Program Number B06-157R02

32 BIT SERIES 6A MEMORY TEST

Consists of:

Program Description		B06-157M95R01A15
Bootstrap Object Tape	(Part 1)	06-157F01M17R01
Bootstrap Object Tape	(Part 2)	06-157F02M17R01
Program Listing	(Part 1)	06-157F01M91R01A13
Program Listing	(Part 2)	06-157F02M91R01A13

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32-BIT SERIES, 6A MEMORY TEST PROGRAM DESCRIPTION

1 32-BIT S6A MEMORY TEST 06-157R01

1.1 Related Documents

Program Listing Part 1	06-157F01M91R01A13
Program Listing Part 2	06-157F02M91R01A13
Program Tape Part 1	06-157F01M17R01
Program Tape Part 2	06-157F02M17R01

1.2 Prerequisites

The following test programs must be run prior to loading this test:

1. For all 32-Bit Processors:

   Series 32 Processor Test

Part 1	06-154
Part 2	06-155
Part 3	06-178
Series 32 Memory Test	06-156

2. For other Test Programs:

Teletype Basic Confidence Test	06-004
CRT Test	06-146
Memory Access Controller Test	06-160

2 PURPOSE OF TEST

The 32-Bit Series 6A Memory Test tests the worstcase patterns of 16KB, 32KB, and 64KB memory modules. This test only runs on a 32-bit processor. This test supplements the Series 32 Memory Test 06-156 and it should be run along with Test 06-156 on 32-bit processors.

Part 1 is loaded into high core (ORG X'4000') and tests the low core locations (X'0000' - X'3FFF').

Part 2 is loaded into low core (ORG X'A00') and tests the high core locations (X'4000' - X'FFFFF').

Each part of this program is divided into 8 different subtests that test all core with specified worst case patterns in each subtest. The pattern depends on the type of memory being tested, 16KB memory modules, 32KB memory modules or 64KB memory modules. The pattern stored into a specific location is dependent upon the location address. The data pattern loaded depends on the condition of the addressing lines for the specific type of core mat being used. See Appendix 6 for specific patterns. The data loaded is either X'0000' or X'FFFF' in each halfword location.

Each pattern in Appendix 6 tests the core. Then the complement of the pattern is loaded into the same location, read back, and checked. The original pattern is then reloaded into the same location, read back, and checked.

3 MINIMUM HARDWARE REQUIRED

The following lists the minimum hardware required to perform this test:

1. Processor - Model 7/32 or 8/32

2. Minimum Memory - 32KB

3. Console Device (See Appendix 5)
   Teletype or CRT

4. Paper Tape Reader
   Teletype or High Speed Paper Tape Reader

5. Extended Display Panel

4 REQUIREMENTS OF MACHINE UNDER TEST

The 32-Bit Series, 6A Memory Test 06-157 assumes that the Series 32 Memory Test 06-156 has been run without detecting a failure.

For console device other than Teletype with a device address of X'02', see Appendix 5.

5 LOADING PROCEDURE

5.1 TEST TAPE FORMAT

The test tape format is absolute, nonzoned object tape (M17) with front-end boot loader. The test program occupies memory as follows:

Part 1 X'4000' - X'4BA0'
Part 2 X'A00' - X'197C'

5.2 NORMAL LOADING PROCEDURES

1. Manually enter the X'50' sequence shown below:

	LOCATION	CONTENTS
	X'30'	X'0000'
	X'32'	X'0000'
	X'34'	X'0000'
	X'36'	X'0050'
	X'50'	X'D500'
	X'52'	X'00CF'
	X'54'	X'4300'
	X'56'	X'0080'
for TTY	X'78'	X'0294'
for HSPTR	X'78'	X'0399'
for HSPTR/P	X'78'	X'1399'

2. Place the program tape 06-157F01M17R01 or 06-157F02M17R01 in the paper tape reader.

3. Execute at address X'30'.

4. When the processor halts, observe display registers D1 and D2. If they are zero, loading is complete; otherwise, repeat the loading procedure.

5. Refer to Appendix 4. Set up the address for the console input/output device.

6. Address memory location X'4000' for Part 1, or X'A00' for Part 2 and execute. The following title is output to the Console Device:

32-BIT S6A MEMORY TEST 06-157F01R01

or

32-BIT S6A MEMORY TEST 06-157F02R01

6 OPERATING PROCEDURES

6.1 NORMAL TESTING PART 1

After the title and the available memory are printed, the test program asks what is the first memory location assigned to the memory access controller. Enter 0 (no MAC), 300, 500, or 900 followed by a carriage return (CR) depending upon where the MAC is located.

The test program then outputs "TYPE = " and waits for a valid type entry.

The valid type entries are:

0	FOR	16KB	35-491
1	FOR	32KB	32-198
2	FOR	32KB	32-206
3	FOR	64KB 1000NS	32-200
4	FOR	64KB 750NS	32-209

When the correct type number has been entered, the test then sets up the correct worst-case pattern. Only the first type entry is going to be used. Therefore, to run more than one type of worst-case patterns, the test should be restarted from X'4000', the starting address of the test. See Appendix 4.

The test program then outputs "Subtest", " * ", and waits for a subtest number (1-8). Each subtest can be run individually by depressing the numeric key for the subtest selected followed by a CR. All 8 subtests can be executed in sequence by selecting subtest 0.

6.2 OPTIONAL TESTING PART 1

Any test may be run continuously by depressing the key for the test number desired, followed by the "L" key on the console device. When this is done, all messages, with the exception of error messages, are inhibited. To terminate continuous test execution, depress the BREAK key on the console device.

To inhibit all printouts and to run a test continuously, the console device can be turned off. When this is done, the program counts the total times that the test is repeated in memory location labelled "TOTAL". If an error is detected, the count in memory location labelled "TOTALERR" is incremented.

The contents of TOTAL are copied into the display panel upon completion of the test. Should the error count reach Y'FFFFFFFF', the processor halts with Y'FFFFFFFF', on the display. The console device should then be turned on and the RUN switch on the display depressed. TOTAL and TOTALERR are then printed.

6.3 NORMAL TESTING PART 2

After the title is printed, a search for available memory is executed and the message "AVAILABLE MEMORY" is printed followed by a list of memory in the system available to the user. Refer to Appendix 2. When the available memory list is complete (Refer to Appendix 3.), the characters "TYPE = " are output to the console device. The correct type number should then be entered. The valid type numbers are:

0	FOR	16KB	35-491
1	FOR	32KB	32-198
2	FOR	32KB	32-206
3	FOR	64KB 1000NS	32-200
4	FOR	64KB 750NS	32-209

When the correct type number has been entered, the test then sets up the correct worst-case pattern. The test runs only the first worst-case pattern selected. To select a different worst-case pattern, restart the test from X'A00', the starting address of the test, (See Appendix 4.) after a valid type number has been entered, the characters "SUBTEST" and " * " are printed. Subtests 1 through 8 are performed by depressing the numeric key ZERO (0) and the CR key. Each subtest may be individually executed by depressing the corresponding numeric key (1 through 8) and the CR key. If the subtest detects no errors, it prints the message "NO ERROR".

