESS               82503430
0983 01 4C800978          BSC   I  DVA22+1  RETURN TO USER          IX    82503440
                *                                                       82503450
0985 0  0000      ETY22   DC       0        ENTRY CONTENTS HOLD          82503460
                *                                                       82503470
0986 0  0000      DVA23   DC       0        DEVICE ASSIGNMENT            82503480
0987 0  0000              DC       0        INTERRUPT ENTRY         IE   82503490
0988 01 C4000995          LD    L  PICMN    SAVE COMMON ROUTINE          82503500
098A 0  D009              STO      ETY23    *ENTRY CONTENTS              82503510
098B 0  632E              LDX   3  46       SET PI TABLE POINTER         82503520
098C 01 44000995          BSI   L  PICMN    COMMON ROUTINE CALL  SRC     82503530
098E 1  0986              DC       DVA23                                 82503540
098F 0  C004              LD       ETY23    RESTORE COMMON RTN.          82503550
0990 01 D4000995          STO   L  PICMN    *ENTRY ADDRESS               82503560
0992 01 4C800987          BSC   I  DVA23+1  RETURN TO USER          IX    82503570
                *                                                       82503580
0994 0  0000      ETY23   DC       0        ENTRY CONTENTS HOLD          82503590
                *                                                       82503600
                *                  **********************               82503610
                *                  PROCESS INTERRUPT COMMON             82503620
                *                  INTERRUPT ROUTINE                    82503630
                *                  **********************               82503640
                *                                                       82503650
0995 0  0000      PICMN   DC       0        SUBROUTINE ENTRY        SE   82503660
0996 01 C4800995          LD    I  PICMN    GET DVA ADDRESS              82503670
0998 0  D00D              STO      A+1                                   82503680
0999 0  D012              STO      B+1                                   82503690
099A 0  D001              STO      *+1                                   82503700
099B 00 C4000000          LD    L  0        SET INTERRUPTING             82503710
099D 0  1008              SLA      8        *PISW ADDRESS IN TBL         82503720
099E 0  1808              SRA      8                                     82503730
099F 01 D7000904          STO   L3 PITBL                                 82503740
09A1 0  7301              MDX      1        ADD 1 TO TABLE INDEX         82503750
09A2 01 C4000AF0          LD    L  ONE      BUILD PISW READ              82503760
09A4 0  1009              SLA      9        *COMMAND                     82503770
09A5 00 EC000000    A     OR    L  0                                     82503780
09A7 01 D4000B07          STO   L  PIRD+1                                82503790
09A9 01 C4000AF7          LD    L  SENSE    BUILD PISW SENSE             82503800
09AB 00 EC000000    B     OR    L  0        *COMMAND                     82503810
09AD 01 D4000B09          STO   L  PISN+1                                82503820
09AF 01 C4000805          LD    L  SW3      CHECK IF READ OR SNS         82503830
09B1 0  4804              BSC      E        SKIP IF READ                 82503840
09B2 0  7008              MDX      PICM1                                 82503850
09B3 0  1010              SLA      16       RDSN INDICATOR TO            82503860
09B4 01 D4000AFE          STO   L  RDSN       *READ                      82503870
09B6 01 0C000B06          XIO   L  PIRD       READ PISW                  82503880
09B8 01 C4000AF3          LD    L  PI1        GET DATA READ              82503890
09BA 0  7006              MDX      PICM2                                 82503900
09BB 01 C4000AF0    PICM1 LD    L  ONE      RD/SN INDICATOR TO           82503910
09BD 01 D4000AFE          STO   L  RDSN       *SENSE                     82503920
09BF 01 0C000B08          XIO   L  PISN       SENSE PISW                 82503930
09C1 01 D70009D4    PICM2 STO   L3 PITBL      PISW TO PI TABLE           82503940
09C3 01 0C000B08          XIO   L  PISN       CK IF PISW RESET           82503950
09C5 0  4818              BSC      ←        SKIP IF NO RESET             82503960
09C6 0  7006              MDX      *+6                                   82503970
09C7 01 D4000AF4          STO   L  PI2        SAVE PISW.                 82503980
09C9 01 C70009D3          LD    L3 PITBL-1    GET FAILING ADDRESS        82503990
09CB 01 D4000AF5          STO   L  ADDRS      SAVE ADDRESS               82504000
09CD 01 74010AFC          MDX   L  INT,1      SET INTERRUPT INDCTR       82504010
09CF 01 74010995          MDX   L  PICMN,1    MODIFY RETURN              82504020
09D1 01 4C800995          BSC   I  PICMN      RETURN TO USER         SX  82504030
                *                                                       82504040
09D4      0030    PITBL BSS   E  48         PI DATA TABLE                82504050
                *                                                       82504060
                *                  **********************               82504070
```

DI DPC FUNCTION TEST

```
                      *                       DI INTERRUPT ROUTINE
                      *                       ********************
                      *
0A04 0  0000          DIINT DC        0       AREA CODE AND MOD
0A05 0  0000                DC        0                                 IE
0A06 01 0C000800            XIO   L   DISW    READ DSW AND SAVE
0AC8 01 D4000AFA            STO   L   DSW
0A0A 01 0C000800            XIO   L   DISW    SENSE AGAIN FOR DSW
0A0C 01 D4000AFB            STO   L   DSW1    *RESET CHECK
0A0E 01 74000AFF            MDX   L   SPVSW,0 CHECK IF RTN 1
0A10 0  7003                MDX       DIN1
                      *
                      *                       ** NOT RTN 1 **
                      *
0A11 01 67000A32            LDX   L3  DIER    SET MLSCF RETURN
0A13 0  7002                MDX       *+2
                      *
                      *                       ** ROUTINE 1 **
                      *
0A14 01 67000A4E      DIN1  LDX   L3  DISPV   SET MLSCF RETURN
0A16 01 6F000809            STX   L3  MLSCF
                      *
0A18 01 4C800A05      DIN2  BSC   I   DIINT+1 EXIT
                      *
                      *                       ************
                      *                       BEGIN ROUTINE
                      *                       ************
                      *
0A1A 00 4480012C      DIBGN BSI   I   BEGIN   XFER TO MON BEGIN
0A1C 1  07FF                DC        PID     *RTN WITH PID ADDRS
                      *
                      *                       **********************
                      *                       INITIALIZATION ROUTINE
                      *                       **********************
                      *
0A1D 0  0000          INIDI DC        0                                 SE
0A1E 01 C4000AEE            LD    L   DISRT   SET STARTING DI GRP
0A20 01 D4000AEF            STO   L   DIREG   *ADDRS TO 0040 HEX
0A22 0  1C10                SLA       16      CLEAR PISW RESET
0A23 01 D4000AF4            STO   L   PI2     *CHECK HOLD LOCATION
0A25 0  6130                LDX    1  48      CLEAR PI PRINT
0A26 01 D50009D3            STO   L1  PITBL-1 *DATA TABLE
0A28 0  71FF                MDX    1  -1
0A29 0  70FC                MDX       *-4
0A2A 0  2C40                DC        /2C40   CLEAR STORAGE PROTCT
0A2B 1  0AF6                DC        DI1     *AREA
0A2C 01 C4000807            LD    L   LPA     SET UP PROGRAM
0A2E 01 D4000809            STO   L   MLSCF   *RETURN
0A30 01 4C800A1D            BSC   I   INIDI   RETURN TO MONITOR     SX
                      *
                      *                       **********************
                      *                       DIDPC MAIN LINE PROGRAM
                      *                       **********************
                      *
                      *
                      *                       ** ERROR INTRP RETURN **
                      *
0A32 01 C4000AEF      DIER  LD    L   DIREG   SET GRP ADDRESS IN
0A34 01 D4000C8A            STO   L   MESAG+3 *MESSAGE
0A36 01 C4000AFB            LD    L   DSW1    CHECK IF DSW RESET
0A38 01 D4000C8B            STO   L   MESAG+4
0A3A 0  4818                BSC       +-
0A3B 0  7004                MDX       DIER1
                      *
                      ********************************************
0A3C 01 44000C48            BSI   L   LOGER   GO PRINT ERROR 8      SRC
0A3E 0  0002                DC        2       WORD COUNT
0A3F 0  E008                DC        /E008   MESSAGE ID
```


DI DPC FUNCTION TEST

```
                      ********************************************
                      *
0A40 01 C4000AFA      DIER1 LD    L   DSW     SET DSW IN MESSAGE
0A42 01 D4000C8B            STO   L   MESAG+4
0A44 01 C4000AF8            LD    L   DI1     SET LAST READ DATA
0A46 01 D4000C8C            STO   L   MESAG+5 *IN MESSAGE
                      *
                      ********************************************
0A48 01 44000C48            BSI   L   LOGER   PRINT ERROR 6         SRC
0A4A 0  0003                DC        3       WORD COUNT
0A4B 0  E006                DC        /E006   MESSAGE ID
                      ********************************************
                      *
0A4C 01 4C00085D            BSC   L   DI06+6
                      *
                      *                       ** SPV INTRP RETURN **
                      *
0A4E 01 C4000AEE      DISPV LD    L   DISRT   GRP ADDRS TO MESSAGE
0A50 01 D4000C8A            STO   L   MESAG+3
0A52 01 C4000AFB            LD    L   DSW1    DSW RESET WORD
0A54 01 D4000C8B            STO   L   MESAG+4 *TO MESSAGE
0A56 0  4818                BSC       +-      SKIP IF NOT ZERO
0A57 0  7004                MDX       DISP1
                      *
                      ********************************************
0A58 01 44000C48            BSI   L   LOGER   PRINT ERROR 8         SRC
0A5A 0  0002                DC        2       WORD COUNT
0A5B 0  E008                DC        /E008   MESSAGE ID
                      ********************************************
                      *
0A5C 01 C4000AFA      DISP1 LD    L   DSW     CHECK FOR PROPER DSW
0A5E 01 D4000C8B            STO   L   MESAG+4 *DSW BIT ON SPV
0A60 01 F4000800            EOR   L   DISW
0A62 0  4818                BSC       +-
0A63 0  7065                MDX       DIE
                      *
                      ********************************************
0A64 01 44000C48            BSI   L   LOGER   GO PRINT ERROR 7      SRC
0A66 0  0002                DC        2       WORD COUNT
0A67 0  E007                DC        /E007
                      ********************************************
                      *
0A68 0  7060                MDX       DIE
                      *
                      *                       ** BUILD PROCESS INTRPT **
                      *                       ** REQ AND RELEASE CALL **
                      *
0A69 0  6300          DIDPC LDX    3  0        INITIALIZE INDEX
0A6A 01 C7000814            LD    L3  EDIT+2   GET PI EDIT ENTRY
0A6C 01 F4000804            EOR   L   DISN     CHECK IF TERMINATOR
0A6E 0  4818                BSC       +-       SKIP IF NOT TERM
0A6F 0  7002                MDX       *+2      TERM FOUND  BRANCH
0A70 0  7301                MDX    3  1        MODIFY INDEX
0A71 0  70F8                MDX       DIDPC+1  CHECK NEXT ENTRY
                      *
0A72 0  680F                STX    3  DI10+1   SAVE INDEX SETTING
0A73 0  6810                STX    3  DI10+3
0A74 0  7303                MDX    3  3        MODIFY IX TO BUILD
0A75 01 C4000C34            LD    L   RLEXT-3  *PI RELEASE CALL
0A77 01 D7000C19            STO   L3  PIRLD    ADDRS TERM TO RLS CL
0A79 01 C4000C35            LD    L   RLEXT-2  SET BRANCH INSTRUCTN
0A7B 01 D7000C1A            STO   L3  PIRLD+1  *AT END OF RELEASE
0A7D 01 C4000C36            LD    L   RLEXT-1  *CALL
0A7F 01 D7000C1B            STO   L3  PIRLD+2
0A81 00 67000000      DI10  LDX   L3  0        RESTORE ORG VALUE
0A83 00 77000000            MDX   L3  0        MODIFY BY ORG VALUE
0A85 0  7304                MDX    3  4
0A86 01 C4000C11            LD    L   RQEXT-3  ADDRESS TERM TO
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```
0A88 01 D70008DD        STO  L3 PIRQD     *REQUEST CALL                82505440
0A8A 01 C4000C12        LD   L  RQEXT-2   SET BRANCH INSTRUCTN        82505450
0A8C 01 D70008DE        STO  L3 PIRQD+1   *AT END OF REQUEST          82505460
0A8E 01 C4000C13        LD   L  RQEXT-1   *CALL                        82505470
0A90 01 D70008DF        STO  L3 PIRQD+2                                82505480
                     *                                                 82505490
                     *              **************************         82505500
                     *              RTN01 TEST STG PRTCT VIOLT         82505510
                     *              **************************         82505520
                     *                                                 82505530
0A92 0  C859         RT01 LDD     RID01     ROUTINE NUMBER AND          82505540
0A93 01 DC000800        STD  L    RID       *ADDRESS TO PST             82505550
                     *                                                 82505560
                     ************************************************  82505570
0A95 01 44000BC2        BSI  L    DIRQD     GO REQUEST DI          SRC  82505580
                     ************************************************  82505590
                     *                                                 82505600
0A97 01 74010AFF        MDX  L    SPVSW,1   SET STG PROT SW             82505610
                     *                                                 82505620
                     *              ** BUILD DI RD/SN CMMAND**         82505630
                     *                                                 82505640
0A99 0  2C40         DI0A DC      /2C40     INSURE ID AREA NOT          82505650
0A9A 1  0AF8            DC        DI1       *STORAGE PROTECTED          82505660
0A9B 01 C4000A04        LD   L    DIINT     DI GRP AREA CODE            82505670
0A9D 0  E859            OR        SENSE                                 82505680
0A9E 0  D066            STO       DISN+1    DI GRP SENSE CMMAND         82505690
0A9F 0  8050            A         ONE                                   82505700
0AA0 0  D060            STO       DISW+1                                82505710
0AA1 0  904E            S         ONE                                   82505720
0AA2 0  E053            AND       READ                                  82505730
0AA3 0  E84B            OR        DIREG                                 82505740
0AA4 0  D05E            STO       DIRD+1    DI READ COMMAND             82505750
0AA5 0  C05E            LD        DISN      SET CHECK WORD IN           82505760
0AA6 0  D051            STO       DI1       *READ IN AREA               82505770
0AA7 0  2C41            DC        /2C41     STORAGE PROTECT             82505780
0AA8 1  0AF8            DC        DI1       *READ IN AREA               82505790
                     *                                                 82505800
                     *              ** CHECK IF DI BUSY **             82505810
                     *                                                 82505820
0AA9 0  0856         DIC  XIO     DISW      SENSE DSW                   82505830
0AAA 0  4804            BSC       E         SKIP IF NOT BUSY            82505840
0AAB 0  7001            MDX       *+1       BUSY                        82505850
0AAC 0  700C            MDX       DID       NOT BUSY                    82505860
                     *                                                 82505870
                     *              ** DI BUSY  ERROR 3 **             82505880
                     *                                                 82505890
0AAD 01 D4000C8B        STO  L    MESAG+4   DSW TO MESSAGE              82505900
0AAF 0  C03E            LD        DISRT     REG ADDRS TO MSG            82505910
0AB0 01 D4000C8A        STO  L    MESAG+3                               82505920
                     *                                                 82505930
                     ************************************************  82505940
0AB2 01 44000C48        BSI  L    LOGER     GO PRINT ERROR 3       SRC  82505950
0AB4 0  0002            DC        2         WORD COUNT                  82505960
0AB5 0  E003            DC        /E003     MESSAGE ID                  82505970
                     ************************************************  82505980
                     *                                                 82505990
                     ************************************************  82506000
0AB6 01 44000C39        BSI  L    RLS       PROGRAM RELEASE        SRC  82506010
                     ************************************************  82506020
                     *                                                 82506030
0AB8 0  70F0            MDX       DIC       TRY AGAIN                   82506040
                     *                                                 82506050
                     *              **VIOLATE PROTECTED STG**          82506060
                     *                                                 82506070
0AB9 0  6302         DID  LDX  3 2          DELAY INDEX                 82506080
0ABA 0  0847            XIO       DIRD      READ DI                     82506090
                     *                                                 82506100
                     ************************************************  82506110
```