6.4 OPTIONAL TESTING PART 2

6.4.1 Low and High Limits

To reduce the test area, specify a low and a high limit by depressing the line feed key on the console device after the characters "SUBTEST" and " * " are printed. When this is done, the characters "LO = " are printed and the user may select the lower limit of the test area by depressing any numeric key 0 through 9 or keys A, B, C, D, E, or F. The entry must be terminated by the carriage return key. The input value is then compared with the list of available memory. If the memory is available for testing, the value is accepted as the low limit. If the memory is not available for testing, the message "MEMORY NOT AVAILABLE" is printed and another set of values must be selected.

High limit is entered in the same manner as low limit. If the entered high limit is less than the low limit, the message "LOW VALUE HIGH VALUE" is printed and the high and low limits must be reentered. After the high and low limits have been established, an asterisk (*) is printed and normal test execution can be continued. Refer to Section 7.

6.4.2 Parity Memory

If the system is equipped with the parity option, the option can be tested by removing a memory module from the system, after the memory table has been established, and executing the test from "PRTMSG" . See listing 06-157F02M91R01A13. A parity error should be generated when the test reaches the nonexistent memory.

6.4.3 Continuous Testing

The test may be run continuously by selecting subtest 0 and depressing the "L" key on the console device. This causes subtests 1 through 8 to be run continuously; i.e., after subtest 8, the program performs subtest 1. Individual subtests may be executed continuously by depressing the corresponding numeric key (1 through 8) and depressing the L key. When running continuously, all messages with the exception of error messages are inhibited. To terminate continuous test execution, depress the BRK key on the console device. To inhibit all printouts and to run the test continuously, the console device can be turned off. When this is done, the program counts the total times the test is repeated in memory location, TOTAL . If an error is detected, the count in the memory location, TOTALERR is incremented, the contents of TOTAL are continuously copied into the console panel display. Should the error count reach Y'FFFFFFFF', the processor halts with Y'FFFFFFFF'on the display . The console device should then be turned on the RUN switch on the display depressed. TOTAL and TOTALERR are then printed.

6.5 ERROR PROCEDURES

1. If an error is detected in the data read from a location in memory, an error message is printed:

   TT XXXXX YYYYYYYY ZZZZZZZZ

   where:

   TT = the subtest where the error occurred.

   XXXXX = the location address under test.

   YYYYYYYY = the correct data expected at location XXXXX.

   ZZZZZZZZ = the incorrect data read from location XXXXX.

   To terminate the error printout at any time, depress the break key on the console device.

2. If a machine malfunction interrupt is generated due to a parity error, the following printout results:

   W TT XXXXX YYYYYYYY ZZZZZZZZ

   where:

   W = the condition code, CVGL, when the interrupt occurs. If bit 29 (V) is set, a data fetch parity error is detected. If bit 30 (G) is set, an instruction parity error is detected. In this case, YYYYYYYY and ZZZZZZZZ should be ignored.

   TT = the subtest being executed when the interrupt occurred.

   XXXXX = the location where the interrupt occurred.

   ZZZZZZZZ = the data read location from XXXXX.

   YYYYYYYY = the correct data expected at location XXXXX.

   Upon completion of the message, the processor is placed in the wait state.

   If the console device is off when the interrupt is generated; Y'AAAAAAAA' is written on the display; and the processor is placed in the wait state. To continue test execution, depress the RUN switch on the display.

3. If a machine malfunction interrupt is generated due to a power fail or initialization, this printout results:

   MACHINE MALFUNCTION

   X YYYYY

   where:.

   X = the condition code, CVGL, when the interrupt occurred.

   YYYYY = the location where the interrupt occurred (power down).

   Upon completion of this message, the processor is placed in the wait state.

If the console device is off when the interrupt is generated Y'AAAAAAAA' is written on the display and the processor is placed in the wait state.

To continue test execution, depress the RUN switch on the display.

4. If an illegal instruction interrupt is generated, this printout results:

```
ILLEGAL INSTRUCTION

XXXXXXXX  XXXXXXXX
```

where:

XXXXXXXX XXXXXXXX = the PSW when the interrupt occurred (status, location).

Upon completion of the message, the processor is placed in the wait state.

If the console device is off when the interrupt is generated, Y'55555555' is written on the display and the processor is placed in the wait state.

To continue test execution, depress the RUN switch on the display.

5. If a spurious external interrupt is generated, this printout results:

```
EXTINT XXXX
```

where:

XXXX = the interrupting device address

Upon completion of the message, the old PSW is loaded and test execution continues.

6. If a relocation and protection, arithmetic fault, system queue service, or supervisor call interrupt occurs, one of these printouts results:

```
MACINT
ARTFLT
SYSQUE
SVCINT
```

Upon completion of the message, the old PSW is loaded and test execution continues.

7 PROGRAMMING NOTES

7.1 PART 1

1. If the system is not equipped with a memory access controller, type "0", CR when MAC address is requested. If the system is equipped with a memory access controller, type the first memory location assigned to the MAC (300, 500, or 900) followed by a CR.

2. The incrementing display during test execution, indicates the location being tested at any given moment.

7.2 PART 2

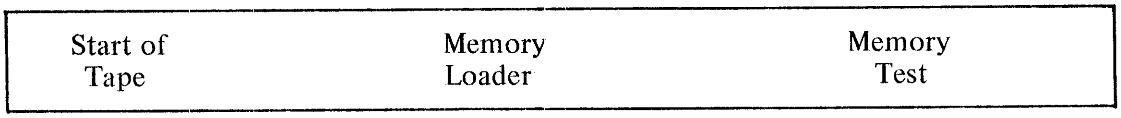
1. The high and low values can be specified in any halfword increment and are forced to halfword boundaries.

2. The incrementing display during test execution indicates the location under test at any given moment.

APPENDIX 1

MEMORY LOADER

The memory loader must be loaded with the 50 sequence (described in Section 5.2.1). The memory loader resides in memory from X'80' to X'CF' and loads the memory test. While reading the program tape, each data-byte location is output to the display panel. While loading the test into memory, it performs an exclusive OR of each instruction to verify that the test loaded correctly. If the test did not load correctly, the loader halts the processor and the loading procedures in Section 5.2 must be repeated. If the test did load correctly, the display is zeroed and the processor is put in the wait state.



TAPE FORMAT

APPENDIX 2

AVAILABLE MEMORY SEARCH (PART 2)

The available memory search is accomplished by writing data into the first addressable fullword of each 16KB of memory and then reading that location. If the data is read back correctly, the corresponding bit in the memory table is set. Since a memory failure could cause invalid data to be returned and should any known block of memory be omitted from the available memory list, this memory may be tested by manually setting the corresponding bit in the memory table and executing the program at the location labelled "RESTART2". Refer to listing 06-157R01F02M91A13. The table is established such that each bit represents 16KB of memory and each byte represents 128KB of memory. Each byte is labelled with the address of the first 16KB block it controls (i.e., KB016, etc.). If the user does not want the available memory list printed, the console device may be turned off and the processor halts when the memory table is established. The console device can be turned on and the test can be continued by depressing the RUN switch on the display panel.