```
0ABB 01 44000C39        BSI  L    RLS       WAIT FOR INTERRUPT     SRC  82506120
                     ************************************ **********  82506130
                     *                                                 82506140
0ABD 0  73FF            MDX  3 -1                                       82506150
0ABE 0  70FC            MDX       *-4                                   82506160
                     *                                                 82506170
                     *              ** NO SPV INTRP ERROR 1 **         82506180
                     *                                                 82506190
0ABF 0  0840            XIO       DISW      SENSE DSW AND SET           82506200
0AC0 01 D4000C8B        STO  L    MESAG+4   *IN MESSAGE                 82506210
0AC2 0  C028            LD        DISRT     GRP ADDRS TO MSG            82506220
0AC3 01 D4000C8A        STO  L    MESAG+3                               82506230
                     *                                                 82506240
                     ************************************************  82506250
0AC5 01 44000C48        BSI  L    LOGER     GO PRINT ERROR 4       SRC  82506260
0AC7 0  0002            DC        2         WORD COUNT                  82506270
0AC8 0  E001            DC        /E001     MESSAGE ID                  82506280
                     ************************************************  82506290
                     *                                                 82506300
                     *              ** CHECK PROTECTED LOC **          82506310
                     *              ** FOR PROPER DATA     **          82506320
                     *                                                 82506330
0AC9 0  C02E         DIE  LD      DI1       CHECK PROTECTED AREA        82506340
0ACA 0  F039            EOR       DISN      * FOR FFFF                  82506350
0ACB 0  4818            BSC       +-        SKIP IF DATA NOT            82506360
0ACC 0  700D            MDX       DIF       * FFFF                      82506370
                     *                                                 82506380
                     *              **STG PROT AREA READ IN**          82506390
                     *              **       ERROR 5       **          82506400
                     *                                                 82506410
0ACD 0  C020            LD        DISRT     GRP ADDRS TO MSG            82506420
0ACE 01 D4000C8A        STO  L    MESAG+3                               82506430
0AD0 0  C033            LD        DISN      PROTECTED DATA              82506440
0AD1 01 D4000C8B        STO  L    MESAG+4                               82506450
0AD3 0  C024            LD        DI1       ACTUAL DATA                 82506460
0AD4 01 D4000C8C        STO  L    MESAG+5                               82506470
                     *                                                 82506480
                     ************************************************  82506490
0AD6 01 44000C48        BSI  L    LOGER     GO PRINT ERROR 5       SRC  82506500
0AD8 0  0003            DC        3         WORD COUNT                  82506510
0AD9 0  E005            DC        /E005     MESSAGE ID                  82506520
                     ************************************************  82506530
                     *                                                 82506540
0ADA 0  1010         DIF  SLA     16        CLEAR SPV SWITCH            82506550
0ADB 0  D023            STO       SPVSW                                 82506560
0ADC 0  2C40            DC        /2C40     CLEAR STORAG PROTECT        82506570
0ADD 1  0AF8            DC        DI1                                   82506580
                     *                                                 82506590
                     ************************************************  82506600
0ADE 01 44000BD2        BSI  L    DIRLD     GO RELEASE DI          SRC  82506610
0AE0 01 44000C39        BSI  L    RLS       OVERLAP RELEASE        SRC  82506620
                     ************************************************  82506630
                     *                                                 82506640
0AE2 01 C4000802        LD   L    SW0       CHECK IF TERMINATE          82506650
0AE4 00 4C84012E        BSC  I    END,E     *PROGRAM REQUESTED          82506660
0AE6 01 C4000803        LD   L    SW1       CHECK SWITCH FUNCTIN        82506670
0AE8 0  4804            BSC       E         *01  IF BIT 15 ON           82506680
0AE9 0  70A8            MDX       RT01      *LOOP ROUTINE 1  IF         82506690
0AEA 0  701F            MDX       RT02      *OFF GO TO ROUTINE 2        82506700
                     *                                                 82506710
0AEC    0000         RID01 BSS  E 0                                     82506720
0AEC 0  0001            DC        1         RID                         82506730
0AED 1  0A92            DC        RT01      RAD                         82506740
                     *                                                 82506750
                     *              *****************                  82506760
                     *              PROGRAM CONSTANTS                  82506770
                     *              *****************                  82506780
                     *                                                 82506790
```

```
0AEE 0  0040       DISRT DC        /0040      STARTING DI GRP ADRS
0AEF 0  0000       DIREG DC        0          DI GRP BEING USED
0AF0 0  0001       ONE   DC        1
0AF1 0  0000       RDSW  DC        0          1ST READ SWITCH
0AF2 0  0000       DICMP DC        0          DI GRP COMPARE WORD
0AF3 0  0000       PI1   DC        0          PISW READ IN AR+A
0AF4 0  0000       PI2   DC        0          PISW RESET CK HOLD
0AF5 0  0000       ADDRS DC        0          PISW ADDRESS HOLD
0AF6 0  FAFF       READ  DC        /FAFF      BUILD READ IOCC CNST
0AF7 0  0700       SENSE DC        /0700      SENSE COMMAND
0AF8 0  0000       DI1   DC        0          DI GRP READ IN AREA
0AF9 0  0000       DI2   DC        0          DI GRP SENSE SAVE
0AFA 0  0000       DSW   DC        0          DSW HOLD LOCATION
0AFB 0  0000       DSW1  DC        0          DSW RESET WORD
0AFC 0  0000       INT   DC        0          INTERRUPT INDICATOR
0AFD 0  0000       DIRQ  DC        0          DI REQUEST SAVE
0AFE 0  0000       RDSN  DC        0
0AFF 0  0000       SPVSW DC        0          STG PROTECT SWITCH
0B00    0000             BSS   E   0
0B00 0  4000       DISW  DC        /4000      SENSE DSW IOCC
0B01 0  0000             DC        0
0B02 1  0AF8       DIRD  DC        DI1        DI READ IOCC
0B03 0  0000             DC        0
0B04 0  FFFF       DISN  DC        /FFFF      DI SENSE IOCC
0B05 0  0000             DC        0
0B06 1  0AF3       PIRD  DC        PI1        PI READ IOCC
0B07 0  0000             DC        0
0B08 0  0000       PISN  DC        0          PI SENSE IOCC
0B09 0  0000             DC        0
                   *
                   *                    ************************
                   *                    RTN02  CK DI GRP AND PI
                   *                    INTERRUPT  ROUTINE 2 LOOPS
                   *                    UNTIL PROGRAM DESELECT
                   *                    ************************
                   *
0B0A 01 CC000BC0   RT02  LDD   L   RID02      ROUTINE NUMBER AND
0B0C 01 DC000800         STD   L   RID        *ADDRESS TO PST
0B0E 01 74010AF1         MDX   L   RDSW,1     SET FIRST READ INDTR
                   *
                   *****************************************************
0B10 01 44000BC2   DI01  BSI   L   DIRQD      GO REQUEST DI           SRC
0B12 01 C4000814         LD    L   EDIT+2     BYPASS REQUEST PI IF
0B14 0  F0EF             EOR       DISN       *1ST PI EDIT ENTRY
0B15 01 4C180B19         BSC   L   DI02,+-    *IS FFFF
0B17 01 44000BDD         BSI   L   PIRQD      GO REQUEST PI           SRC
                   *****************************************************
                   *
                   *                    ** BUILD RD AND SN CMNDS**
                   *
0B19 01 C4000A04   DI02  LD    L   DIINT      GET DI AREA CODE
0B1B 0  E8D3             OR        DIREG      ADD PRESENT DI ADDRS
0B1C 0  E8DA             OR        SENSE
0B1D 0  D0E7             STO       DISN+1     DI GRP SENSE
0B1E 0  E0D7             AND       READ
0B1F 0  D0E3             STO       DIRD+1     DI GRP READ
                   *
                   *                    ** READ AND SENSE DI GRP**
                   *
0B20 0  08E1       DI03  XIO       DIRD       READ THE DI GROUP
0B21 0  08E2             XIO       DISN       SENSE DI GROUP
0B22 0  D0D6             STO       DI2        SAVE SENSE DATA
0B23 0  C0CD             LD        RDSW       CHECK IF 1ST READ
0B24 0  48C8             BSC       +          SKIP IF 1ST READ
0B25 0  700E             MDX       DI04       BRANCH IF NOT 1ST RD
                   *
                   *                    ** 1ST READ THIS DI GRP **
                   *
```



```
0B26 0  C0D1             LD        DI1        SAVE DATA READ AS
0B27 0  D0CA             STO       DICMP      *COMPARE WORD
0B28 01 D4000C8B         STO   L   MESAG+4    SET DATA IN MESSAGE
0B2A 0  C0C4             LD        DIREG      SET DI GRP ADDRESS
0B2B 01 D4000C8A         STO   L   MESAG+3    *IN MESSAGE
                   *
                   *****************************************************
0B2D 01 44000C4E         BSI   L   LOGDT      LOG 1ST READ DATA       SRC
0B2F 0  0002             DC        /0002      LINE NMBR + WORD CNT
0B30 0  D001             DC        /D001      MESSAGE ID
                   *****************************************************
                   *
0B31 0  1010             SLA       16         CLEAR 1ST READ
0B32 0  D0BE             STO       RDSW       *INDICATOR AND CONT
0B33 0  7012             MDX       DI05
                   *
                   *                    ** NOT 1ST READ THIS GRP**
                   *
0B34 0  C0C3       DI04  LD        DI1        CHECK PRESENT DATA
0B35 0  F0BC             EOR       DICMP      *AGAINST COMP WORD
0B36 0  4818             BSC       +-         SKIP IF NO COMPARE
0B37 0  700E             MDX       DI05       BRANCH IF COMPARE
                   *
0B38 0  C0B9             LD        DICMP      SET COMPARE WORD IN
0B39 01 D4000C8B         STO   L   MESAG+4    *LOG MESSAGE
0B3B 0  C0BC             LD        DI1        SET PRESENT READ
0B3C 01 D4000C8C         STO   L   MESAG+5    *DATA IN LOG MESSAGE
0B3E 0  D0B3             STO       DICMP      *AND IN COMPARE WORD
0B3F 0  C0AF             LD        DIREG      SET DI GRP ADDRESS
0B40 01 D4000C8A         STO   L   MESAG+3    *IN MESSAGE
                   *
                   *****************************************************
0B42 01 44000C4E         BSI   L   LOGDT      LOG NON CMPAR DATA      SRC
0B44 0  0003             DC        /0003      LINE NMBR + WORD CNT
0B45 0  D002             DC        /D002      MESSAGE ID
                   *****************************************************
                   *
                   *                    ** CK FOR RD SNS CMPR **
                   *
0B46 0  C0B1       DI05  LD        DI1        CHECK READ AND SENSE
0B47 0  F0B1             EOR       DI2        *DATA
0B48 0  4818             BSC       +-         SKIP IF UNLIKE
0B49 0  700D             MDX       DI06       BRANCH IF ALIKE
                   *
                   *                    ** RD SNS CMPR ERROR **
                   *
0B4A 0  C0AD             LD        DI1
0B4B 01 D4000C8B         STO   L   MESAG+4    READ DATA TO MSG
0B4D 0  C0AB             LD        DI2
0B4E 01 D4000C8C         STO   L   MESAG+5    SENSE DATA TO MSG
0B50 0  C09E             LD        DIREG
0B51 01 D4000C8A         STO   L   MESAG+3    DI GRP ADRS TO MSG
                   *
                   *****************************************************
0B53 01 44000C48         BSI   L   LOGER      LOG RD SNS ERROR        SRC
0B55 0  0003             DC        /0003      LINE NMBR + WORD CNT
0B56 0  E002             DC        /E002      MESSAGE ID
                   *****************************************************
                   *
                   *****************************************************
0B57 01 44000BD2   DI06  BSI   L   DIRLD      GO RELEASE DI           SRC
0B59 01 44000C39         BSI   L   RLS        OVERLAP RELEASE         SRC
0B5B 01 44000BC2         BSI   L   DIRQD      GO REQUEST DI           SRC
                   *****************************************************
                   *
0B5D 0  C09E             LD        INT        CK IF INTRP OCCURED
0B5E 0  4818             BSC       +-         SKIP IF INTRP
0B5F 0  702E             MDX       DI08       BRANCH ON NO INTRP
```

DI DPC FUNCTION TEST

```
                    *
                    *                   ** CHECK PROCESS INTRPT **
                    *
0B60 0  1010              SLA      16         CLEAR INTRPT INDICTR
0B61 0  D09A              STO      INT
0B62 01 C4000AFE          LD    L  RDSN       SET READ SENSE INDTR
0B64 01 D4000C8C          STO   L  MESAG+5    *IN PRINT MESSAGE
0B66 0  6130              LDX    1 48
0B67 01 CD0009D2          LDD   L1 PITBL-2    GET TABLE ENTRY
0B69 0  4820              BSC      Z          SKIP IF ENTRY ZERO
0B6A 0  7003              MDX      *+3        BRANCH NOT ZERO
0B6B 0  71FE        DI06A MDX    1 -2         MODIFY TABLE INDEX
0B6C 0  70FA              MDX      *-6        GO GET NEXT ENTRY
0B6D 0  7000              MDX      DI07       GO CHECK PISW RESET
                    *
                    *                   **LOG PISW CONTENTS**
                    *
0B6E 01 D4000C8A          STO   L  MESAG+3    PISW ADDRS TO MESAGE
0B70 0  1090              SLT      16         Q REG TO A REG
0B71 01 D4000C8B          STO   L  MESAG+4    PISW DATA TO MESSAGE
0B73 0  10A0              SLT      32         CLEAR USED TABLE
0B74 01 DD0009D2          STD   L1 PITBL-2    *ENTRY
                    *
                    *******************************************
0B76 01 44000C4E          BSI   L  LOGDT      PRINT MESSAGE D003   SRC
0B78 0  0003              DC       /0003      WORD COUNT
0B79 0  D003              DC       /D003      MESSAGE ID
                    *******************************************
                    *
0B7A 0  70F0              MDX      DI06A      CK IF TBL SEARCH DUN
                    *
                    *                   ** CHECK PISW RESET
                    *
0B7B 01 C4000AF4    DI07  LD    L  PI2        CHECK IF PISW RESET
0B7D 0  4818              BSC      +-         SKIP IF RESET FAILED
0B7E 0  700F              MDX      DI08
0B7F 01 D4000C8B          STO   L  MESAG+4    SET PISW IN MESSAGE
0B81 01 C4000AF5          LD    L  ADDRS
0B83 01 D4000C8A          STO   L  MESAG+3    SET ADDRESS IN MESAG
0B85 0  1010              SLA      16         CLEAR ERROR SAVE
0B86 01 D4000AF4          STO   L  PI2        *LOCATIONS
0B88 01 D4000AF5          STO   L  ADDRS
                    *                   ** PROCESS INT RESET ERR**
                    *
                    *******************************************
0B8A 01 44000C48          BSI   L  LOGER      LOG PISW RESET ERROR SRC
0B8C 0  0002              DC       /0002      LINE NMBR + WORD CNT
0B8D 0  E004              DC       /E004      MESSAGE ID
                    *******************************************
                    *
                    *                   ** CHECK IF OPERATOR HAS**
                    *                   ** REQSTD A DI GRP CHNG **
                    *
0B8E 01 C4000802    DI08  LD    L  SW0        CHECK IF TERMINATE
0B90 00 4C84012E          BSC   I  END,E      *PROGRAM REQUESTED
0B92 01 C4000804          LD    L  SW2        GET FUNCN 2 SETTING
0B94 0  4818              BSC      +-         *SKIP IF NOT ZERO
0B95 0  708A              MDX      DI03       NO REQUEST CONTINUE
                    *
                    *                   ** GRP CHANGE REQUESTED **
                    *
0B96 0  1890              SRT      16
0B97 0  1010              SLA      16
0B98 01 D4000804          STO   L  SW2        CLR FUNC 2 LOCATION
0B9A 0  1088              SLT      8          SAVE DI GRP REQUEST
0B9B 01 D4000AFD          STO   L  DIRQ       *POSITIONS
0B9D 0  1010              SLA      16
0B9E 0  1088              SLT      8          GET BIT 15
```


DI DPC FUNCTION TEST

```
0B9F 0  4808              BSC      +          SKIP IF BIT 15 ON
0BA0 0  701C              MDX      DI09       BRANCH IF BIT 15 OFF
                    *
                    *                   ** CHANGE DI GRP **
                    *
0BA1 01 C4000AFD          LD    L  DIRQ       GET GRP REQUEST
0BA3 0  4818              BSC      +-         SKIP IF NOT = ZERO
0BA4 0  7003              MDX      *+3        CONTENTS ZERO BRANCH
0BA5 01 D4000AEF          STO   L  DIREG      REG TO GRP IN USE ID
0BA7 0  7002              MDX      *+2
0BA8 01 74010AEF          MDX   L  DIREG,1    ADD 1 TO GRP IN USE
0BAA 01 C4000AEE          LD    L  DISRT      CHECK IF GRP REQUEST
0BAC 01 94000AEF          S     L  DIREG      *ADDRESS LESS THAN
0BAE 0  4808              BSC      +          *0040
0BAF 0  7001              MDX      *+1
0BB0 0  7006              MDX      *+6        GRP ADDRES TOO SMALL
0BB1 01 C4000813          LD    L  EDIT+1     GET MAX ADDRESS AND
0BB3 01 94000AEF          S     L  DIREG      *CHECK IF NEW SEL IS
0BB5 0  4810              BSC      -          *GREATER  IF SO SKIP
0BB6 0  7004              MDX      *+4        NEW SELECTION OK
0BB7 01 C4000AEE          LD    L  DISRT      RESET GRP ADDRESS
0BB9 01 D4000AEF          STO   L  DIREG      *TO /0040
0BBB 01 74010AF1          MDX   L  RDSW,1     SET 1ST RD THIS REG
                    *
0BBD 01 4C000B19    DI09  BSC   L  DI02       CONTINUE
                    *
0BC0    0000              BSS   E  0
0BC0 0  0002        RID02 DC       2          RID
0BC1 1  0B0A              DC       RT02       RAD
                    *
                    *                   ************************
                    *                   DI REQUEST DEVICE ROUTINE  *
                    *                   ************************
                    *
0BC2 0  0000        DIRQD DC       0                               SE
0BC3 01 C4000812          LD    L  EDIT       REQUEST DEVICE IF IT
0BC5 0  4828              BSC      +Z         *IS NOT PRESENTLY
0BC6 0  7006              MDX      *+6        *ASSIGNED TO PROGRAM
                    *
                    *******************************************
0BC7 00 44800131          BSI   I  REQDV      GO REQUEST DEVICE    MRC
0BC9 1  0BCF              DC       DIBSY      BUSY RETURN
0BCA 1  0812              DC       EDIT       DI DDEF
0BCB 1  0A04              DC       DIINT      ASSIGNMENT ADDRESS
0BCC 1  0808              DC       TERM
                    *******************************************
                    *
0BCD 01 4C800BC2          BSC   I  DIRQD      RETURN TO USER       SX
                    *
                    *******************************************
0BCF 01 44000C39    DIBSY BSI   L  RLS        BUSY  EXIT TO MON    SRC
                    *******************************************
                    *
0BD1 0  70F1              MDX      DIRQD+1    TRY AGAIN
                    *
                    *                   ************************
                    *                   DI RELEASE DEVICE ROUTINE
                    *                   ************************
                    *
0BD2 0  0000        DIRLD DC       0                               SE
0BD3 01 C4000812          LD    L  EDIT       RELEASE DEVICE IF IT
0BD5 0  4810              BSC      -          *IS PRESENTLY HELD
0BD6 0  7004              MDX      *+4        BY THE DI PROGRAM
                    *
                    *******************************************
0BD7 00 44800132          BSI   I  RELDV      GO RELEASE DEVICE    MRC
0BD9 1  0812              DC       EDIT       DI DDEF
0BDA 1  0808              DC       TERM
```

```
                         ********************************************          82509520
                         *                                                    82509530
0BDB 01 4C800BD2                BSC  I  DIRLD     RETURN TO USER       SX     82509540
                         *                                                    82509550
                         *                  ************************          82509560
                         *                  PI REQUEST DEVICE ROUTINE         82509570
                         *                  ************************          82509580
                         *                                                    82509590
0BDD 0  0000             PIRQD DC         0                             SE    82509600
                         *                                                    82509610
                         ********************************************          82509620
0BDE 00 44800131                BSI  I  REQDV     REQUEST PROC. INTRP  MRC    82509630
0BE0 1  0C16                    DC      PIBSY     BUSY RETURN                 82509640
0BE1 1  0814                    DC      EDIT+2    DDEF 1                      82509650
0BE2 1  082D                    DC      DVA00                                 82509660
0BE3 1  0815                    DC      EDIT+3    DDEF 2                      82509670
0BE4 1  083C                    DC      DVA01                                 82509680
0BE5 1  0816                    DC      EDIT+4    DDEF 3                      82509690
0BE6 1  0848                    DC      DVA02                                 82509700
0BE7 1  0817                    DC      EDIT+5    DDEF 4                      82509710
0BE8 1  085A                    DC      DVA03                                 82509720
0BE9 1  0818                    DC      EDIT+6    DDEF 5                      82509730
0BEA 1  0869                    DC      DVA04                                 82509740
0BEB 1  0819                    DC      EDIT+7    DDEF 6                      82509750
0BEC 1  0878                    DC      DVA05                                 82509760
0BED 1  081A                    DC      EDIT+8    DDEF 7                      82509770
0BEE 1  0887                    DC      DVA06                                 82509780
0BEF 1  081B                    DC      EDIT+9    DDEF 8                      82509790
0BF0 1  0896                    DC      DVA07                                 82509800
0BF1 1  081C                    DC      EDIT+10   DDEF 9                      82509810
0BF2 1  08A5                    DC      DVA08                                 82509820
0BF3 1  081D                    DC      EDIT+11   DDEF 10                     82509830
0BF4 1  08B4                    DC      DVA09                                 82509840
0BF5 1  081E                    DC      EDIT+12   DDEF 11                     82509850
0BF6 1  08C3                    DC      DVA10                                 82509860
0BF7 1  081F                    DC      EDIT+13   DDEF 12                     82509870
0BF8 1  08D2                    DC      DVA11                                 82509880
0BF9 1  0820                    DC      EDIT+14   DDEF 13                     82509890
0BFA 1  08E1                    DC      DVA12                                 82509900
0BFB 1  0821                    DC      EDIT+15   DDEF 14                     82509910
0BFC 1  08F0                    DC      DVA13                                 82509920
0BFD 1  0822                    DC      EDIT+16   DDEF 15                     82509930
0BFE 1  08FF                    DC      DVA14                                 82509940
0BFF 1  0823                    DC      EDIT+17   DDEF 16                     82509950
0C00 1  090E                    DC      DVA15                                 82509960
0C01 1  0824                    DC      EDIT+18   DDEF 17                     82509970
0C02 1  091D                    DC      DVA16                                 82509980
0C03 1  0825                    DC      EDIT+19   DDEF 18                     82509990
0C04 1  092C                    DC      DVA17                                 82510000
0C05 1  0826                    DC      EDIT+20   DDEF 19                     82510010
0C06 1  0938                    DC      DVA18                                 82510020
0C07 1  0827                    DC      EDIT+21   DDEF 20                     82510030
0C08 1  094A                    DC      DVA19                                 82510040
0C09 1  0828                    DC      EDIT+22   DDEF 21                     82510050
0C0A 1  0959                    DC      DVA20                                 82510060
0C0B 1  0829                    DC      EDIT+23   DDEF 22                     82510070
0C0C 1  0968                    DC      DVA21                                 82510080
0C0D 1  082A                    DC      EDIT+24   DDEF 23                     82510090
0C0E 1  0977                    DC      DVA22                                 82510100
0C0F 1  082B                    DC      EDIT+25   DDEF 24                     82510110
0C10 1  0986                    DC      DVA23                                 82510120
0C11 1  080B                    DC      TERM                                  82510130
                         ********************************************          82510140
                         *                                                    82510150
0C12 01 4C000C14                BSC  L  RQEXT                                 82510160
                         *                                                    82510170
0C14 01 4C800BDD         RQEXT BSC  I  PIRQD     RETURN TO USER       SX     82510180
                         *                                                    82510190
```



```
                         ********************************************          82510200
0C16 01 44000C39         PIBSY BSI  L  RLS         BUSY  EXIT TO MON    SRC    82510210
                         ********************************************          82510220
                         *                                                    82510230
0C18 0  70C5                    MDX      PIRQD+1   TRY AGAIN                   82510240
                         *                                                    82510250
                         *                  ************************          82510260
                         *                  PI RELEASE DEVICE ROUTINE         82510270
                         *                  ************************          82510280
0C19 0  0000             PIRLD DC         0                             SE    82510290
                         *                                                    82510300
                         ********************************************          82510310
0C1A 00 44800132                BSI  I  RELDV     RELEASE PROC. INTRP  MRC    82510320
0C1C 1  0814                    DC      EDIT+2    DDEF 1                      82510330
0C1D 1  0815                    DC      EDIT+3    DDEF 2                      82510340
0C1E 1  0816                    DC      EDIT+4    DDEF 3                      82510350
0C1F 1  0817                    DC      EDIT+5    DDEF 4                      82510360
0C20 1  0818                    DC      EDIT+6    DDEF 5                      82510370
0C21 1  0819                    DC      EDIT+7    DDEF 6                      82510380
0C22 1  081A                    DC      EDIT+8    DDEF 7                      82510390
0C23 1  081B                    DC      EDIT+9    DDEF 8                      82510400
0C24 1  081C                    DC      EDIT+10   DDEF 9                      82510410
0C25 1  081D                    DC      EDIT+11   DDEF 10                     82510420
0C26 1  081E                    DC      EDIT+12   DDEF 11                     82510430
0C27 1  081F                    DC      EDIT+13   DDEF 12                     82510440
0C28 1  0820                    DC      EDIT+14   DDEF 13                     82510450
0C29 1  0821                    DC      EDIT+15   DDEF 14                     82510460
0C2A 1  0822                    DC      EDIT+16   DDEF 15                     82510470
0C2B 1  0823                    DC      EDIT+17   DDEF 16                     82510480
0C2C 1  0824                    DC      EDIT+18   DDEF 17                     82510490
0C2D 1  0825                    DC      EDIT+19   DDEF 18                     82510500
0C2E 1  0826                    DC      EDIT+20   DDEF 19                     82510510
0C2F 1  0827                    DC      EDIT+21   DDEF 20                     82510520
0C30 1  0828                    DC      EDIT+22   DDEF 21                     82510530
0C31 1  0829                    DC      EDIT+23   DDEF 22                     82510540
0C32 1  082A                    DC      EDIT+24   DDEF 23                     82510550
0C33 1  082B                    DC      EDIT+25   DDEF 24                     82510560
0C34 1  080B                    DC      TERM                                  82510570
                         ********************************************          82510580
                         *                                                    82510590
0C35 01 4C000C37                BSC  L  RLEXT                                 82510600
                         *                                                    82510610
0C37 01 4C800C19         RLEXT BSC  I  PIRLD     RETURN TO USER       SX     82510620
                         *                                                    82510630
                         *                                                    82510640
                         *                  ************************          82510650
                         *                  ** RELEASE TO MONITOR RTN**       82510660
                         *                  ************************          82510670
                         *                                                    82510680
0C39 0  0000             RLS    DC        0                             SE    82510690
0C3A 0  69C8                    STX    1  RLS1+1    SAVE INDEX 1               82510700
0C3B 0  6BC9                    STX    3  RLS1+3    SAVE INDEX 3               82510710
0C3C 01 67C00C42                LDX    L3 RLS1                               82510720
0C3E 01 6FC0080A                STX    L3 MLSCF+1   SET RETURN ADDRESS         82510730
                         *                                                    82510740
                         ********************************************          82510750
0C40 00 4C80012D                BSC  I  START     EXIT TO MONITOR      MRC    82510760
                         ********************************************          82510770
                         *                                                    82510780
0C42 00 65000000         RLS1   LDX  L1 0                                      82510790
0C44 00 67C00000                LDX  L3 0                                     82510800
0C46 01 4C800C39                BSC  I  RLS                           SX      82510810
                         *                                                    82510820
                         *                  **********************            82510830
                         *                  ERROR AND LOG ROUTINES            82510840
                         *                  **********************            82510850
                         *                                                    82510860
0C48 0  0000             LOGER DC         0         ERROR ENTRY POINT   SE    82510870
```

```
0C49 01 74010C74          MDX  L  ERCAL,1    SET ERR CALL INDICTR        82510880
0C4B 0  C0FC              LD       LOGER      SET EKROR CALL STRNG        82510890
0C4C 0  D001              STO      LOGDT      *ADDRESS INTO LOG           82510900
0C4D 0  7001              MDX      LOGDT+1    *ENTRY AND GO TO LOG        82510910
                                                                          82510920
0C4E 0  0000    LOGDT DC  0        LOG ENTRY POINT      SE               82510930
0C4F 0  4082              BSI      DIRLD      RELEASE DI           SRC     82510940
0C50 01 C4800C4E          LD   I   LOGDT      WORD COUNT TO MESSAGE       82510950
0C52 0  D036              STO      MESAG      *TABLE                      82510960
0C53 01 74010C4E          MDX  L   LOGDT,1                               82510970
0C55 01 C4800C4E          LD   I   LOGDT      MESSAGE ID TO MESSAGE       82510980
0C57 0  D031              STO      MESAG+2    *TABLE                      82510990
0C58 0  C01B              LD       ERCAL                                  82511000
0C59 0  4818              BSC      ←          SKIP IF ERROR CALL          82511010
0C5A 0  701A              MDX      LOGD1      BRANCH IF LOG CALL          82511020
                                                                          82511030
                          ********************************************  82511040
0C5B 00 44800130  LOGE1 BSI  I   ERROR      GO PRINT ERROR       MRC     82511050
0C5D 1  0C87              DC       MESAG      MESSAGE TABLE ADDRS         82511060
0C5E 1  0C72              DC       ERBSY      BUSY RETURN                 82511070
0C5F 1  0C61              DC       LOGE2      LOOP ERROR ADDRESS          82511080
                          ********************************************  82511090
                                                                          82511100
0C60 0  7009              MDX      *+9        SKIP LOOP ERROR             82511110
                                                                          82511120
0C61 0  1010    LOGE2 SLA        16         CLEAR ERRER CALL            82511130
0C62 0  D011              STO      ERCAL      *INDICATOR                  82511140
0C63 01 44000BC2          BSI  L   DIRQD      REQUEST DI           SRC     82511150
0C65 01 C4000AFF          LD   L   SPVSW      CHECK IF ROUTINE 1          82511160
0C67 01 4C200A99          BSC  L   DIOA,Z     LOOP ON SPV PASS ERR        82511170
0C69 0  7004              MDX      *+4        SKIP 2ND REQUEST DI         82511180
0C6A 01 44000BC2          BSI  L   DIRQD      REQUEST DI           SRC     82511190
0C6C 0  1010              SLA      16         CLEAR ERROR CALL            82511200
0C6D 0  D006              STO      ERCAL      *INDICATOR *                82511210
0C6E 01 74020C48          MDX  L   LOGER,2                               82511220
0C70 01 4C800C48          BSC  I   LOGER      RETURN TO USER       SX      82511230
                                                                          82511240
                                   ** ERROR ROUTINE BUSY **               82511250
                                                                          82511260
                          ********************************************  82511270
0C72 0  40C6    ERBSY BSI        RLS        BUSY EXIT            SRC     82511280
                          ********************************************  82511290
                                                                          82511300
0C73 0  70E7              MDX      LOGE1                                  82511310
                                                                          82511320
0C74 0  0000    ERCAL DC  0        ERROR CALL INDICATOR                   82511330
                                                                          82511340
                                                                          82511350
                                   ** LOG CALL **                         82511360
                                                                          82511370
0C75 01 C4000802  LOGD1 LD   L   SWO        CHECK BYPASS LOG            82511380
0C77 0  100D              SLA      13                                     82511390
0C78 0  4828              BSC      +Z         SKIP IF LOG                 82511400
0C79 0  7005              MDX      LOGD2+5    BRANCH ON BYPASS LOG        82511410
                                                                          82511420
                          ********************************************  82511430
0C7A 00 4480012F  LOGD2 BSI  I   LOG        GO PRINT DATA        MRC     82511440
0C7C 1  0C87              DC       MESAG      MESSAGE TABLE ADDRS         82511450
0C7D 1  0C85              DC       LGBSY      BUSY RETURN                 82511460
0C7E 0  0000              DC       /0000      TERMINATION ADDRESS         82511470
                          ********************************************  82511480
                                                                          82511490
0C7F 01 44000BC2          BSI  L   DIRQD      REQUEST DI           SRC     82511500
0C81 01 74010C4E          MDX  L   LOGDT,1    RETURN TO USER              82511510
0C83 01 4C800C4E          BSC  I   LOGDT                          SX      82511520
                                                                          82511530
                                   ** LOG BUSY **                         82511540
                                                                          82511550
```