APPENDIX 3

EXAMPLES OF AVAILABLE MEMORY PRINTOUT

EXAMPLE 1 - Available Memory Printout for Part 1

```
AVAILABLE MEMORY

00000-03FFF
```

EXAMPLE 2- Available Memory Printout for Part 2 with 256K bytes of memory.

```
AVAILABLE MEMORY

00000-3FFFF
```

EXAMPLE 3- Available memory printout for Part 2 with 512K bytes of memory split into two noncontiguous blocks.

```
AVAILABLE MEMORY

00000-3FFFF

80000-BFFFF
```

APPENDIX 4

EXAMPLES OF TYPE ENTRIES

EXAMPLE 1 - Any valid entry from 0 through 4:

```
TYPE = 0    OR
TYPE = 1    OR
TYPE = 2    OR
TYPE = 3    OR
TYPE = 4
```

EXAMPLE 2 - For any invalid entry:

```
TYPE = F
Valid entry numbers are:

TYPE = 0    FOR     35-491    16KB
TYPE = 1    FOR     32-198    32KB
TYPE = 2    FOR     32-206    32KB
TYPE = 3    FOR     32-200    64KB (1000NS)
TYPE = 4    FOR     32-209    64KB (750NS)
```

NOTE

After the valid type numbers are printed on the console, the correct type number should be entered.

To run more than one worst-case pattern, restart the test program from the starting address and enter the appropriate type number for the memory modules being tested.

APPENDIX 5

CONSOLE DEVICE DEFINITION

The halfword labelled IO (See the listing.) has the default value for Teletype as the console device. If the configuration is different, it must be changed as follows:

	0 7	8 15
IO	Console Device identifier	

Console Device Identifier	Explanation
X'01'	GDT/CRT on PASLA/PALM interface, strapped for FDX and the highest baud rate.
X'02'	TTY on TTY interface GDT/CRT on current loop interface
0,X'03' - X'FF'	Reserved. The program defaults it to 2.

The Teletype or current loop interface, if used should be strapped for the device address of X'02'. If it is different, the halfword labelled TTYADR (See the listing.) must be changed accordingly.

The graphic display terminal (GDT) or CRT, if used on PASLA interface, should be strapped for the device address of X'10' and X'11' for the receiving and transmitting side respectively. If it is different, the halfword labelled CRTADR (See the listing.) must be changed accordingly.

APPENDIX 6

TABLE 1: TEST PATTERNS

32-198 32-206 (32KB)	Exclusive OR of Bit 6 and 10 of the Address	Exclusive OR of Bit 11 and 13 of the Address	Data Written into that Address
32-209 (64KB)	Exclusive OR of Bit 11 and 14 of the Address	Exclusive OR of Bit 1 and 5 of the Address	Data Written into that Address
32-200 (64KB)	Exclusive OR of Bit 6 and 11 of the Address	Exclusive OR of Bit 0 and 5 of the Address	Data Written into that Address
32-198 & 32-206	Exclusive OR of Bit 6 and 10 of the Address	Exclusive OR of Bit 11 and 13 of the Address	Data Written into that Address
TEST NO	RESULT	RESULT	DATA WRITTEN
1 (A)	-	-	0
1 (B)	0 1 1	0 0 1	0 0 X'FFFF'
2 (A)	0 1 1	- 0 1	0 X'FFFF' 0
2 (B)	0 1	- -	0 X'FFFF'
3 (A)	0 0 1	0 1 -	0 X'FFFF' 0
3 (B)	- -	0 1	0 X'FFFF'
4 (A)	0 0 1 1	0 1 0 1	0 X'FFFF' X'FFFF' 0
4 (B)	0 0 1	0 1 -	0 X'FFFF' X'FFFF'
5 (A)	0 0 1	0 1 -	X'FFFF' 0 0
5 (B)	0 0 1 1	0 1 0 1	X'FFFF' 0 0 X'FFFF'

APPENDIX 6 (Continued)

TABLE 1: TEST PATTERNS (Continued)

32-198 32-206 (32KB)	Exclusive OR of Bit 6 and 10 of the Address	Exclusive OR of Bit 11 and 13 of the Address	Data Written into that Address
32-209 (64KB)	Exclusive OR of Bit 11 and 14 of the Address	Exclusive OR of Bit 1 and 5 of the Address	Data Written into that Address
32-200 (64KB)	Exclusive OR of Bit 6 and 11 of the Address	Exclusive OR of Bit 0 and 5 of the Address	Data Written into that Address
32-198 & 32-206	Exclusive OR of Bit 6 and 10 of the Address	Exclusive OR of Bit 11 and 13 of the Address	Data Written into that Address

TEST NO.	Result	Result	Data Written
6 (A)	- -	0 1	X'FFFF' 0
6 (B)	0 0 1	0 1 -	X'FFFF' 0 X'FFFF'
7 (A)	0 1	- -	X'FFFF' 0
7 (B)	0 1 1	- 0 1	X'FFFF' 0 X'FFFF'
8 (A)	0 1 1	- 0 1	X'FFFF' X'FFFF' 0
8 (B)	-	-	X'FFFF'

APPENDIX 6 (Continued)

TABLE 2: WORST CASE PATTERN FOR 16KB (35-491)

TEST NUMBER	MA060 PAT 1	MA110 PAT 2	Data Written into that Address
1 (A)	-	-	0
1 (B)	0 1 1	- 0 1	0 0 X'FFFF'
2 (A)	0 1 1	- 0 1	0 X'FFFF' 0
2 (B)	0 1	- -	0 X'FFFF'
3 (A)	0 0 1	0 1 -	0 X'FFFF' 0
3 (B)	- -	0 1	0 X'FFFF'
4 (A)	0 0 1 1	0 1 0 1	0 X'FFFF' X'FFFF' 0
4 (B)	0 0 1	0 1 -	0 X'FFFF' X'FFFF'
5 (A)	0 0 1	0 1 -	X'FFFF' 0 0
5 (B)	0 0 1 1	0 1 0 1	X'FFFF' 0 0 X'FFFF'

APPENDIX 6 (Continued)

TABLE 2: WORST CASE PATTERN FOR 16KB (35-491) (Continued)

TEST NUMBER	MA060 PAT 1	MA110 PAT 2	Data Written into that Address
6 (A)	-	0	X'FFFF'
	-	1	0
6 (B)	0	0	X'FFFF'
	0	1	0
	1	-	X'FFFF'
7 (A)	0	-	X'FFFF'
	1	-	0
7 (B)	0	-	X'FFFF'
	1	0	0
	1	1	X'FFFF'
8 (A)	0	-	X'FFFF'
	1	0	X'FFFF'
	1	1	0
8 (B)	-	-	X'FFFF'

```
PROG= *NONE*     ASSEMBLED BY CAL 03-066R05-00   (32-BIT)
                                            1  **06157100                                                         M6A00010

                                            1  **06157100                                                         M6A00010
                                            2           CROSS                                                     M6A00020
                                            3           WIDTH 120                                                 M6A00030
                                            4           TARGT 32                                                  M6A00040
                                            5           NORX3                                                     M6A00050
                                            6           PROG  32 BIT SERIES 6A MEMORY TEST  06-157F01M91R01A13    M6A00060
                                            7  *                                                                  M6A00070
                                            8  * COPYRIGHT  INTERDATA, INC.          MARCH 1975                    M6A00080
                                            9  *                                                                  M6A00090
                                           10  * PROGRAM USES SERIES 32 INSTRUCTION SET.                           M6A00100
                                           11  *                                                                  M6A00110
                                           12  * PURPOSE OF THIS TEST:                                             M6A00120
                                           13  *     THIS PROGRAM IS DESIGNED TO TEST 16 KB, 32 KB & 64 KB         M6A00130
                                           14  * MEMORY MODULES WITH WORST CASE PATTERNS.                          M6A00140
                                           15  * PART NUMBERS FOR THE MODULES SUPPOARTED ARE:                      M6A00150
                                           16  *     35-491 FOR 16 KB                                              M6A00160
                                           17  *     32-198 FOR 32 KB                                              M6A00170
                                           18  *     32-206 FOR 32 KB                                              M6A00180
                                           19  *     32-200 FOR 64 KB (1000 NS)                                    M6A00190
                                           20  *     32-209 FOR 64 KB (750 NS)                                     M6A00200
                                           21  *                                                                  M6A00210
                                           22  *                                                                  M6A00220
                                           23  *        THE 06-157F01 LOADS INTO HIGH CORE AT X'4000' AND CHECKS   M6A00230
                                           24  * LOW CORE FROM X'0000' THROUGH X'3FFF'.                            M6A00240
                                           25  *                                                                  M6A00250
                                           26  * ASSUMPTIONS:                                                      M6A00260
                                           27  *        IT IS ASSUMED THAT THE FOLLOWING TESTS HAVE BEEN RUN       M6A00270
                                           28  * WITHOUT DETECTING AN ERROR PRIOR TO LOADING THE 32 BIT SERIES 6A  M6A00280
                                           29  * MEMORY TEST:                                                      M6A00290
                                           30  *                                                                  M6A00300
                                           31  *        SERIES 32 BASIC TEST           06-158                      M6A00310
                                           32  *                                                                  M6A00320
                                           33  *        SERIES 32 PROCESSOR TEST                                   M6A00330
                                           34  *              PART 1                   06-154                      M6A00340
                                           35  *              PART 2                   06-155                      M6A00350
                                           36  *              PART 3                   06-178                      M6A00360
                                           37  *                                                                  M6A00370
                                           38  *        SERIES 32 MEMORY TEST          06-156                      M6A00380
                                           39  *                                                                  M6A00390
                                           40  *    THE FOLLOWING TESTS ARE ALSO APPLICABLE:                       M6A00400
                                           41  *                                                                  M6A00410
                                           42  *        TELETYPE BASIC CONFIDENCE TEST 06-004                      M6A00420
                                           43  *        CRT TEST                       06-146                      M6A00430
                                           44  *        MEMORY ACCESS CONTROLLER TEST  06-160                      M6A00440
                                           45  *                                                                  M6A00450
                                           46  * LOADING PROCEDURE:                                                M6A00460
                                           47  *        THE 06-157F01M17 PAPER TAPE IS LOADED USING THE STANDARD   M6A00470
                                           48  *  '50' SEQUENCE:                                                   M6A00480
                                           49  *                                                                  M6A00490
                                           50  *              LOC                 DATA                             M6A00500
                                           51  *            X'0050'             X'D500'                            M6A00510
                                           52  *            X'0052'             X'00CF'                            M6A00520
                                           53  *            X'0054'             X'4300'                            M6A00530
```

```
*            X'0056'             X'0080'                              M6A00540
*                                                                     M6A00550
*   TTY      X'0078'             X'0294'                              M6A00560
*   HSPTR    X'0078'             X'0399'                              M6A00570
*   HSPTR/P  X'0078'             X'1399'                              M6A00580
*                                                                     M6A00590
* NORMAL TESTING:                                                     M6A00600
*        A TELETYPE MUST BE ATTACHED AT THE DEVICE ADDRESS X'02'. IF  M6A00610
* THE TELETYPE IS ATTACHED AT A DIFFERENT ADDRESS, CHANGE THE LOCATION M6A00620
* LABELED "TTYADR" TO THE ACTUAL TELETYPE ADDRESS. IF A CRT ON PASLA  M6A00630
* (FDX ONLY) IS TO BE USED FOR I/O, CHANGE LOCATION LABELED "IO" TO   M6A00640
* X'0101'. PASLA DEVICE ADDRESSES ARE ASSUMED TO BE X'10' (READ SIDE) M6A00650
* AND X'11' (WRITE SIDE). IF PASLA ADDRESSES ARE DIFFERENT, CHANGE    M6A00660
* LOCATION LABELED "CRTADR" TO THE ACTUAL PASLA ADDRESS.              M6A00670
*        AFTER STARTING THE PROGRAM EXECUTION AT LOC X'4000', "MAC    M6A00680
* ADDRESS =" IS PRINTED ON THE CONSOLE DEVICE. ENTER THE FIRST        M6A00690
* ADDRESS ASSIGNED TO THE MEMORY ACCESS CONTROLLER, FOLLOWED BY A     M6A00700
* CARRIAGE RETURN. IF NO MAC IS PRESENT, TYPE A ZERO (0) FOLLOWED     M6A00710
* BY A CARRIAGE RETURN.                                               M6A00720
*     WHEN "TYPE= " IS PRINTED A VALID TYPE NUMBER MUST BE            M6A00730
* ENTERED. VALID TYPE NUMBERS ARE:                                    M6A00740
*     0  FOR 16 KB 35-491                                             M6A00750
*     1  FOR 32 KB 32-198                                             M6A00760
*     2  FOR 32 KB 32-206                                             M6A00770
*     3  FOR 64 KB 32-200                                             M6A00780
*     4  FOR 64 KB 32-209                                             M6A00790
* THIS IS TO INSURE THAT THE CORRECT WORST CASE PATTERN IS            M6A00800
* RUN. TO RESET THE TYPE OF WORST CASE THE TEST MUST BE               M6A00810
* RESTARTED FROM THE STARTING ADDRESS X'4000'.                        M6A00820