```
                          ********************************************  82511560
0C85 0  40B3    LGBSY BSI        RLS        BUSY EXIT            SRC     82511570
                          ********************************************  82511580
                                                                          82511590
0C86 0  70F3              MDX      LOGD2                                  82511600
                                                                          82511610
                                   **  MESSAGE TABLE **                   82511620
                                                                          82511630
0C87 0  0000    MESAG DC  0        LINE NMBR + WD COUNT                   82511640
0C88 0  0000              DC       0          HEX DEC SW                  82511650
0C89 0  0000              DC       0          MESSAGE ID                  82511660
0C8A 0  0000              DC       0          MOD 1                       82511670
0C8B 0  0000              DC       0          MOD 2                       82511680
0C8C 0  0000              DC       0          MOD 3                       82511690
0C8D 0  0000              DC       0          MOD 4                       82511700
                                                                          82511710
                                   ***********                            82511720
                                   END ROUTINE                            82511730
                                   ***********                            82511740
                                                                          82511750
0C8E 0  0000    DIEND DC  0                                     SE        82511760
                                                                          82511770
0C8F 0  2C40              DC       /2C40      CLEAR STORAGE PROTCT        82511780
0C90 1  0AF8              DC       DI1        *BIT                        82511790
                                                                          82511800
                          ********************************************  82511810
0C91 01 44000BD2          BSI  L   DIRLD      RELEASE DI           SRC     82511820
                          ********************************************  82511830
                                                                          82511840
0C93 01 C4000814          LD   L   EDIT+2     BYPASS RELEASE PI           82511850
0C95 01 F4000B04          EOR  L   DISN       *IF 1ST  PI EDIT            82511860
0C97 0  4818              BSC      ←          *ENTRY IS FFFF              82511870
0C98 0  7002              MDX      *+2                                    82511880
                                                                          82511890
                          ********************************************  82511900
0C99 01 44000C19          BSI  L   PIRLD      GO RELEASE PI        SRC     82511910
                          ********************************************  82511920
                                                                          82511930
0C9B 01 4C800C8E          BSC  I   DIEND      RETURN TO USER       SX      82511940
                                                                          82511950
0C9D    0000    PEND  BSS  0       END PROGRAM ARRDESS                    82511960
0C9E    0A1A              END      DIBGN                                  82511970
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A	09A5	0998
ADDRS	0AF5	09CB,0B81,0B88
B	09A8	0999
BEGIN	012C	07FF,0A1A
CRCK	0133	
DIBGN	0A1A	0C9D
DIBSY	0BCF	0BC9
DIC	0AA9	0A68
DICMP	0AF2	0B27,0B35,0B38,0B3E
DID	0AB9	0AAC
DIDPC	0A69	0807,0A71
DIE	0AC9	0A63,0A68
DIEND	0C8E	0808,0C9B
DIER	0A32	0A11
DIER1	0A40	0A38
DIF	0ADA	0ACC
DIINT	0A04	0A18,0A98,0B19,0BC8
DIN1	0A14	0A10
DIN2	0A18	
DIRD	0B02	0AA4,0ABA,0B1F,0B20
DIREG	0AEF	0A20,0A32,0AA3,0B1B,0B2A,0B3F,0B50,0BA5,0BA8,0BAC, 0BB3,0BB9
DIRLD	0BD2	0ADE,0B57,0BDB,0C4F,0C91
DIRQ	0AFD	0B98,0BA1
DIRQD	0BC2	0A95,0B10,0B5B,0BCD,0BD1,0C63,0C6A,0C7F
DISN	0B04	0A6C,0A9E,0AA5,0ACA,0AD0,0B14,0B1D,0B21,0C95
DISPV	0A4E	0A14
DISP1	0A5C	0A57
DISRT	0AEE	0A1E,0A4E,0AAF,0AC2,0ACD,0BAA,0BB7
DISW	0B00	0A06,0A0A,0A60,0AA0,0AA9,0ABF
DIOA	0A99	0C67
DIO1	0B10	
DIO2	0B19	0B15,0BBD
DIO3	0B20	0B95
DIO4	0B34	0B25
DIO5	0B46	0B33,0B37
DIO6	0B57	0A4C,0B49
DIO6A	0B6B	0B7A
DIO7	0B78	0B6D
DIO8	0B8E	0B5F,0B7E
DIO9	0BBD	0BA0
DI1	0AF8	0A2B,0A44,0A9A,0AA6,0AA8,0AC9,0AD3,0ADD,0B02,0B26, 0B34,0B3B,0B46,0B4A,0C90
DI10	0A31	0A72,0A73
DI2	0AF9	0B22,0B47,0B4D
DSW	0AFA	0AD8,0A40,0A5C
DSW1	0AFB	0A0C,0A36,0A52
DVA00	082D	0835,0839,0BE2
DVA01	083C	0844,0848,0BE4
DVA02	084B	0853,0857,0BE6
DVA03	085A	0862,0866,0BE8
DVA04	0869	0871,0875,0BEA
DVA05	0878	0880,0884,0BEC
DVA06	0887	088F,0893,0BEE
DVA07	0896	089E,08A2,0BF0
DVA08	08A5	08AD,08B1,0BF2
DVA09	08B4	08BC,08C0,0BF4
DVA10	08C3	08CB,08CF,0BF6
DVA11	08D2	08DA,08DE,0BF8
DVA12	08E1	08E9,08ED,0BFA
DVA13	08F0	08F8,08FC,0BFC
DVA14	08FF	0907,090B,0BFE
DVA15	090E	0916,091A,0C00
DVA16	091D	0925,0929,0C02
DVA17	092C	0934,0938,0C04

DVA18	093B	0943,0947,0C06
DVA19	094A	0952,0956,0C08
DVA20	0959	0961,0965,0C0A
DVA21	0968	0970,0974,0C0C
DVA22	0977	097F,0983,0C0E
DVA23	0986	098E,0992,0C10
EDIT	0812	0A6A,0812,0BB1,0BC3,0BCA,0BD3,0BD9,0BE1,0BE3,0BE5, 0BE7,0BE9,0BEB,0BED,0BEF,0BF1,0BF3,0BF5,0BF7,0BF9, 0BFB,0BFD,0BFF,0C01,0C03,0C05,0C07,0C09,0C0B,0C0D, 0C0F,0C1C,0C1D,0C1E,0C1F,0C20,0C21,0C22,0C23,0C24, 0C25,0C26,0C27,0C28,0C29,0C2A,0C2B,0C2C,0C2D,0C2E, 0C2F,0C30,0C31,0C32,0C33,0C93
END	012E	07FF,0AE4,0B90
EPA	0808	
ERBSY	0C72	0C5E
ERCAL	0C74	0C49,0C58,0C62,0C6D
ERROR	0130	07FF,0C5B
ETY00	083B	0831,0836
ETY01	084A	0840,0845
ETY02	0859	084F,0854
ETY03	0868	085E,0863
ETY04	0877	086D,0872
ETY05	0886	087C,0881
ETY06	0895	088B,0890
ETY07	08A4	089A,089F
ETY08	08B3	08A9,08AE
ETY09	08C2	08B8,08BD
ETY10	08D1	08C7,08CC
ETY11	08E0	08D6,08DB
ETY12	08EF	08E5,08EA
ETY13	08FE	08F4,08F9
ETY14	090D	0903,0908
ETY15	091C	0912,0917
ETY16	092B	0921,0926
ETY17	093A	0930,0935
ETY18	0949	093F,0944
ETY19	0958	094E,0953
ETY20	0967	095D,0962
ETY21	0976	096C,0971
ETY22	0985	097B,0980
ETY23	0994	098A,098F
INIDI	0A1D	0806,0A30
INT	0AFC	09CD,0B5D,0B61
IPA	0806	
LGBSY	0C85	0C7D
LOG	012F	07FF,0C7A
LOGDT	0C4E	0B2D,0B42,0B76,0C4C,0C4D,0C50,0C53,0C55,0C81,0C83
LOGD1	0C75	0C5A
LOGD2	0C7A	0C79,0C86
LOGER	0C48	0A3C,0A46,0A58,0A64,0AB2,0AC5,0AD6,0B53,0B8A,0C4B, 0C6E,0C70
LOGE1	0C5B	0C73
LOGE2	0C61	0C5F
LPA	0807	0A2C
MESAG	0C87	0A34,0A38,0A42,0A46,0A50,0A54,0A5E,0AAD,0AB0 0AC0, 0AC3,0ACE,0AD1,0AD4,0B28,0B2B,0B39,0B3C,0B40,0B48, 0B4E,0B51,0B64,0B5E,0B71,0B7F,0B83,0C52,0C57,0C5D, 0C7C
MLSCF	0809	0A16,0A2E,0C3E
ONE	0AF0	09A2,098B,0A9F,0AA1
PEND	0C9D	080C
PIBSY	0C16	0BE0
PICMN	0995	082F,0833,0837,0B3E,0842,0846,084D,0851,0855,085C, 0860,0864,0868,086F,0873,087A,087E,0882,0889,088D, 0891,0898,069C,08A0,08A7,08AB,08AF,08B6,08BA,08BE, 08C5,08C9,08CD,08D4,08D8,08DC,0AE3,08E7,08EB,08F2, 08F6,08FA,0901,0905,0909,0910,0914,0918,091F,0923, 0927,092E,0932,0936,093D,0941,0945,094C,0950,0954,

DI DPC FUNCTION TEST

		095B,095F,0963,096A,096E,0972,0979,097D,0981,0988,
		098C,0990,0996,09CF,09D1
PICM1	09BB	09B2
PICM2	09C1	09BA
PID	07FF	0A1C
PIRD	0806	09A7,09B6
PIRLD	0C19	0A77,0A7B,0A7F,0C37,0C99
PIRQD	0BDD	0A88,0A8C,0A90,0B17,0C14,0C18
PISN	0B08	09AD,09BF,09C3
PITBL	09D4	0995,09C1,09C9,0A26,0B67,0B74
PI1	0AF3	09B8,0B06
PI2	0AF4	09C7,0A23,0B7B,0B86
RAD	0801	
RDSN	0AFE	09B4,09BD,0B62
RDSW	0AF1	0B0E,0B23,0B32,0BBB
READ	0AF6	0AA2,0B1E
RELDV	0132	07FF,0BD7,0C1A
REQDV	0131	07FF,0BC7,0BDE
RID	0800	0A93,0B0C
RID01	0AEC	0A92
RID02	0BC0	0B0A
RLEXT	0C37	0A75,0A79,0A7D,0C35
RLS	0C39	0AB6,0ABB,0AE0,0B59,0BCF,0C16,0C46,0C72,0C85
RLS1	0C42	0C3A,0C3B,0C3C
RQEXT	0C14	0A86,0A8A,0A8E,0C12
RTO1	0A92	0AE9,0AED
RTO2	0B0A	0AEA,0BC1
SENSE	0AF7	09A9,0A9D,0B1C
SPVSW	0AFF	0A0E,0A97,0AD8,0C65
START	012D	07FF,0C40
SW0	0802	0AE2,0B8E,0C75
SW1	0803	0AE6
SW2	0804	0B92,0B98
SW3	0805	09AF
TERM	0808	0BCC,0BDA,0C11,0C34

DO FUNCTION TEST

```
0000                      ORG    *+2047                                 82700000
012C              BEGIN   EQU    300                                    82700010
012D              START   EQU    BEGIN+1                                82700020
012E              END     EQU    START+1                                82700030
012F              LOG     EQU    END+1                                  82700040
0130              ERROR   EQU    LOG+1                                  82700050
0131              REQDV   EQU    ERROR+1                                82700060
0132              RELDV   EQU    REQDV+1                                82700070
0133              CRCK    EQU    RELDV+1                                82700080
                  *                                                     82700090
                  *                                                     82700100
                  *****          PROGRAM STATUS TABLE **********        82700110
                  *                                                     82700120
                  *                                                     82700130
07FF 0  2700      PID     DC     /2700      PROGRAM IDENT               82700140
0800 0  0001      RID     DC     /0001      ROUTINE NUMBER              82700150
0801 0  0000      RAD     DC     /0000      ROUTINE ADDRESS             82700160
0802 0  0000      SWO     DC     /0000      BIT SW FUNC 00 PROG         82700170
0803 0  0000      SW1     DC     /0000                  01 REG          82700180
0804 0  0000      SW2     DC     /0000                  02 MODE         82700190
0805 0  5555      SW3     DC     /5555                  03 PATT         82700200
0806 1  0838      ILP     DC     RTO        INITIALIZATION ADDR         82700210
0807 1  0838      LPA     DC     RTO        LOOP PROG ADDR              82700220
0808 1  08D2      EPA     DC     RTEND      PROG END ADDR               82700230
0809 0  0000      MLSCF   DC     /0000      1ST MLSCF NORMAL            82700240
080A 0  0000              DC     /0000      2ND MLSCF BUSY              82700250
080B 0  0000              DC     /0000      3RD MLSCF CK INTR           82700260
080C 0  FFFF      TERM    DC     /FFFF      TERMINATOR                  82700270
080D 1  0AFD              DC     PEND       LAST ADDR OF PROG           82700280
080E 0  0000              DC     /0000                                  82700290
080F 0  0000              DC     /0000                                  82700300
0810 0  0000              DC     /0000                                  82700310
0811 0  0000              DC     /0000                                  82700320
0812 0  0000              DC     /0000                                  82700330
                  *                                                     82700340
0813 0  0000      EDIT    DC     /0000      INTR ILSW CHANNEL           82700350
0814 0  0000              DC     /0000      TIMER COUNT                 82700360
                  *                                                     82700370
                  *                                                     82700380
                  *****          INTERRUPT ROUTINE ************         82700390
                  *                                                     82700400
                  *                                                     82700410
0815 0  0000      DVA     DC     /0000      AREA CODE                   82700420
                  *                                                     82700430
0816 0  0000      DSW12   DC     /0000      RETURN ADDR           SE    82700440
0817 01 0C000908          XIO  L SENSE      SENSE DSW AND RESET         82700450
0819 01 D40008F8          STO  L WAS        SAVE DSW                    82700460
081B 0  1000      KEEP    NOP               USE FOR TRAP                82700470
081C 01 4C100823          BSC  L SCAN,-     BCH ON PLUS OR ZERO         82700480
081E 01 F40008DA  PARI    EOR  L K8000      REMOVE INTERRUPT BIT        82700490
0820 01 670008DE          LDX L3 PAROR      GET MLSCF ENTRY             82700500
0822 0  7012              MDX    OUT                                    82700510
                  *                                                     82700520
0823 0  1002      SCAN    SLA    2                                      82700530
0824 01 4C10082B          BSC  L COMD,-     BCH ON PLUS OR ZERO         82700540
0826 01 F40008DA          EOR  L K8000      REMOVE INTERRUPT BIT        82700550
0828 01 670008B3          LDX L3 CONT       GET MLSCF ENTRY             82700560
082A 0  700A              MDX    OUT                                    82700570
                  *                                                     82700580
082B 0  1001      COMD    SLA    1                                      82700590
082C 01 4C100833          BSC  L FALSE,-    BCH ON PLUS OR ZERO         82700600
082E 01 F40008DA          EOR  L K8000      REMOVE INTERRUPT BIT        82700610
0830 01 670008B3          LDX L3 CONT       CONTINUE NO ERROR           82700620
0832 0  7002              MDX    OUT                                    82700630
                  *                                                     82700640
0833 01 670008BC  FALSE   LDX L3 FAKE       GET MLSCF ENTRY             82700650
                  *                                                     82700660
0835 0  6803      OUT     STX  3 MLSCF      SET MLSCF ENTRY             82700670
```