*                                                                     M6A00830
*        WHEN "SUBTEST","*" IS PRINTED, SUBTESTS 1 THROUGH 8 MAY BE   M6A00840
* SELECTED INDIVIDUALLY OR ALL 8 SUBTESTS MAY BE RUN IN SUCESSION     M6A00850
* BY SELECTING SUBTEST 0. ALL ENTRIES ARE TERMINATED WITH A CARRIAGE  M6A00860
* RETURN (CR).                                                        M6A00870
*        ALL ERROR MESSAGES ARE PRINTED ON THE TELETYPE (OR CRT).     M6A00880
*                                                                     M6A00890
* OPTIONAL TESTING:                                                   M6A00900
*        A SUBTEST MAY BE RUN CONTINUOUSLY BY DEPRESSING THE LETTER   M6A00910
* "L" AFTER SELECTING THE DESIRED SUBTEST. DEPRESS "BREAK" TO HALT    M6A00920
* THE SUBTEST AND RETURN TO THE SUBTEST SELECTION ROUTINE.            M6A00930
*                                                                     M6A00940
* ERROR PROCEDURES:                                                   M6A00950
*        UPON DETECTING AN ERROR, THE FOLLOWING ERROR MESSAGE IS      M6A00960
* PRINTED ON THE CONSOLE DEVICE:                                      M6A00970
*                                                                     M6A00980
*        TT   XXXXX   YYYYYYYY   ZZZZZZZZ                             M6A00990
*                                                                     M6A01000
*        WHERE:                                                       M6A01010
*        TT = THE SUBTEST NUMBER THE ERROR OCCURRED IN                M6A01020
*        XXXXX = THE ADDRESS OF THE LOCATION UNDER TEST               M6A01030
*        YYYYYYYY = THE CORRECT DATA EXPECTED                         M6A01040
*        ZZZZZZZZ = THE INCORRECT DATA READ                           M6A01050
*                                                                     M6A01060
*********************************************************************** M6A01070
*                                                                     M6A01080
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                          109  * NOTE:                                                                   M6A01090
                          110  *        BECAUSE OF THE DESTRUCTION OF LOW CORE DATA BY THIS TEST,         M6A01100
                          111  * ALL OTHER ERRORS AND INTERRUPTS WILL YIELD UNPREDICTABLE RESULTS.        M6A01110
                          112  *                                                                         M6A01120
    0000 0000             113  R0       EQU    0                                                          M6A01130
    0000 0001             114  R1       EQU    1                                                          M6A01140
    0000 0002             115  R2       EQU    2                                                          M6A01150
    0000 0003             116  R3       EQU    3                                                          M6A01160
    0000 0004             117  R4       EQU    4                   LOC BEING TESTED                       M6A01170
    0000 0005             118  R5       EQU    5                   *  DATA PATTERN                        M6A01180
    0000 0006             119  R6       EQU    6                   *                                      M6A01190
    0000 0007             120  R7       EQU    7                   *                                      M6A01200
    0000 0008             121  R8       EQU    8                   *                                      M6A01210
    0000 0009             122  R9       EQU    9                   DATA STORED IN LOC                     M6A01220
    0000 000A             123  R10      EQU    10                  DATA READ FROM LOC                     M6A01230
    0000 000B             124  R11      EQU    11                  CONSOLE DEVICE ADDRESS                 M6A01240
    0000 000C             125  R12      EQU    12                                                         M6A01250
    0000 000D             126  R13      EQU    13                                                         M6A01260
    0000 000E             127  RETRN    EQU    14                  BAL REGISTER                           M6A01270
    0000 000F             128  LINK     EQU    15                  BAL REGISTER                           M6A01280
    0000 000A             129  WORK     EQU    10                                                         M6A01290
                          130  *                                                                         M6A01300
                          131  *                                                                         M6A01310
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BOOT LOADER

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000080I                         ORG   X'80'                                                 M6A01330
                           *                                                                M6A01340
                           *                                                                M6A01350
                           *                                                                M6A01360
                           *  BOOTLOADER WITH CHKSUM                                        M6A01370
                           *                                                                M6A01380
000080                          ORG   X'80'                                                 M6A01390
                           *                                                                M6A01400
000080   2421                   LIS   R2,1                                                  M6A01410
000082   2303                   BS    BOOT                                                  M6A01420
000084   4BC0                   DC    Z(PSWSAVE)        CURRENT PSW SAVE POINTER(32-BIT M/C)  M6A01430
000086   4BDC                   DC    Z(RSAVE)          REGISTER SAVE POINTER(32-BIT M/C)     M6A01440
000088   C810 4000         BOOT LHI   R1,ORIGIN1        R1 = ADR( FIRST BYTE OF TEST PROG )   M6A01450
00008C   C830 4BC1              LHI   R3,LNZB+1                                             M6A01460
000090   4030 0022              STH   R3,X'22'                                              M6A01470
000094   2731                   SIS   R3,1              R3 = ADR( LAST NON-ZERO BYTE )        M6A01480
000096   C860 0000         MN   LHI   R6,0              R6 = CHKSUM BYTE = X'MN'              M6A01490
00009A   D340 0078              LB    R4,X'78'          INPUT DEV ADR                         M6A01500
00009E   DE40 0079              OC    R4,X'79'                                              M6A01510
0000A2   9D45              LEADER SSR R4,R5                                                 M6A01520
0000A4   2091                   BTBS  9,1               DU,BSY                                M6A01530
0000A6   9B45                   RDR   R4,R5                                                 M6A01540
0000A8   0855                   LDAR  R5,R5                                                 M6A01550
0000AA   2234                   BZS   LEADER            IGNORE LEADER                         M6A01560
0000AC   D251 0000         LOAD STB   R5,0(R1)          STORE 1ST NON-ZERO & SUBSEQUENT BYTE  M6A01570
0000B0   D351 0000              LB    R5,0(R1)          FETCH BYTE AS STORRED                 M6A01580
0000B4   0765                   XAR   R6,R5             GENERATE CHKSUM                       M6A01590
0000B6   9481                   EXBR  R8,R1                                                 M6A01600
0000B8   9828                   WHR   R2,R8             DISPLAY ADDRESS BEING LOADED          M6A01610
0000BA   9D45                   SSR   R4,R5                                                 M6A01620
0000BC   2091                   BTBS  9,1               DU,BSY                                M6A01630
0000BE   9B45                   RDR   R4,R5                                                 M6A01640
0000C0   C110 00AC              BXLE  R1,LOAD           LOAD TILL LAST BYTE                   M6A01650
0000C4   9466                   EXBR  R6,R6                                                 M6A01660
0000C6   9826                   WHR   R2,R6             DISPLAY FINAL CHKSUM                  M6A01670
0000C8   2478              LDWT LIS   R7,8                                                  M6A01680
0000CA   917C                   SLHLS R7,12                                                 M6A01690
0000CC   9557                   EPSR  R5,R7             PSW = X'8000' (HALT)                  M6A01700
0000CE   2203                   BS    LDWT              HALT !                                M6A01710
                           *                                                                M6A01720
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                                174  *                                                                              M6A01740
                                175  *                                                                              M6A01750
0000D0                          176            ORG    X'4000'                                                       M6A01760
                                177  *                                                                              M6A01770
                                178  *                                                                              M6A01780
004000   4300 8012 =004016      179  ORIGIN1   B      START               GO TO START OF TEST PROGRAM               M6A01790
                                180  *                                                                              M6A01800
                                181  *                                                                              M6A01810
004004   4300 80C6 =0040CE      182            B      ENABLE1             ENTRY HERE WILL ALLOW TYPE NUMBER TO      M6A01820
                                183  *                                    BE SELECTED WITHOUT REESTABLISHING        M6A01830
                                184  *                                    THE MAC ADDRESS*******                    M6A01840
004008   4300 806C =004078      185            B      ENBMAC              ENTRY HERE ALLOWS NEW MAC ADDRESS         M6A01850
                                186  *                                    WITHOUT LOW CORE SETUP****                M6A01860
00400C   4300 8006 =004016      187            B      START                                                         M6A01870
                                188  ***********************************************************************       M6A01880
                                189  *                                                                              M6A01890
004010   0202                   190  IO        DC     X'0202'             CONSOLE DEVICE NUMBER                     M6A01900
004012   1011                   191  CRTADR    DC     X'1011'             PASLA DEVICE ADDRESS                      M6A01910
004014   0202                   192  TTYADR    DC     X'0202'             TTY DEVICE ADDRESS                        M6A01920
                                193  *                                                                              M6A01930
                                194  ***********************************************************************       M6A01940
                                195  *                                                                              M6A01950
                                196  *                                                                              M6A01960
004016   C810 00F0              197  START     LHI    R1,X'00F0'          GET PSW FOR REG SET F                     M6A01970
00401A   9501                   198            EPSR   R0,R1               SWITCH TO REG SET F                       M6A01980
                                199  *                                                                              M6A01990
                                200  *                                                                              M6A02000
00401C   D300 FFF0 =004010      201  DEVCHK    LB     R0,IO               GET CONSOLE DEVICE NUMBER                 M6A02010
004020   C500 0001              202            CLHI   R0,1                                                          M6A02020
004024   233D                   203            BES    CRT                 BRANCH IF CRT ON PASLA                    M6A02030
004026   7300 8924 =00494E      204  TTY       LHL    R0,READ2                                                      M6A02040
00402A   4000 87B2 =0047E0      205            STH    R0,READ1            SET UP TTY COMMANDS                       M6A02050
00402E   D300 FFE2 =004014      206            LB     R0,TTYADR                                                     M6A02060
004032   D200 87A8 =0047DE      207            STB    R0,ADDRESS          SET UP TTY ADDRESS                        M6A02070
004036   0700                   208            XR     R0,R0                                                         M6A02080
004038   4000 8916 =004952      209            STH    R0,CRTFLG           ZERO PASLA FLAG                           M6A02090
00403C   230E                   210            BS     EXECUTE             BRANCH TO PROGRAM                         M6A02100
00403E   7300 890E =004950      211  CRT       LHL    R0,READ3                                                      M6A02110
004042   4000 879A =0047E0      212            STH    R0,READ1            SET UP PASLA COMMANDS                     M6A02120
004046   D300 FFC8 =004012      213            LB     R0,CRTADR                                                     M6A02130
00404A   D200 8790 =0047DE      214            STB    R0,ADDRESS          SET UP PASLA ADDRESS                      M6A02140
00404E   DEB0 878D =0047DF      215            OC     R11,PADSET          SET UP PASLA SPEED                        M6A02150
004052   240F                   216            LIS    R0,X'F'                                                       M6A02160
004054   4000 88FA =004952      217            STH    R0,CRTFLG           SET PASLA FLAG                            M6A02170
                                218  *                                                                              M6A02180
                                219  *                                                                              M6A02190
         0000 4058              220  EXECUTE   EQU    *                                                             M6A02200
                                221  *                                                                              M6A02210
                                222  *                                                                              M6A02220
004058   41F0 85E0 =00463C      223  PRTTITLE  BAL    LINK,PRINT          PRINT TITLE                               M6A02230
00405C   47E2                   224            DC     Z(TITLE)            START ADDRESS OF MESSAGE                  M6A02240
00405E   4809                   225            DC     Z(ENDOF)            END ADDRESS OF MESSAGE                    M6A02250
                                226  *                                                                              M6A02260
                                227  *                                                                              M6A02270
004060   41F0 85D8 =00463C      228  TOCS      BAL    LINK,PRINT          PRINT AVAILABLE MEMORY MESSAGE            M6A02280
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004064   480A                   229           DC    Z(MEMSG)             START ADDRESS OF MESSAGE             M6A02290
004066   4827                   230           DC    Z(END)               END ADDRESS OF MESSAGE               M6A02300
004068   2410                   231           LIS   R1,0                                                      M6A02310
00406A   5010 88F2 =004960      232           ST    R1,LOADR             SET LOADR = 0000                     M6A02320
00406E   F810 0000 3FFE         233           LI    R1,Y'3FFE'                                                M6A02330
004074   5010 88EC =004964      234           ST    R1,HIADR             SET HIADR = 3FFE                     M6A02340
                                235 *                                                                     M6A02350
                                236 *                                                                     M6A02360
004078   41F0 85C0 =00463C      237 ENBMAC    BAL   LINK,PRINT           PRINT "MAC ADDRESS = "               M6A02370
00407C   4870                   238           DC    Z(MACMSG)                                                 M6A02380
00407E   487F                   239           DC    Z(EDMACMSG)                                               M6A02390
004080   2410                   240           LIS   R1,0                 ZERO HOLDING MAC LOC REGISTER        M6A02400
004082   24A0                   241           LIS   WORK,0               CLEAR CHARACTER COUNT REGISTER       M6A02410
004084   41F0 8604 =00468C      242 GOREAD    BAL   LINK,READ            READ FROM CONSOLE DEVICE             M6A02420
004088   26A1                   243           AIS   WORK,1               INCREMENT CHARACTER COUNT            M6A02430
00408A   C570 000D              244           CLHI  R7,X'0D'             IS IT A "CR"?                        M6A02440
00408E   4330 801E =0040B0      245           BE    MACGO                YE  SO TE T INPUT                    M6A02450
004092   CB70 0030              246           SHI   R7,X'30'             NO TEST FOR ASCII NUMBER             M6A02460
004096   208F                   247           BLS   ENBMAC               INVALID NUMBER SO ASK AGAIN          M6A02470
004098   C570 000A              248           CLHI  R7,X'A'              IS IT LESS THAN "A"?                 M6A02480
00409C   4380 FFD8 =004078      249           BNL   ENBMAC               NO,ASK AGAIN                         M6A02490
0040A0   1114                   250           SLLS  R1,4                 YES SHIFT AND ADD CHARACTER          M6A02500