DO FUNCTION TEST

```
0836 01 4C800816          BSC  I DSW12      RETURN TO MONITOR     SX    82700680
                  *                                                     82700690
                  *                                                     82700700
0838 00 4480012C  GO      BSI  I BEGIN      CALL ON MONITOR             82700710
083A 1  07FF              DC     PID        ADDR OF PST                 82700720
                  *                                                     82700730
                  *                                                     82700740
                  *****          INITIALIZATION ROUTINE ********        82700750
                  *                                                     82700760
                  *                                                     82700770
083B 0  00C0      RTO     DC     /0000      RETURN ADDR           SE    82700780
083C 00 6500FFFF          LDX L1 /FFFF      ALL ONES                    82700790
083E 0  69C4              STX  1 SW1                                    82700800
                  *                                                     82700810
083F 01 440009C2          BSI  L REQ        REQUEST DEVICE        SC    82700820
                  *                                                     82700830
0841 0  620B              LDX  2 11                                     82700840
0842 01 C6000900  BUILD   LD  L2 DPCWR      LOAD FUNCTION               82700850
0844 0  E8D0              OR     DVA        ADD AREA CODE               82700860
0845 01 D6000900          STO L2 DPCWR      SET IN I/O COMMAND          82700870
0847 0  72FE              MDX  2 -2                                     82700880
0848 0  70F9              MDX    BUILD                                  82700890
                  *                                                     82700900
0849 01 440009B7          BSI  L REL        RELEASE DEVICE        SC    82700910
                  *                                                     82700920
084B 01 65000851          LDX L1 RT1                                    82700930
084D 0  69B3              STX  1 RAD        SET ROUTINE ADDRESS         82700940
084E 0  69BA              STX  1 MLSCF      SET MLSCF                   82700950
084F 01 4C80083B          BSC  I RTO        RETURN                SX    82700960
                  *                                                     82700970
                  *                                                     82700980
                  *****          DIGITAL OUTPUT DIAGNOSTIC *****        82700990
                  *                                                     82701000
                  *                                                     82701010
0851 01 CC00090C  RT1     LDD  L MADDR      SET TWO REGS FUNC 01 E      82701020
0853 0  68AD              STX    RAD        UPDATE PROG PROCESS         82701030
0854 01 440008E3          BSI  L PRINT      USE PRINT ROUTINE     SC    82701040
                  *                                                     82701050
0856 01 6500085C  CHECK   LDX L1 FOUND                                  82701060
0858 01 6D000809          STX L1 MLSCF                                  82701070
085A 00 4C80012D          BSC  I START      RETURN TO MONITOR           82701080
                  *                                                     82701090
085C 01 C4000803  FOUND   LD   L SW1        NEW REGISTER STORAGE        82701100
085E 01 4C280856          BSC  L CHECK,+Z   BCH ON MINUS  BIT 0         82701110
0860 0  1008              SLA    8                                      82701120
0861 01 4C280856          BSC  L CHECK,+Z   BCH ON MINUS  BIT 8         82701130
                  *                                                     82701140
0863 01 44000943          BSI  L ADDR       SET NEW REGISTERS     SC    82701150
0865 01 4400097F          BSI  L DATA       SET UP DATA           SC    82701160
0867 01 44000920          BSI  L MDCHG      SET UP MODE           SC    82701170
0869 0  6897              STX    RAD        UPDATE PROG PROCESS         82701180
                  *                                                     82701190
                  *                                                     82701200
                  *              TWO NEW REGISTERS HERE SET IN          82701210
                  *              AND THE PROG WILL BEGIN HERE           82701220
                  *                                                     82701230
                  *                                                     82701240
086A 0  C098      FIRST   LD     SW1        NEW REGISTER STORAGE        82701250
086B 01 F40008DE          EOR  L REGST      STG OF BOTH REG NUM         82701260
086D 01 44300943          BSI  L ADDR,-Z    BCH ON PLUS           SC    82701270
                  *                                                     82701280
086F 0  C094              LD     SW2        NEW MODE STORAGE            82701290
0870 01 F40008F9          EOR  L MODE       OLD MODE STORAGE            82701300
0872 01 44300920          BSI  L MDCHG,Z-   GET NEW MODE IF PLUS  SC    82701310
                  *                                                     82701320
0874 0  C090              LD     SW3        NEW DATA STORAGE            82701330
0875 01 F40008FC          EOR  L DATA1      OLD DATA STORAGE            82701340
0877 01 4420097F          BSI  L DATA,Z     GET NEW DATA IF + -   SC    82701350
```

BO FUNCTION TEST

```
                            *                                                     82701360
0879 01 C40008F9                  LD    L  MODE        MODE STORAGE               82701370
087B 0  100C                      SLA      12          CHECK FOR DELAY            82701380
087C 01 65800814                  LDX   I1 EDIT+1      TIMER COUNT                82701390
087E 01 442809D5                  BSI   L  TIMEX,+Z    USE TIMER IF B 12=1        82701400
                            *                                                     82701410
0880 01 0C000908                  XIO   L  SENSE       SENSE DSW AND RESET        82701420
0882 01 D40008F8                  STO   L  WAS         SAVE DSW                   82701430
0884 01 442009E3                  BSI   L  CKSEN,Z     CHECK DSW BITS FOUND SC    82701440
                            *                                                     82701450
0886 01 C40008F9                  LD    L  MODE        MODE OF OPERATION          82701460
                            *                                                     82701470
0888 01 4C04089F                  BSC   L  KNOW,E      BCH ON BIT 15              82701480
                            *                                                     82701490
088A 01 C4000908                  LD    L  SENSE       SENSE WILL BE ODD          82701500
088C 0  F04A                      EOR      K0001       *THEN EVEN                 82701510
088D 01 D4000908                  STO   L  SENSE                                  82701520
088F 01 4C040896                  BSC   L  CHREG,E     BCH ON BIT 15              82701530
                            *                                                     82701540
                            *              ********************************       82701550
                            *              THIS SECTION IS FOR THE PROGRAM        82701560
                            *              CONTROL WRITE. THE REGISTER            82701570
                            *              NUMBER IS CHANGED EACH TIME AND        82701580
                            *              THE DATA EVERY OTHER TIME SO A         82701590
                            *              COMPARISON MAY BE MADE BETWEEN         82701600
                            *              TWO REGISTERS USING THE SAME           82701610
                            *              DATA.                                  82701620
                            *              ********************************       82701630
                            *                                                     82701640
0891 01 C40008FE                  LD    L  XIOWR       COMMON WRITE COMMAND       82701650
0893 0  F043                      EOR      K0001       CHANGE DATA ADDR           82701660
0894 01 D40008FE                  STO   L  XIOWR                                  82701670
                            *                                                     82701680
0896 01 C40008FF            CHREG LD    L  XIOWR+1                                82701690
0898 0  E042                      AND      KFF00       REMOVE REG NUMBER          92701700
0899 01 EC8008DD                  OR    I  REGCK       SET IN REG NUMBER          82701710
089B 0  D063                      STO      XIOWR+1                                82701720
                            *                                                     82701730
089C 0  C040                      LD       REGCK       CHANGE REG EACH TIME       82701740
089D 0  F039                      EOR      K0001       *ODD THEN EVEN             82701750
089E 0  D03E                      STO      REGCK                                  82701760
                            *                                                     82701770
                            *                                                     82701780
                            *****          CHECK FOR ONE TIME PRINTOUT ***        82701790
                            *                                                     82701800
                            *                                                     82701810
089F 01 C4000802            KNOW  LD    L  SWO         PROG CNTL STORAGE          82701820
08A1 0  1009                      SLA      9                                      82701830
08A2 01 4C1008AC                  BSC   L  WRITX,-     BCH ON NOT PRINT           82701840
08A4 0  F035                      EOR      K8C00       REMOVE BIT 12              82701850
08A5 0  1809                      SRA      9                                      82701860
08A6 01 D4000802                  STO   L  SWO         RESTORE CONTROLS           82701870
08A8 0  C861                      LDD      MCHK        MSG- CK CNTL STATUS        82701880
08A9 01 6C000801                  STX   L  RAD         UPDATE PROG PROCESS        82701890
08AB 0  4037                      BSI      PRINT       USED TO PRINT CNTLS  SC    82701900
                            *                                                     82701910
08AC 01 440009C2            WRITX BSI   L  REQ         REQUEST CHANNEL      SC    82701920
                            *                                                     82701930
08AE 0  084F                WRITE XIO      XIOWR       WRITE FOR DCC OR DPC       82701940
                            *                                                     82701950
08AF 0  0856                      XIO      CNTL        INITIATE PULSE IF BB       82701960
                            *                                                     82701970
08B0 0  C048                      LD       MODE        MODE OF OPERATION          92701980
08B1 01 4C0408B6                  BSC   L  CONTX,E     BCH ON DCC MODE            82701990
08B3 01 440009B7            CONT  BSI   L  REL         RELEASE CHANNEL      SC    82702000
08B5 0  7010                      MDX      GON                                    82702010
                            *                                                     82702020
08B6 00 65000F00            CONTX LDX   L1 /0F00       TIMER COUNT                82702030
```


BO FUNCTION TEST

```
08B8 01 440009D5                  BSI   L  TIMEX       USE TIMING ROUTINE   SC    82702040
                            *                                                     82702050
08BA 0  C85D                      LDD      MNINT       NO INTERRUPT RECD          82702060
08BB 0  7003                      MDX      NEXT                                   82702070
                            *                                                     82702080
08BC 0  C853                FAKE  LDD      MFAIO       FALSE INTERRUPT            82702090
08BD 0  7001                      MDX      NEXT                                   82702100
                            *                                                     82702110
08BE 0  C857                PAROR LDD      MPAR        PARITY ERROR               82702120
08BF 0  D836                NEXT  STD      MSG                                    82702130
08C0 01 440009B7                  BSI   L  REL         RELEASE CHANNEL      SC    82702140
08C2 0  C833                      LDD      MSG                                    82702150
08C3 01 6C000801                  STX   L  RAD         UPDATE PROG PROCESS        82702160
08C5 0  401D                      BSI      PRINT                                  82702170
                            *                                                     82702180
08C6 01 C4000802            GON   LD    L  SWO         PROG CONTROL STORAGE       82702190
08C8 01 4C0408D0                  BSC   L  RTECK,E     BCH ON BIT 15              82702200
                            *                                                     82702210
08CA 01 6500086A                  LDX   L1 FIRST       GET MLSCF ENTRY            82702220
08CC 01 6D000809                  STX   L1 MLSCF       SET MLSCF                  82702230
08CE 00 4C80012D                  BSC   I  START       RETURN TO MONITOR    SX    82702240
                            *                                                     82702250
08D0 00 4C80012E            RTECK BSC   I  END         MONITOR END CALL     SC    82702260
                            *                                                     82702270
                            *                                                     82702280
                            *****          ROUTINE END ******************         82702290
                            *                                                     82702300
                            *                                                     82702310
08D2 0  0000                RTEND DC       /0000       RETURN ADDR          SE    82702320
08D3 01 440009B7                  BSI   L  REL         RELEASE CHANNEL      SC    82702330
08D5 01 4C8008D2                  BSC   I  RTEND       RETURN TO USER       X     82702340
                            *                                                     82702350
                            ************************************************      82702360
                            *                                                     82702370
                            *                                                     82702380
                            *                                                     82702390
08D7 0  0001                K0001 DC       /0001       CONSTANT                   82702400
08D8 0  0006                K0006 DC       /0006       CONSTANT                   82702410
08D9 0  0080                K0080 DC       /0080       CONSTANT                   82702420
08DA 0  8000                K8000 DC       /8000       CONSTANT                   82702430
08DB 0  FF00                KFF00 DC       /FF00       CONSTANT                   82702440
08DC 0  F400                NORM  DC       /F400                                  82702450
08DD 1  08FA                REGCK DC       REG1        STARTING REGISTER          82702460
08DE 0  0000                REGST DC       /0000       STG FOR BOTH REG NUM       82702470
08DF 0  0000                SAVE  DC       /0000       REMAINING DSW BITS         82702480
08E0 0  0000                      DC       /0000       SHIFT COUNT                82702490
08E1 0  7001                SING  DC       /7001                                  82702500
08E2 0  0000                TIMER DC       /0000       STORAGE                    82702510
                            *                                                     82702520
                            *                                                     82702530
                            *****          PRINT ROUTINE ****************         82702540
                            *                                                     82702550
                            *                                                     82702560
08E3 0  0000                PRINT DC       /0000       RETURN ADDR          SE    82702570
08E4 0  D811                      STD      MSG         SET MSG IN OUTPUT          82702580
                            *                                                     82702590
08E5 00 4480012F            TRY   BSI   I  LOG         CALL ON MON LOGGING        82702600
08E7 1  08F4                      DC       LGOUT       ADDR OF MESSAGE            82702610
08E8 1  08ED                      DC       LBUSY       LOG BUSY ADDR              82702620
08E9 0  0000                      DC       /0000                                  82702630
                            *                                                     82702640
08EA 01 658008E3                  LDX   I1 PRINT       GET MLSCF ENTRY            82702650
08EC 0  7002                      MDX      OUT2                                   82702660
                            *                                                     82702670
08ED 01 650008E5            LBUSY LDX   L1 TRY         GET MLSCF ENTRY            82702680
08EF 01 6D000809            OUT2  STX   L1 MLSCF       SET MLSCF                  82702690
08F1 00 4C80012D                  BSC   I  START       RETURN TO MONITOR    SX    82702700
                            *                                                     82702710
```

DO FUNCTION TEST

```
                    *                                                    82702720
                    *****           DEVICE STATUS TABLE ***********      82702730
                    *                                                    82702740
                    *                                                    82702750
08F4      0000            BSS  E  0                                      82702760
08F4 0    0007      LGOUT DC      /0007     WORD COUNT                   82702770
08F5 0    0000            DC      /0000     HEX CONTROL                  82702780
08F6 0    0000      MSG   DC      /0000     ERROR MESSAGE NUMBER         82702790
08F7 0    0000            DC      /0000     CODED MESSAGE                82702800
08F8 0    0000      WAS   DC      /0000     ERROR OR LAST DSW            82702810
08F9 0    0000      MODE  DC      /0000     MODE OF OPERATION            82702820
08FA 0    0000      REG1  DC      /0000     REG ADDR 1                   82702830
08FB 0    0000      REG2  DC      /0000     REG ADDR 2                   82702840
08FC 0    0000      DATA1 DC      /0000     PATTERN 1                    82702850
08FD 0    0000      DATA2 DC      /0000     PATTERN 2                    82702860
                    *                                                    82702870
08FE 1    08FC      XIOWR DC      DATA1                                  82702880
08FF 0    0000            DC      /0000     COMMON WRITE                 82702890
0900 1    08FC      DPCWR DC      DATA1                                  82702900
0901 0    0100            DC      /0100     PROG CNTL WRITE              82702910
0902 1    0975      DCCWR DC      CONT1                                  82702920
0903 0    0500            DC      /0500     INITIAL WRITE                82702930
0904 0    0000      BLAST DC      /0000                                  82702940
0905 0    0420            DC      /0420     BLAST CHANNEL INST           82702950
0906 0    0000      CNTL  DC      /0000                                  82702960
0907 0    0400            DC      /0400                                  82702970
0908 0    0000      SENSE DC      /0000                                  82702980
0909 0    0701            DC      /0701     SENSE DSW AND RESET          82702990
                    *                                                    82703000
                    *                                                    82703010
                    *                                                    82703020
                    *                                                    82703030
090A 0    A001      MCHK  DC      /A001                                  82703040
090B 0    CCCC            DC      /CCCC     TYPE TO CHECK DATA           82703050
                    *                                                    82703060
090C 0    C001      MADDR DC      /C001     MSG NUMBER                   82703070
090D 0    D0AD            DC      /D0AD     ENTER REG ADDRESSES          82703080
                    *                                                    82703090
090E 0    E001      MBUSY DC      /E001                                  82703100
090F 0    AD00            DC      /AD00     BUSY                         82703110
0910 0    E002      MFAIO DC      /E002                                  82703120
0911 0    FA10            DC      /FA10     FALSE INTERRUPT              82703130
0912 0    E003      MERR  DC      /E003                                  82703140
0913 0    B1EE            DC      /B1EE     BITS IN ERROR                82703150
0914 0    E004      MBITF DC      /E004                                  82703160
0915 0    D0BF            DC      /D0BF     BIT FAILED TO GO OFF         82703170
0916 0    E005      MPAR  DC      /E005                                  82703180
0917 0    D0AE            DC      /D0AE     PARITY ERROR                 82703190
0918 0    E006      MNINT DC      /E006                                  82703200
0919 0    1CED            DC      /1CED     NO INTERRUPT                 82703210
091A 0    E007      MRONG DC      /E007                                  82703220
091B 0    BAD0            DC      /BAD0     CYCLE STEAL ERROR            82703230
091C 0    E008      MERRC DC      /E008                                  82703240
091D 0    D0CB            DC      /D0CB     CHAN BLAST FAILED            82703250
091E 0    E009      MCMRJ DC      /E009                                  82703260
091F 0    D0CC            DC      /D0CC     COMD REJECT FAILED           82703270
                    *                                                    82703280
                    *                                                    82703290
                    *****           GET NEW MODE OF OPERATION *****      82703300
                    *                                                    82703310
                    *                                                    82703320
0920 0    0000      MDCHG DC      /0000     RETURN ADDR           SE     82703330
0921 01 C4000804          LD   L  SW2       NEW MODE OF OPER             82703340
0923 0    D0D5            STO     MODE      OLD MODE STORAGE             82703350
0924 01 4C04092E          BSC  L  DCC,E     BCH ON BIT 15                82703360
                    *                                                    82703370
0926 01 650008FC          LDX  L1 DATA1                                  82703380
0928 0    69D5            STX   1 XIOWR     SET IN I/O COMMAND           82703390
```


DO FUNCTION TEST

```
0929 0    C0D7                  LD      DPCWR+1                          82703400
092A 0    E0B0                  AND     KFF00     REMOVE OLD REG         82703410
092B 0    E8CE                  OR      REG1      ADD NEW REG            82703420
092C 0    D0D2                  STO     XIOWR+1   SET IN I/O COMMAND     82703430
092D 0    7007                  MDX     BUILT                            82703440
                    *                                                    82703450
092E 0    C0CA      DCC         LD      MODE      NEW MODE OF OPER       82703460
092F 0    E0A8                  AND     K0006     SAVE BITS 13 + 14      82703470
0930 0    1005                  SLA     5                                82703480
0931 0    E8D1                  OR      DCCWR+1                          82703490
0932 0    D0CC                  STO     XIOWR+1   SET IN I/O COMMAND     82703500
                    *                                                    82703510
0933 0    C0CE                  LD      DCCWR                            82703520
0934 0    D0C9                  STO     XIOWR     I/O COMMAND BUILT      82703530
                    *                                                    82703540
0935 0    C0C3      BUILT       LD      MODE      MODE OF OPERATION      82703550
0936 0    1008                  SLA     8                                82703560
0937 01 4C28093C                BSC  L  BUILL,+Z  BCH ON MINUS           82703570
0939 0    C0CD                  LD      CNTL+1                           82703580
093A 0    E0A0                  AND     KFF00     REMOVE PULSE OUTPUT    82703590
093B 0    7002                  MDX     ALL                              82703600
093C 0    C0CA      BUILL       LD      CNTL+1                           82703610
093D 0    E898                  OR      K0080     ADD PULSE OUTPUT       82703620
093E 0    D0C8      ALL         STO     CNTL+1                           82703630
                    *                                                    82703640
093F 0    4003                  BSI     ADDR      GET NEW REG NUMBERS  SC  82703650
                    *                                                    82703660
0940 0    403E                  BSI     DATA      SET NEW PATTERN      SC  82703670
                    *                                                    82703680
0941 01 4C800920                BSC  I  MDCHG     RETURN TO PROG       SX  82703690
                    *                                                    82703700
                    *                                                    82703710
                    *****               GET NEW REGISTERS ************   82703720
                    *                                                    82703730
                    *                                                    82703740
0943 0    0000      ADDR        DC      /0000     RETURN ADDR          SE  82703750
0944 01 C4000803                LD   L  SW1       NEW REGISTER STORAGE   82703760
0946 0    D097                  STO     REGST     STORE NEW REGISTERS    82703770
0947 0    1888                  SRT     8         ONLY REG1 IN ACC       82703780
0948 0    D0B1                  STO     REG1      UPDATE REG1            82703790
0949 0    1008                  SLA     8         CLEAR ACC              82703800
094A 0    1088                  SLT     8         ONLY REG2 IN ACC       82703810
094B 0    D0AF                  STO     REG2      UPDATE REG2            82703820
                    *                                                    82703830
094C 0    C0AC                  LD      MODE      MODE OF OPERATION      82703840
094D 01 4C040955                BSC  L  CKDCC,E   BCH ON BIT 15          82703850
                    *                                                    82703860
094F 0    C0B1                  LD      DPCWR+1                          82703870
0950 01 E40008DB                AND  L  KFF00     REMOVE MODIFIER        82703880
0952 0    E8A7                  OR      REG1      ADD NEW REG NUMBER     82703890
0953 0    D0AB                  STO     XIOWR+1   UPDATE I/O COMMAND     82703900
0954 0    7012                  MDX     DONE                             82703910
                    *                                                    82703920
0955 0    1801      CKDCC       SRA     1                                82703930
0956 01 4C040963                BSC  L  PUT,E     BCH ON BIT 14          82703940
                    *                                                    82703950
                    *                   UPDATE OUTPUT TABLE FOR RANDOM   82703960
                    *                                                    82703970
0958 0    C0A1                  LD      REG1      GET REG ADDRESS        82703980
0959 0    D013                  STO     CONT3+2                          82703990
095A 0    D015                  STO     CONT3+6                          82704000
095B 0    D01A                  STO     CONT1+1                          82704010
095C 0    D01D                  STO     CONT1+5                          82704020
                    *                                                    82704030
095D 0    C09D                  LD      REG2      GET REG ADDRESS        82704040
095E 0    D010                  STO     CONT3+4                          82704050
095F 0    D013                  STO     CONT3+8                          82704060
0960 0    D017                  STO     CONT1+3                          82704070
```

BD FUNCTION TEST

```
0961 0  D01A            STO     CONT1+7                                 82704080
0962 0  7004            MDX     DONE                                    82704090
                        *                                               82704100
                        *       UPDATE OUTPUT TABLE FOR SINGLE          82704110
                        *                                               82704120
0963 0  C096    PUT     LD      REG1        GET REG ADDRESS             82704130
0964 0  B011            STO     CONT1+1                                 82704140
0965 0  C094            LD      REG1        GET REG ADDRESS             82704150
0966 0  B006            STO     CONT3+2                                 82704160
                        *                                               82704170
                        *                                               82704180
0967 01 6C000801 DONE   STX   L RAD         UPDATE PROG PROCESS         82704190
0969 01 4C800943        BSC   I ADDR        RETURN TO PROG              82704200
                        *                                               82704210
                        *                                               82704220
                        *****           OUTPUT TABLE FOR SW  **********  82704230
                        *                                               82704240
                        *                   RANDOM OR SINGLE            82704250
                        *                                               82704260
096B 1  096B    CONT3   DC      CONT3       CAR CHECK                   82704270
096C 0  0008            BC      /0008       SC=00WC=8 SC=00WC=8         82704280
096D 0  0000            DC      /0000       REG1      REG1              82704290
096E 0  0000            DC      /0000       DATA1     DATA2             82704300
096F 0  0000            DC      /0000       REG2      DATA2             82704310
0970 0  0000            DC      /0000       DATA1     DATA2             82704320
0971 0  0000            DC      /0000       REG1      DATA2             82704330
0972 0  0000            DC      /0000       DATA2     DATA2             82704340
0973 0  0000            DC      /0000       REG2      DATA2             82704350
0974 0  0000            DC      /0000       DATA2     DATA2             82704360
0975 0  C008    CONT1   DC      /C008       SC=11WC=8 SC=11WC=8         82704370
0976 0  0000            DC      /0000       REG1      REG1              82704380
0977 0  0000            DC      /0000       DATA1     DATA1             82704390
0978 0  0000            BC      /0000       REG2      DATA1             82704400
0979 0  0000            DC      /0000       DATA1     DATA1             82704410
097A 0  0000            BC      /0000       REG1      DATA1             82704420
097B 0  0000            DC      /0000       DATA2     DATA1             82704430
097C 0  0000            DC      /0000       REG2      DATA1             82704440
097D 0  0000            DC      /0000       DATA2     DATA1             82704450
097E 1  096B    CONT2   DC      CONT3       CHAINING ADDRESS            82704460
                        *                                               82704470
                        *                                               82704480
                        *****           GET NEW DATA PATTERN **********  82704490
                        *                                               82704500
                        *                                               82704510
097F 0  0000    DATA    DC      /0000       RETURN ADDR           SE    82704520
0980 01 C40008F9        LD    L MODE        MODE OF OPERATION           82704530
0982 0  1008            SLA     11                                      82704540
0983 01 4C100989        BSC   L STAND,-     BCH ON PLUS OR ZERO         82704550
                        *                                               82704560
0985 01 C40008E1        LD    L SING                                    82704570
0987 0  D00E            STO     SPSW1       SET SINGLE PATTERN    PR01  82704580
0988 0  D01F            STO     SPSW2       *SWITCHES             PR02  82704590
                        *                                               82704600
0989 01 C40008F9 STAND  LD    L MODE        MODE OF OPERATION           82704610
098B 0  1801            SRA     1                                       82704620
098C 01 4C04099F        BSC   L POT,E       BCH ON BIT 14               82704630
                        *                                               82704640
098E 01 C4000805        LD    L SW3         NEW DATA PATTERN            82704650
0990 01 D40008FC        STO   L DATA1                                   82704660
0992 0  D008            STO     CONT3+3                                 82704670
0993 0  D00C            STO     CONT3+5                                 82704680
0994 0  D0E2            STO     CONT1+2                                 82704690
0995 0  D0E3            STO     CONT1+4                                 82704700
                        *                                               82704710
0996 01 F400080C SPSW1  EOR   L TERM         REVERSE DATA PATTERN PM01 82704720
0998 01 D40008FD        STO   L DATA2                                   82704730
099A 0  D007            STO     CONT3+7                                 82704740
099B 0  D008            STO     CONT3+9                                 82704750
```


BD FUNCTION TEST

```
099C 0  D00E            STO     CONT1+6                                 82704760
099B 0  D00F            STO     CONT1+8                                 82704770
099E 0  7012            MDX     DONT                                    82704780
                        *                                               82704790
099F 01 C4000805 POT    LD    L SW3         NEW DATA PATTERN            82704800
09A1 01 D40008FC        STO   L DATA1                                   82704810
09A3 0  6207            LDX     2 7                                     82704820
09A4 01 D6000976 LOOP   STO   L2 CONT1+1                                82704830
09A6 0  72FF            MDX     2 -1                                    82704840
09A7 0  70FC            MDX     LOOP                                    82704850
                        *                                               82704860
09A8 01 F400080C SPSW2  EOR   L TERM         REVERSE DATA PATTERN PM02 82704870
09AA 01 D40008FD        STO   L DATA2                                   82704880
09AC 0  6207            LDX     2 7                                     82704890
09AD 01 D6000960 LOOPA  STO   L2 CONT3+2                                82704900
09AF 0  72FF            MDX     2 -1                                    82704910
09B0 0  70FC            MDX     LOOPA                                   82704920
                        *                                               82704930
09B1 01 C40008DC DONT   LD    L NORM                                    82704940
09B3 0  D0E2            STO     SPSW1       SET SINGLE PATTERN    PR01  82704950
09B4 0  DCF3            STO     SPSW2       *SWITCHES NORMAL      PR02  82704960
                        *                                               82704970
09B5 01 4C80097F        BSC   I DATA        RETURN TO PROG        SX    82704980
                        *                                               82704990
                        *                                               82705000
                        *****           RELEASE DEVICE **********       82705010
                        *                                               82705020
                        *                                               82705030
09B7 0  0000    REL     DC      /0000       RETURN ADDR           SE    82705040
09B8 01 C4000813        LD    L EDIT                                    82705050
09BA 01 4C1009C0        BSC   L GOOD,-      CHAN ALREADY RELEASE        82705060
                        *                                               82705070
09BC 00 44800132        BSE   I RELDV       REL DEVICE TO MON     SC    82705080
09BE 1  0813            DC      EDIT        INTR AND CHANNEL            82705090
09BF 1  080C            DC      TERM                                    82705100
                        *                                               82705110
09C0 01 4C8009B7 GOOD   BSC   I REL         RETURN TO PROG        SX    82705120
                        *                                               82705130
                        *                                               82705140
                        *                                               82705150
                        *****           REQUEST DEVICE **********       82705160
                        *                                               82705170
                        *                                               82705180
09C2 0  0000    REQ     DC      /0000       RETURN ADDR           SE    82705190
09C3 01 C4000813        LD    L EDIT                                    82705200
09C5 01 4C2809CD        BSC   L OUT1,+Z     BCH HAVE CHANNEL            82705210
                        *                                               82705220
09C7 00 44800131 ASK    BSI   I REQDV       REQ DEVICE FROM MON   SC    82705230
09C9 1  09CF            DC      STDBY       BUSY ADDR                   82705240
09CA 1  0813            DC      EDIT        INTR AND CHANNEL            82705250
09CB 1  0815            DC      DVA         AREA CODE                   82705260
09CC 1  080C            DC      TERM                                    82705270
                        *                                               82705280
09CD 01 4C8009C2 OUT1   BSC   I REQ         RETURN TO PROG        SX    82705290
                        *                                               82705300
09CF 01 650009C7 STDBY  LDX   L1 ASK        GET MLSCF IF BUSY           82705310
09D1 01 6D00080A        STX   L1 MLSCF+1    SET MLSCF                   82705320
09D3 00 4C80012D        BSC   I START       RETURN TO MONITOR           82705330
                        *                                               82705340
                        *                                               82705350
                        *****           TIMER FOR A GIVEN TIME ********  82705360
                        *                                               82705370
                        *                                               82705380
09D5 0  0000    TIMEX   DC      /0000       RETURN ADDR           SE    82705390
09D6 01 600008E2        STX   L1 TIMER                                  82705400
09D8 01 650009DE TIMED  LDX   L1 HERE                                   82705410
09DA 01 60000808        STX   L1 MLSCF+2                                82705420
09DC 00 4C80012D        BSC   I START       RETURN TO MONITOR           82705430
```