0040A2   0A17                   251           AR    R1,R7                TO TEST REGISTER                     M6A02510
0040A4   C5A0 0004              252           CLHI  WORK,X'4'            HAVE 3 CHARACTERS BEEN INPUT?        M6A02520
0040A8   4380 FFCC =004078      253           BNL   ENBMAC               NO 4 HAVE BEEN INPUT-ASK AGAIN       M6A02530
0040AC   4280 FFD4 =004084      254           BL    GOREAD               NO GET ONE MORE                      M6A02540
0040B0   0611                   255 MACGO     LR    R1,R1                IS THERE A MAC IN THE SYSTEM ?       M6A02550
0040B2   233C                   256           BZS   MACOK                NO, OK                               M6A02560
0040B4   C510 0300              257           CLHI  R1,X'300'            YES, IS MAC AT X'300' ?              M6A02570
0040B8   2339                   258           BES   MACOK                YES, OK                              M6A02580
0040BA   C510 0500              259           CLHI  R1,X'500'            NO, IS MAC AT X'500' ?               M6A02590
0040BE   2336                   260           BES   MACOK                YES, OK                              M6A02600
0040C0   C510 0900              261           CLHI  R1,X'900'            NO, IS MAC AT X'900' ?               M6A02610
0040C4   2333                   262           BES   MACOK                YES, OK                              M6A02620
0040C6   4300 FFAE =004078      263           B     ENBMAC               NO, RE-ENTER MAC LOC                 M6A02630
0040CA   5010 889A =004968      264 MACOK     ST    R1,MACLOC                                                 M6A02640
                                265 *                                                                     M6A02650
                                266 *                                                                     M6A02660
0040CE   C810 00F0              267 ENABLE1   LHI   R1,X'00F0'           GET REG SET F PSW                    M6A02670
0040D2   9501                   268           EPSR  R0,R1                SWITCH TO REG SET F                  M6A02680
0040D4   C810 0020              269           LHI   R1,C' '              CLEAR TYPE NUMBER BY                 M6A02690
0040D8   D210 8773 =00484F      270           STB   R1,TYPNO             STORING A BLANK CAHRACTER            M6A02700
0040DC   41F0 855C =00463C      271           BAL   LINK,PRINT           PRINT "TYPE= "                       M6A02710
0040E0   4848                   272           DC    Z(TYPEMSG)                                                M6A02720
0040E2   484F                   273           DC    Z(TYPEND)                                                 M6A02730
0040E4   41F0 80A4 =00418C      274 TYPESENS  BAL   LINK,TYPSENS         GO FIND OUT WHAT TYPE OF CORE MAT    M6A02740
0040E8   0711                   275 PRTMSG    XR    R1,R1                                                     M6A02750
0040EA   D210 886A =004958      276           STB   R1,ERRFLG                                                 M6A02760
0040EE   D210 8867 =004959      277           STB   R1,TTYFLG            ZERO TTY FLAG                        M6A02770
0040F2   D210 8864 =00495A      278           STB   R1,CONTFLG           ZERO CONTINUE FLAG                   M6A02780
0040F6   41F0 8542 =00463C      279           BAL   LINK,PRINT           PRINT 'SUBTEST'                      M6A02790
0040FA   4880                   280           DC    Z(TSTMSG)            START ADDRESS OF MESSAGE             M6A02800
0040FC   488D                   281           DC    Z(TSTEND)            END ADDRESS OF MESSAGE               M6A02810
0040FE   D370 8857 =004959      282           LB    R7,TTYFLG                                                 M6A02820
004102   0877                   283           LR    R7,R7                IS TTY FLAG SET ?                    M6A02830
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004104   2335                 284              BZS    PRTMSG1           NO, CONTINUE                          M6A02840
004106   F810 0000 80F0       285              LI     R1,Y'80F0'        YES, SO GET HALT PSW                  M6A02850
00410C   9501                 286              EPSR   R0,R1             NOW HALT PROCESSOR                    M6A02860
00410E   5010 885A =00496C    287   PRTMSG1    ST     R1,TOTAL          ZERO TOTAL COUNT                      M6A02870
004112   5010 885A =004970    288              ST     R1,TOTALERR       ZERO TOTAL ERROR COUNT                M6A02880
004116   41F0 8572 =00468C    289   SUBGET     BAL    LINK,READ         GET A CHARACTER                       M6A02890
00411A   CB70 0030            290              SHI    R7,X'30'          IS IT AN ASCII NUMBER?                M6A02900
00411E   4280 8024 =004146    291              BL     READERR           NO SO ASK AGAIN                       M6A02910
004122   C570 0009            292              CLHI   R7,X'9'           IS IT LESS THAN 9?                    M6A02920
004126   4380 801C =004146    293              BNL    READERR           NO SO ASK AGAIN                       M6A02930
00412A   D270 8829 =004957    294              STB    R7,SUBTST         VALID NUMBER SO SAVE IT               M6A02940
00412E   41F0 855A =00468C    295   LCHK       BAL    LINK,READ         GET ANOTHER CHARACTER                 M6A02950
004132   C570 004C            296              CLHI   R7,C'L'           IS IT AN "L"?                         M6A02960
004136   2135                 297              BNES   CRCHK             NO IS IT A "CR"?                      M6A02970
004138   2471                 298              LIS    R7,1              YES- SO SET THE                       M6A02980
00413A   D270 881C =00495A    299              STB    R7,CONTFLG        CONTINUE FLAG                         M6A02990
00413E   230A                 300              BS     OKIN              OK SO  RUN THE TEST                   M6A03000
004140   C570 000D            301   CRCHK      CLHI   R7,X'0D'          IS IT A "CR"?                         M6A03010
004144   2337                 302              BES    OKIN              YES SO RUN                            M6A03020
004146   41F0 84F2 =00463C    303   READERR    BAL    LINK,PRINT        PRINT THE ERRONEOUS                   M6A03030
00414A   4850                 304              DC     Z(QUEST)          INPUT                                 M6A03040
00414C   4857                 305              DC     Z(QUEND)          MESSAGE                               M6A03050
00414E   4300 FFC4 =004116    306              B      SUBGET            TRY AGAIN                             M6A03060
004152   41F0 84E6 =00463C    307   OKIN       BAL    LINK,PRINT        PRINT A "LF"                          M6A03070
004156   4827                 308              DC     Z(END)                                                  M6A03080
004158   4827                 309              DC     Z(END)                                                  M6A03090
00415A   D210 87F8 =004956    310   SELTST     STB    R1,TSTFLG         ZERO TEST FLAG                        M6A03100
00415E   D310 87F5 =004957    311   SUBSEL     LB     R1,SUBTST         LOAD R1 WITH SUBTEST SELECTED         M6A03110
004162   1111                 312              SLLS   R1,1              GENERATE CORRECT INDEX VALUE          M6A03120
004164   73E1 8012 =00417A    313              LHL    RETRN,SUB(R1)     LOAD ADDRS OF SUBTEST                 M6A03130
004168   50E0 888C =0049F8    314              ST     RETRN,REGSAV1E    SAVE BRANCH ADDRESS                   M6A03140
00416C   5040 8860 =0049D0    315              ST     R4,REGSAV14       SAVE TESTING LOC.                     M6A03150
004170   D000 880C =004980    316              STM    R0,REGSAV00       SAVE WORKING REGISTERS                M6A03160
004174   D100 8848 =0049C0    317              LM     R0,REGSAV10       PICKUP TESTING REGISTERS              M6A03170
004178   030E                 318              BR     RETRN             BRANCH TO SUBTEST SELECTED            M6A03180
00417A   42D4                 319   SUB        DC     Z(SUB0)                                                 M6A03190
00417C   42DE                 320              DC     Z(SUB1)                                                 M6A03200
00417E   4306                 321              DC     Z(SUB2)                                                 M6A03210
004180   4332                 322              DC     Z(SUB3)                                                 M6A03220
004182   435E                 323              DC     Z(SUB4)                                                 M6A03230
004184   438A                 324              DC     Z(SUB5)                                                 M6A03240
004186   43B6                 325              DC     Z(SUB6)                                                 M6A03250
004188   43E2                 326              DC     Z(SUB7)                                                 M6A03260
00418A   440E                 327              DC     Z(SUB8)                                                 M6A03270
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                               329  *                                                                           M6A03290