DO FUNCTION TEST

```
                    *                                                  82705440
09DE 01 74FF08E2    HERE  MDX  L  TIMER,-1                             82705450
09E0 0  70F7              MDX     TIMED                                82705460
09E1 01 4C8009D5          BSC  I  TIMEX       RETURN TO PROGRAM    SX  82705470
                    *                                                  82705480
                    *                                                  82705490
                    *****         CHECK DSW BITS ****************      82705500
                    *                                                  82705510
                    *                                                  82705520
09E3 0  0000        CKSEN DC      /0000       RETURN ADDR          SE  82705530
09E4 0  630F              LDX   3 15                                   82705540
09E5 0  1340        AGAIN SLCA  3 0                                    82705550
09E6 01 F40008DA          EOR  L  K8000       REMOVE BIT FOUND         82705560
09E8 01 D40008DF          STO  L  SAVE        SAVE REMAINING BITS      82705570
09EA 01 6F0008E0          STX  L3 SAVE+1      SAVE SHIFT COUNT         82705580
09EC 01 47800A02          BSI  I3 DSW         GET DSW BIT THATS ON SC  82705590
                    *                                                  82705600
09EE 01 C40008DF          LD   L  SAVE                                 82705610
09F0 01 678008E0          LDX  I3 SAVE+1                               82705620
09F2 01 4C2009E5          BSC  L  AGAIN,Z     BCH ON PLUS OR MINUS     82705630
09F4 01 0C000908          XIO  L  SENSE       SENSE DSW                82705640
09F6 01 D40008F8          STO  L  WAS         SAVE DSW                 82705650
09F8 01 4C9809E3          BSC  I  CKSEN,+-    RETURN IF ZERO       SX  82705660
                    *                                                  82705670
09FA 01 CC000914          LDD  L  MBITF       MSG- DSW BIT FAILED      82705680
09FC 01 6C000801          STX  L  RAD         UPDATE PROG PROCESS      82705690
09FE 01 440008E3          BSI  L  PRINT       TO PRINT BIT FAILURE SC  82705700
                    *                                                  82705710
0A00 01 4C0008D0          BSC  L  RTECK       TERMINATE PROGRAM    SX  82705720
                    *                                                  82705730
                    *                                                  82705740
                    *                                                  82705750
0A02 1  0A12        DSW   DC      BUSY        BIT 15 BUSY              82705760
0A03 1  0A63              DC      ERR1            14                   82705770
0A04 1  0A63              DC      ERR1            13                   82705780
0A05 1  0A63              DC      ERR1            12                   82705790
0A06 1  0A63              DC      ERR1            11                   82705800
0A07 1  0A63              DC      ERR1            10                   82705810
0A08 1  0A63              DC      ERR1             9                   82705820
0A09 1  0A63              DC      ERR1             8                   82705830
0A0A 1  0A63              DC      ERR1             7                   82705840
0A0B 1  0A63              DC      ERR1             6                   82705850
0A0C 1  0A63              DC      ERR1             5                   82705860
0A0D 1  0A63              DC      ERR1             4 CYCLE STEAL BUSY  82705870
0A0E 1  0A63              DC      ERR1        *INT 3 COMMD REJECT      82705880
0A0F 1  0A63              DC      ERR1        *INT 2 SCAN COMPLETE     82705890
0A10 1  0A51              DC      PULSE            1 PULSE TIMER       82705900
0A11 1  0A63              DC      ERR1        *INT 0 PARITY ERROR      82705910
                    *                                                  82705920
                    *                                                  82705930
                    *****         BUSY ROUTINE ******************      82705940
                    *                                                  82705950
                    *                                                  82705960
0A12 0  0000        BUSY  DC      /0000       RETURN ADDR          SE  82705970
0A13 01 CC00090E          LDD  L  MBUSY       MSG- BUSY                82705980
0A15 01 6C000801          STX  L  RAD         UPDATE PROG PROCESS      82705990
0A17 01 440008E3          BSI  L  PRINT       TO PRINT BUSY        SC  82706000
0A19 01 440009C2          BSI  L  REQ         REQUEST CHANNEL          82706010
0A1B 01 0C000908          XIO  L  SENSE       SENSE DSW                82706020
0A1D 01 4C040A20          BSC  L  BSY,E       BCH ON BUSY              82706030
0A1F 0  702F              MDX     CKBIT                                82706040
                    *                                                  82706050
0A20 0  1004        BSY   SLA     4                                    82706060
0A21 01 4C100A29          BSC  L  XXX,-                                82706070
0A23 01 CC00091A          LDD  L  MRONG       ERROR MSG                82706080
0A25 01 6C000801          STX  L  RAD                                  82706090
0A27 01 440008E3          BSI  L  PRINT       USE PRINT ROUTINE    SC  82706100
                    *                                                  82706110
```


DO FUNCTION TEST

```
0A29 01 C4000802    XXX   LD   L  SWO         PROG CONTROLS            82706120
0A2B 0  100A              SLA     10                                   82706130
0A2C 01 4C280A3A          BSC  L  REJT,+Z     BCH ON MINUS             82706140
                    *                                                  82706150
0A2E 01 0C000904          XIO  L  BLAST       CHANNEL BLAST            82706160
0A30 01 0C000908          XIO  L  SENSE       SENSE DSW                82706170
0A32 01 D40008F8          STO  L  WAS         SAVE DSW                 82706180
0A34 01 4C040A37          BSC  L  NOTE,E      BCH ON BUSY              82706190
0A36 0  7018              MDX     CKBIT                                82706200
                    *                                                  82706210
0A37 01 CC00091C    NOTE  LDD  L  MERRC       MSG- BLAST FAILED        82706220
0A39 0  7011              MDX     GOT                                  82706230
                    *                                                  82706240
                    *                                                  82706250
0A3A 01 C40007FF    REJT  LD   L  PID         TELL MONITOR THAT A      82706260
0A3C 00 D4000133          STO  L  CRCK        * CHAN BLAST COMING      82706270
0A3E 01 0C0008FE          XIO  L  XIOWR       GIVE COMD REJECT         82706280
                    *                                                  82706290
0A40 0  6102              LDX   1 2                                    82706300
0A41 0  4093              BSI     TIMEX       USE TIMER            SC  82706310
                    *                                                  82706320
0A42 01 0C000908          XIO  L  SENSE       SENSE DSW                82706330
0A44 01 D40008F8          STO  L  WAS         SAVE DSW                 82706340
0A46 01 4C040A49          BSC  L  CMDRJ,E     BCH ON BIT 15            82706350
0A48 0  7006              MDX     CKBIT                                82706360
                    *                                                  82706370
0A49 01 CC00091E    CMDRJ LDD  L  MCMRJ       COMD REJECT FAILED       82706380
0A4B 01 6C000801    GOT   STX  L  RAD         UPDATE PROG PROCESS      82706390
0A4D 01 440008E3          BSI  L  PRINT       USE PRINT ROUTINE    SC  82706400
                    *                                                  82706410
0A4F 01 4C800A12    CKBIT BSC  I  BUSY        RETURN TO PROGRAM    SX  82706420
                    *                                                  82706430
                    *                                                  82706440
                    *****         PULSE TIMER ON ****************      82706450
                    *                                                  82706460
                    *                                                  82706470
0A51 0  0000        PULSE DC      /0000       RETURN ADDR          SE  82706480
0A52 0  6103              LDX   1 3           TIMER COUNT              82706490
0A53 0  4081              BSI     TIMEX       USE TIMING ROUTINE   SC  82706500
                    *                                                  82706510
0A54 01 0C000908          XIO  L  SENSE       SENSE DSW                82706520
0A56 01 D40008F8          STO  L  WAS         SAVE DSW                 82706530
0A58 0  1002              SLA     2           CK PULSE BIT             82706540
0A59 01 4C900A51          BSC  I  PULSE,-     BCH ON PLUS OR ZERO  SX  82706550
0A5B 01 CC000914          LDD  L  MBITF       BIT FAILED TO GO OFF     82706560
0A5D 01 6C000801          STX  L  RAD         UPDATE PROG PROCESS      82706570
0A5F 01 440008E3          BSI  L  PRINT       USE PRINT ROUTINE    SC  82706580
0A61 01 4C900A51          BSC  I  PULSE       RETURN TO PROG       SX  82706590
                    *                                                  82706600
                    *                                                  82706610
                    *****         ERR1 IN DSW *******************      82706620
                    *                                                  82706630
                    *                                                  82706640
0A63 0  0000        ERR1  DC      /0000       RETURN ADDR          SE  82706650
0A64 01 CC000912          LDD  L  MERR        MSG- BITS IN ERROR       82706660
0A66 01 6C000801          STX  L  RAD         UPDATE PROG PROCESS      82706670
0A68 01 440008E3          BSI  L  PRINT       TO PRINT DSW ERROR   SC  82706680
0A6A 01 4C800A63          BSC  I  ERR1        RETURN TO PROG       SX  82706690
                    *                                                  82706700
                    *                                                  82706710
                    *                                                  82706720
0A6C    0000              BSS  E  0                                    82706730
0A6C                      ORG     PID+/02FE                            82706740
                    *                                                  82706750
                    *                                                  82706760
                    *             THIS AREA CAN BE USED FOR PATCH      82706770
                    *                                                  82706780
                    *                                                  82706790
```

```
0AFB 0  0000        PEND  BC     /0000                    02706800
0AFE    0838              END   GO                       02706810
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
ADDR	0943	0863,086D,093F,0969
AGAIN	09E5	09F2
ALL	093E	0938
ASK	09C7	09CF
BEGIN	012C	07FF,0838
BLAST	0904	0A2E
BSY	0A20	0A1D
BUILD	0842	0848
BUILL	093C	0937
BUILT	0935	092D
BUSY	0A12	0A02,0A4F
CHECK	0856	085E,0861
CHREG	0896	088F
CKBIT	0A4F	0A1F,0A36,0A48
CKDCC	0955	094D
CKSEN	09E3	0884,09F8
CMDRJ	0A49	0A46
CNTL	0906	08AF,0939,093C,093E
COMD	0828	0824
CONT	0883	0828,0830
CONTX	0886	0881
CONT1	0975	0902,0958,095C,0960,0961,0964,0994,0995,099C,099D, 09A4
CONT2	097E	
CONT3	0968	0959,095A,095E,095F,0966,0968,097E,0992,0993,099A, 099B,09AB
CRCK	0133	0A3C
DATA	097F	0865,0877,0940,0985
DATA1	08FC	0875,08FE,0900,0926,0990,09A1
DATA2	08FD	0998,09AA
DCC	092E	0924
DCCWR	0902	0931,0933
DONE	0967	0954,0962
DONT	0981	099E
DPCWR	0900	0842,0845,0929,094F
DSW	0A02	09EC
DSW12	0816	0836
DVA	0815	0844,09C8
EDIT	0813	087C,0988,098E,09C3,09CA
END	012E	07FF,08D0
EPA	0808	
ERROR	0130	07FF
ERR1	0A63	0A03,0A04,0A05,0A06,0A07,0A08,0A09,0A0A,0A0B,0A0C, 0A0D,0A0E,0A0F,0A11,0A6A
FAKE	088C	0833
FALSE	0833	082C
FIRST	086A	08CA
FOUND	085C	0856
GO	0838	0AFE
GON	08C6	0885
GOOD	09C0	098A
GOT	0A48	0A39
HERE	09DE	09D8
ILP	0806	
KEEP	0818	
KFF00	08D8	0898,092A,093A,0950
KNOW	089F	0888
K0001	08D7	088C,0893,089D
K0006	08D8	092F
K0080	08D9	093D
K8000	08DA	081E,0826,082E,08A4,09E6
LBUSY	08ED	08E8
LGOUT	08F4	08E7
LOG	012F	07FF,08E5
LOOP	09A4	09A7

LOOPA	09AD	0980
LPA	0807	
MADDR	090C	0851
MBITF	0914	09FA,0A58
MBUSY	090E	0A13
MCHK	090A	08A8
MCMRJ	091E	0A49
MDCHG	0920	0867,0872,0941
MERR	0912	0A64
MERRC	091C	GA37
MFAIO	0910	08BC
MLSCF	0809	0835,084E,0858,08CC,08EF,09B1,09BA
MNINT	0913	08BA
MODE	08F9	0870,0879,0886,0880,0923,092E,0935,094C,0980,0v89
MPAR	0916	08BE
MRONG	091A	0A23
MSG	08F6	08BF,08C2,08E4
MEXT	08BF	0885,088D
NORM	08DC	09B1
NOTE	0A37	0A34
OUT	0835	0822,082A,0832
OUT1	09CD	09C5
OUT2	08EF	08EC
PARI	081E	
PAROR	08BE	0820
PEND	0AFD	080D
PID	07FF	083A,0A3A,0A6C
POT	099F	098C
PRINT	08E3	0854,08AB,08C5,08EA,09FE,0A17,0A27,0A4D,0A5F,0A68
PULSE	0A51	0A10,0A59,0A61
PUT	0963	0956
RAD	0801	084D,0853,0869,08A9,08C3,0967,09FC,0A15,0A25,0A4B, 0A5D,0A66
REGCK	08DB	0899,089C,089E
REGST	08DE	086B,0946
REG1	08FA	08DD,092B,0948,0952,0958,0963,096>
REG2	08F8	0948,095D
REJT	0A3A	0A2C
REL	0987	0849,0883,08C0,08D3,09C0
RELDV	0132	07FF,098C
REQ	09C2	083F,08AC,09CB,0A19
REQDV	0131	07FF,09C7
RIB	0800	
RTECK	08D0	08C8,0A00
RTEND	08D2	0808,08D5
RTO	0838	0806,0807,084F
RT1	0851	0848
SAVE	08DF	09E8,09EA,09EE,09F0
SCAN	0823	081C
SENSE	0908	0817,0880,068A,088D,09F4,0A18,0A30,0A42,0A54
SING	08E1	0985
SPSW1	0996	0987,09B3
SPSW2	09A8	0988,0984
STAND	0989	0983
START	012D	07FF,085A,08CE,08F1,09D3,09DC
STDBY	09CF	09C9
SW0	0802	089F,08A6,08C6,0A29
SW1	0803	083E,085C,086A,0944
SW2	0804	086F,0921
SW3	0805	0874,098E,G99F
TERM	080C	0996,09A8,098F,09CL
TIMED	09D8	09E0
TIMER	08E2	0906,09DE
TIMEX	09D5	087E,0888,09E1,0A41,0A53
TRY	08E5	08ED
WAS	08F8	0819,0882,09F6,0A32,0A44,0A56
WRITE	08AE	
WRITX	08AC	08A2

XIOWR	08FE	0891,0894,0896,0898,08AE,0928,092C,0932,0934,0953, 0A3E
XXX	0A29	0A21

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1. PURPOSE

THE DIGITAL OUTPUT FUNCTION TEST IS DESIGNED TO EXERCISE AND TEST THE RELIABILITY OF THE OUTPUT REGISTERS IN ALL MODES.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

THIS PROGRAM MUST RUN UNDER CONTROL OF THE DIAGNOSTIC MONITOR. THE DIAGNOSTIC MONITOR PROGRAM USES 2,047 STORAGE WORDS, AND THIS PROGRAM USES 0768 STORAGE WORDS.

THIS PROGRAM MUST HAVE EDIT CARDS ADDED AT THE END OF THE DECK. SEE EDIT PROCEDURE, PARAGRAPH 6.1 .

2.2 EQUIPMENT REQUIREMENTS

A. EQUIPMENT REQUIRED BY DIAGNOSTIC MONITOR, PLUS

B. MINIMUM OF ONE DIGITAL OUTPUT CONTROL (DOC),

C. MINIMUM OF ONE DIGITAL OUTPUT ADAPTER,

D. AT LEAST ONE OF THE FOLLOWING GROUPS,

1. ELECTRONIC CONTACT OPERATE (ECO).
2. PULSE OUTPUT (PO).
3. REGISTER OUTPUT (RO).

E. IF CYCLE STEAL IS TO BE CHECKED, A DATA CHANNEL MUST BE AVAILABLE

3. USE PROCEDURE

3.1 PROGRAM LOADING

STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE.

3.2 PROGRAM OPERATION

STANDARD MONITOR OPERATING PROCEDURES APPLY.
THESE PROCEDURES ARE SUMMARIZED HERE. SEE DM USE PROCEDURE FOR DETAILS.

1. CLEAR STORAGE
2. LOAD DIAGNOSTIC MONITOR
3. SELECT MODE OF EXECUTION
4. SELECT MONITOR CONTROL OPTIONS
5. SELECT PROGRAM OPTIONS FROM,

TABLE 0 PROGRAM CONTROL FUNCTION.
TABLE 1 REGISTER NUMBER
TABLE 2 MODE OF OPERATION
TABLE 3 DATA PATTERN

6. INSTRUCT MONITOR TO EXECUTE
7. SELECT REGISTER NUMBERS PER TABLE 1.

TABLE 0 CONTROL FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 00 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DESIRED CONTROL OPTIONS IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT.
0 0 1 0 0 1 1 1	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. . 1..	TERMINATE PROGRAM
. 1.....	USE COMMAND REJECT. SEE NOTE 1.
1.....	FORCE PRINTOUT (SEE SECT. 5.2)

NOTE 1. MUST BE RUNNING UNDER DC CONTROL WITH EXTERNAL SYNC.

NOTE 1

DO NOT SPECIFY REGISTER NUMBERS (TABLE 1) UNTIL AFTER MONITOR IS INSTRUCTED TO EXECUTE THIS PROGRAM.

TABLE 1 REGISTER NUMBER

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 01 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET REGISTER NUMBER IN DATA ENTRY SWITCHES 1-7 AND 9-15. 4. PRESS CONSOLE INTERRUPT.
C 1 1 0 0 1 1 1	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
0 X X X X X X X 0 0 0 0 0 0 0 0..	REGISTER 1 NUMBER
0 0 0 0 0 C 0 0 0 0 X X X X X X X..	REGISTER 2 NUMBER

TABLE 2 MODE OF OPERATION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 10 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET MODE OF OPERATION IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT.
1 0 1 0 0 1 1 1	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. . . . . 1..	DATA CHANNEL CONTROL
. . . . . 1.....	SINGLE REGISTER
. . . . 1.....	USE EXTERNAL SYNC
. . . 1.....	USE 20 MSEC DELAY
. . 1.....	USE SINGLE DATA PATTERN (DOES NOT COMPLEMENT PATTERN).
. .....	NOT USED
.....	NOT USED
1.....	USE PULSE OUT CONTROL (SEE NOTE 2)

NOTE 2

ALL PULSE OUT REGISTERS ARE RESET WHEN A XIO CONTROL COMMAND IS GIVEN. BE SURE ALL CUSTOMER'S DEVICES ATTACHED TO PULSE OUT REGISTERS ARE DISCONNECTED BEFORE USE PULSE OUT OPTION.

TABLE 3 DATA PATTERN SELECTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 11 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DATA PATTERN IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT.
1 1 1 0 0 1 1 1	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X X X X X X X X X X..	DATA PATTERN OF YOUR CHOICE (DATA 1)

3.3 PROGRAM HALTS

THIS PROGRAM HAS NO HALTS

3.4 PROGRAM TERMINATION

THE PROGRAM MAY BE TERMINATED THRU NORMAL MONITOR CONTROL.

4. PRINTOUTS

THIS PROGRAM WILL HAVE ONE FORMAT FOR ITS MESSAGES WHICH WILL LOOK LIKE THE FOLLOWING.

PID MID RID RAD MSG DSW MODE REG1 REG2 DATA1 DATA2

THE FIRST 4 ARE STANDARD MONITOR PRINT OUTS. RAD WILL BE THE ADDRESS OF THE PRINTOUT INSTRUCTION. MSG IS A CODE MESSAGE IN HEX.
DSW IS THE DSW AT THE TIME OF THE PRINTOUT.
MODE IS THE TYPE OF OPERATION BEING PREFORMED. REFER TO TABLE 2.

REG 1 IS THE REGISTER THAT IS BEING CHECKED
REG 2 IS THE ALTERNATE REGISTAR USED TO COMPARE REG 1
DATA 1 IS THE DATA PATTERN SELECTED IN BIT SWITCH FUNCTION 03.
DATA 2 IS THE REVERSE OF DATA 1

4.1 STATUS MESSAGE

2700 AC01 C001 RAD CCCC
THIS MESSAGE IS FOR THE CE SO HE MAY KNOW THE STATUS OF PROGRAM WHILE IT IS RUNNING.

4.2 COMMAND MESSAGES.

2700 C001 C001 RAD DOAD

****

BE SURE YOUR REGISTERS ARE AVAILABLE FOR TESTING.

****

THIS MESSAGE IS A COMMAND FOR THE OPERATOR TO ENTER TWO REGISTER NUMBERS TO BE USED IN TESTING DO. REG1 WILL BE ENTERED IN BIT SWITCHES 1 THRU 7 AND REG 2 WILL BE ENTERED IN BIT SWITCHES 9 THRU 15 OF FUNCTION 01. IF ONLY ONE REGISTER IS TO BE USED IT MUST BE ENTERED IN BOTH PLACES. CHECK TO BE SURE THE REGISTERS YOU USE ARE NOT TIED TO A CUSTOMERS DEVICE.

4.3 ERROR MESSAGES.

27C0 EC01 C001 RAD AD00
THIS IS AN INDICATION THE CHANNEL WAS BUSY WHEN THE DSW WAS SENSED. THIS IS A NORMAL PRINTOUT WHEN EXTERNAL SYNC IS USED.

27C0 EC02 C001 RAD FA10
THIS PRINTOUT INDICATES A FALSE INTERRUPT. THE MONITOR CAME TO THIS PROGRAM BUT NONE OF THE BITS THAT CAUSE AN INTERRUPT WERE SET.

27C0 EC03 C001 RAD BIEE
BIEE STANDS FOR BITS IN ERROR AND INDICATES AN UNUSED DSW BIT BECAME ACTIVE OR CYCLE STEAL BUSY WAS ON DURING EXTERNAL SYNC.

27C0 EC04 C001 RAD D0BF
THIS IS AN INDICATION THAT SOME DSW BIT CAN NOT BE RESET. THE PROGRAM WILL GO TO END.

27C0 EC05 C001 RAD D0AE
THIS PRINTOUT INDICATES THERE IS A PARITY ERROR IN THE DATA PATTERN SENT OUT ON THE BUS.

27C0 EC06 C001 RAD 1CED
AFTER A WRITE COMMAND IN DC MODE, AN INTERRUPT WAS MISSED. THE PROGRAM WILL CONTINUE AFTER THIS PRINTOUT.

27C0 EC07 C001 RAD BAD0
CYCLE STEAL BUSY, DSW BIT 4 SHOULD NOT HAVE BEEN ON.

27C0 EC08 C001 RAD D0CB
AFTER GIVING A BLAST CHANNEL COMMAND THE BUSY BIT IN THE DSW IS STILL ON.

27C0 EC09 C001 RAD D0CC
IF THE CHANNEL IS BUSY AND A SECOND WRITE COMMAND IS GIVEN A COMMAND REJECT BIT IN THE DSW SHOULD GIVE AN INTERRUPT. IF THIS FAILS THE ABOVE PRINTOUT IS GIVEN.

5. COMMENTS

****
CAUTION
****
WHEN RUNNING THIS DIAGNOSTIC, BE SURE THE REGISTERS ARE NOT CONNECTED TO A CUSTOMER DEVICE. DEPRESSING MACHINE RESET BUTTON WILL SET ALL DIGIT OUTPUT REGISTERS TO ZERO.

5.1 GENERAL DESCRIPTION

DIGITAL OUTPUT CONSISTS OF A MAINLINE ROUTINE THAT WILL CHECK TO DETERMINE THE NEED FOR VARIOUS SUBROUTINES. THE PROGRAM BEGINS WITH THE SELECTING OF TWO REGISTERS TO BE TESTED. IF ONLY ONE REGISTER IS TO BE TESTED, THE REGISTER NUMBER IS ENTERED TWICE. THE DATA PATTERN IS ALTERNATING BITS OFF AND THEN ON. THIS MAY BE CHANGED BY ENTERING YOUR PATTERN THRU FUNCTION 3. THE STARTING MODE IS DATA PROCESS CONTROL (DPC) WITH RANDOM ADDRESS. THE MODE MAY BE CHANGED THRU FUNCTION 2. SEE TABLE 2.

THE MAINLINE CHECKS TO DETERMINE IF THERE HAS BEEN A CHANGE IN REGISTER ADDRESSES, MODES OF OPERATION, OR DATA PATTERN. IF THERE IS ANY CHANGE, THE APPROPRIATE SUBROUTINE WILL UPDATE THE CHANGE. THE PROGRAM WILL SWITCH BACK AND FORTH USING THE TWO REGISTERS SO THE CE MAY SCOPE A GOOD REGISTER AND ONE WHERE THE OUTPUT IS IN DOUBT. IF BIT 9 FUNCTION 2 IS USED, THE DATA PATTERN WILL NOT SHIFT, AND THIS CAN BE USED TO MEASURE VOLTAGE LEVELS.

A WRITE COMMAND IS GIVEN AND IF IN DCC MODE THE PROGRAM WILL DELAY WAITING FOR AN INTERRUPT. AFTER THE INTERRUPT, IT WILL BE CHECKED FOR ERRORS AND THEN DETERMINE IF THE PROGRAM IS TO BE TERMINATED, OR IS TO LOOP THRU ANOTHER TIME.

5.2 COMMENTS FOR FUNCTION 0

ADDITIONAL COMMENTS FOR THE FOLLOWING DATA ENTRY SWITCHES FOLLOW.

SW 15 CAUSES PROGRAM TO TERMINATE RATHER THAN GIVE ANOTHER WRITE COMMAND.

SW 10 WHEN EXTERNAL SYNC IS USED, THE CHANNEL WILL BECOME BUSY AND A NORMAL ERROR PRINTOUT WILL OCCUR. BLAST CHANNEL WILL BE ISSUED UNLESS SW 10 IS ON, IN WHICH CASE A COMMAND REJECT IS ISSUED. THE PRINTOUT WILL BE E001.

SW 9 USED TO CAUSE A PRINTOUT OF THE DSW, MODE OF OPERATION, REGISTERS, AND PATTERN USED. THE PRINTOUT WILL OCCUR ONLY ONCE FOR EACH SETTING OF THE SWITCH.

5.3 COMMENTS FOR FUNCTION 1

THE REGISTERS TO BE TESTED ARE ENTERED THRU THE DATA ENTRY SWITCHES. SWITCHES 1 THRU 7 ARE USED TO SELECT REGISTER 1, AND SWITCHES 9 THRU 15 ARE USED TO SELECT REGISTER 2. IF ONLY ONE REGISTER IS TO BE CHECKED, THE REGISTER NUMBER IS ENTERED IN BOTH SETS OF SWITCHES.

5.4 COMMENTS FOR FUNCTION 2

UNLESS A MODE SETTING IS ENTERED THE PROGRAM WILL SET UP FOR DPC CONTROL USING RANDOM MODE. THE MODE MAY BE CHANGED BY USING THE FOLLOWING DATA ENTRY SWITCHES UNDER FUNCTION 2,

SW 15 DATA CHANNEL CONTROL. DCC IS ON CYCLE STEAL AND OPERATES AT A VERY FAST SPEED. OFTEN IT WILL NOT SHOW A GOOD PATTERN.

SW 14 IF THIS SWITCH IS OFF, IT IS IN RANDOM MODE. REGISTER 1 IS USED AND THEN REGISTER 2 AND BACK AND FORTH. WITH THIS SWITCH ON, REGISTER 1 IS USED AND THE PATTERN SENT OUT SEVEN TIMES, AND THEN REGISTER 2 IS USED IN THE SAME MANNER.

SW 13 WITH THIS BIT SET ON, THE CHANNEL WILL BECOME BUSY BECAUSE EXTERNAL SYNC IS USED AND IT IS NOT CONNECTED SO IT WILL NOT RECEIVE A PULSE. SINCE THE CHANNEL IS BUSY, AN ERROR MESSAGE E001 WILL BE PRINTED. A CHANNEL BLAST OR COMMAND REJECT WILL BE EXECUTED DEPENDING ON BIT 10 FUNCTION 0.

SW 12 WITH THIS BIT ON THE PROGRAM WILL USE A MINIMUM DELAY OF 20 MS. AND WITH OTHER PROGRAMS OPERATING IN OVERLAP IT WILL BE LONGER. THIS DELAY WILL NOT BE VERY USEFUL ON DCC BECAUSE OF CYCLE STEAL.

SW 11 NORMALLY THE DATA PATTERN IS REVERSED SO THE SHIFT CAN BE SEEN ON THE SCOPE. WITH THIS SWITCH ON, THE SAME DATA PATTERN WILL BE SENT OUT WITH EACH WRITE COMMAND.

SW 8 THIS BIT IS USED TO CAUSE A PULSE OUTPUT. IT IS USED IN IOCC CONTROL WORD.

5.5 COMMENTS FOR FUNCTION 3

ALL BIT SWITCHES ARE USED TO SET UP THE DATA PATTERN THAT IS READ OUT TO THE REGISTERS SELECTED.

6.1 EDIT PROCEDURE

THE FOLLOWING EDIT PROCEDURE IS FOR CARD INPUT. THE EDIT PROCEDURE FOR PAPER TAPE INPUT IS LOCATED IN THE PAPER TAPE EDIT UTILITY PROGRAM DOCUMENTATION. THE PROPER EDIT CARDS MUST BE THE LAST CARDS IN THIS PROGRAM DECK. THE FOLLOWING FORMS ARE PROVIDED TO AID IN MANUALLY PREPARING THESE EDIT CARDS OR UPDATING EXISTING EDIT CARDS. IF IT IS NECESSARY TO PREPARE OR MODIFY EDIT CARDS, FILL IN THE NECESSARY DATA IN THE FORMS PRIOR TO PUNCHING THE CARDS. CARD COLUMNS THAT ARE SHADED SHOULD BE LEFT BLANK.

DDEF STANDS FOR DEVICE DEFINITION EDIT FIELD. IT INCLUDES:
1. THE INTERRUPT LEVEL ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 00-17).
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 0-F).
3. THE CHANNEL ASSIGNED TO THIS DEVICE (0-8). IF THIS IS A DPC DEVICE, PUNCH AN "F" IN THE CARD COLUMN.

THE LAST EDIT CARD IS THE "END EDIT CARD". THE INFORMATION IN THIS CARD INCLUDES:
1. AN "E" IN COLUMN 1.
2. THE PID FOR THIS PROGRAM (COL 2-3).
3. A TERMINATOR WORD OF "FFFF" (COL. 7-10).

		PROGRAM ID		CARD SEQUENCE NUMBER		NUMBER OF EDIT ENTRIES	DDEF: INTERRUPT LEVEL (HEX)	DDEF: ILSW BIT (HEX)	DDEF: CHANNEL (OR F)	TIMER COUNT APPROX. 1 MS PER LOOP (HEX)
COLUMN	1	2 3	4 5	6 7 8	9 10	11 12 13	14 15	16 17 18	19	20 21 26 31 36 41 46 51 56 61 66 71
CARD 0	E	2	7 0 0		E D	0 0	0 0	2		0 0 1 0
END	E	2	7 0 0		F F	F F				

CARD 0 CONTAINS THE DDEF FOR THE D.A.O. FEATURE.

CARD END IS THE "END EDIT CARD". PUNCH EXACTLY AS IS SHOWN.