                               330  ******************************************                                  M6A03300
                               331  *   "TYPSENS" IS CALLED TO DETERMINE WHICH *                                M6A03310
                               332  *TYPE OF CORE MAT IS BEING TESTED:        *                                 M6A03320
                               333  *       -TYPE=0 FOR 35-491 (16 KB)        *                                 M6A03330
                               334  *        -TYPE=1 FOR 32-198 (32 KB 750NS)  *                                M6A03340
                               335  *                           (32 KB 1000NS) *                                M6A03350
                               336  *        -TYPE=2 FOR 32-206 (32 KB 750NS)  *                                M6A03360
                               337  *                           (32 KB 1000NS) *                                M6A03370
                               338  *        -TYPE=3 FOR 32-200 (64 KB 1000NS) *                                M6A03380
                               339  *        -TYPE=4 FOR 32-209 (64 KB 750NS)  *                                M6A03390
                               340  *ONCE THE CORRECT TYPE NUMBER HAS BEEN     *                                M6A03400
                               341  *ENTERER THIS MODULE THEN SETS UP THE COR- *                                M6A03410
                               342  *RESPONDING WORST CASE PATTERN-IF REQUIRED.*                                M6A03420
                               343  * IT THEN RETURNS AND IS READY TO RUN THE  *                                M6A03430
                               344  *SUBTESTS.                                 *                                M6A03440
                               345  ******************************************                                  M6A03450
00418C   08EF                  346  TYPSENS  LR    RETRN,LINK       SAVE RETURN ADDRESS                         M6A03460
00418E   41F0 84FA =00468C     347  TYPEGET  BAL   LINK,READ        GET A CHARACTER FROM CONSOLE                M6A03470
004192   C570 0030             348           CLHI  R7,C'0'          TYPE=0? (35-491)                            M6A03480
004196   4330 802C =0041C6     349           BE    TYPSET0          YES,SET TYPEFLAG=0                          M6A03490
00419A   C570 0031             350           CLHI  R7,C'1'          TYPE=1? (32-198)                            M6A03500
00419E   4330 8032 =0041D4     351           BE    TYPSET1          YES,SET TYPEFLAG=1                          M6A03510
0041A2   C570 0032             352           CLHI  R7,C'2'          TYPE=2? (32-206)                            M6A03520
0041A6   4330 8038 =0041E2     353           BE    TYPSET2          YES,SET TYPEFLAG=2                          M6A03530
0041AA   C570 0033             354           CLHI  R7,C'3'          TYPE=3? (32-200)                            M6A03540
0041AE   4330 803E =0041F0     355           BE    TYPSET3          YES,SET TYPEFLAG=3                          M6A03550
0041B2   C570 0034             356           CLHI  R7,C'4'          TYPE=4? (32-209)                            M6A03560
0041B6   4330 8056 =004210     357           BE    TYPSET4          YES,SET TYPEFLAG=4                          M6A03570
0041BA   41F0 847E =00463C     358           BAL   LINK,PRINT       INVALID TYPE NUMBER                         M6A03580
0041BE   4898                  359           DC    Z(PARNOMSG)      PRINT VALID TYPE NUMBERS AND                M6A03590
0041C0   494B                  360           DC    Z(PARNOEND)      CORRESPONDING PART NUMBERS.                 M6A03600
0041C2   4300 FFC8 =00418E     361           B     TYPEGET          LOOK FOR CORRECT TYPE NUMBER AGAIN          M6A03610
0041C6   D270 8685 =00484F     362  TYPSET0  STB   R7,TYPNO         PUT TYPE NUMBER IN MESSAGE                  M6A03620
0041CA   C870 4534             363           LHI   R7,START0        GET START0 ADDRESS                          M6A03630
0041CE   4070 87A6 =004978     364           STH   R7,TYPSTRT       SAVE START0 ADDRESS FOR TESTING             M6A03640
0041D2   030E                  365           BR    RETRN            TYPE IS SET,RETURN TO SUBTEST INIT.         M6A03650
0041D4   D270 8677 =00484F     366  TYPSET1  STB   R7,TYPNO         PUT TYPE NUMBER IN MESSAGE                  M6A03660
0041D8   C870 443A             367           LHI   R7,START1        GET START1 ADDRESS FOR TESTING              M6A03670
0041DC   4070 8798 =004978     368           STH   R7,TYPSTRT       SAVE IT.                                    M6A03680
0041E0   030E                  369           BR    RETRN            TYPE IS SET,RETURN TO SUBTEST INIT.         M6A03690
0041E2   D270 8669 =00484F     370  TYPSET2  STB   R7,TYPNO         PUT TYPE NUMBER IN MESSAGE                  M6A03700
0041E6   C870 443A             371           LHI   R7,START2        GET START2 ADDRESS                          M6A03710
0041EA   4070 878A =004978     372           STH   R7,TYPSTRT       SAVE START2 ADDRESS FOR TESTING             M6A03720
0041EE   030E                  373           BR    RETRN            TYPE IS SET,RETURN TO SUBTEST INIT.         M6A03730
0041F0   D270 865B =00484F     374  TYPSET3  STB   R7,TYPNO         PUT TYPE NUMBER IN MESSAGE                  M6A03740
0041F4   C870 443A             375           LHI   R7,START3        GET START3 ADDRESS                          M6A03750
0041F8   4070 877C =004978     376           STH   R7,TYPSTRT       SAVE START3 ADDRESS FOR TESTING             M6A03760
0041FC   C8A0 0210             377           LHI   WORK,X'0210'                                                 M6A03770
004200   40A0 85D6 =0047DA     378           STH   WORK,PAT3        PAT3&PAT4 ARE USED FOR                      M6A03780
004204   F8A0 0000 8400        379           LI    WORK,Y'8400'     THE WORST CASE PATTERN GENERATION           M6A03790
00420A   40A0 85CE =0047DC     380           STH   WORK,PAT4        FOR ALL DIFFERENT CORE MATS                 M6A03800
00420E   030E                  381           BR    RETRN            TYPE&PAT ARE SET,SO RETURN                  M6A03810
004210   D270 863B =00484F     382  TYPSET4  STB   R7,TYPNO                                                     M6A03820
004214   C870 443A             383           LHI   R7,START4                                                    M6A03830
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004218   4070 875C =004978    384            STH   R7,TYPSTRT                                             M6A03840
00421C   C8A0 0012            385            LHI   WORK,X'0012'                                           M6A03850
004220   40A0 85B6 =0047DA    386            STH   WORK,PAT3                                              M6A03860
004224   C8A0 4400            387            LHI   WORK,X'4400'                                           M6A03870
004228   40A0 85B0 =0047DC    388            STH   WORK,PAT4                                              M6A03880
00422C   030E                 389            BR    RETRN               TYPE&PAT ARE SET,SO RETURN         M6A03890
                              390   ********************************************************************  M6A03900
                              391   *                                                                     M6A03910
00422E   41E0 846A =00469C    392   SUBCHK   BAL   RETRN,TESTBRK       IS IT BREAK?                       M6A03920
004232   D310 8722 =004958    393            LB    R1,ERRFLG                                              M6A03930
004236   0811                 394            LR    R1,R1               IS ERROR FLAG SET ?                M6A03940
004238   2139                 395            BNZS  TSTSEL              YES, CHECK FOR NEXT SUBTEST        M6A03950
00423A   D310 871C =00495A    396            LB    R1,CONTFLG          IS CONTINUE FLAG SET ?             M6A03960
00423E   0811                 397            LR    R1,R1                                                  M6A03970
004240   2135                 398            BNZS  TSTSEL              YES, CHECK FOR NEXT SUBTEST        M6A03980
004242   41F0 83F6 =00463C    399            BAL   LINK,PRINT          NO, PRINT 'NO ERROR'               M6A03990
004246   488E                 400            DC    Z(NOERR)            START ADDRESS OF MESSAGE           M6A04000
004248   4897                 401            DC    Z(ERREND)           END ADDRESS OF MESSAGE             M6A04010
00424A   0711                 402   TSTSEL   XR    R1,R1               ZERO REGISTER R1                   M6A04020
00424C   D210 8708 =004958    403            STB   R1,ERRFLG           ZERO ERROR FLAG                    M6A04030
004250   D330 8703 =004957    404            LB    R3,SUBTST           LOAD R3 WITH CURRENT SUBTEST       M6A04040
004254   D310 86FE =004956    405            LB    R1,TSTFLG           LOAD R1 WITH TEST FLAG             M6A04050
004258   0811                 406            LR    R1,R1               IS TEST FLAG SET ?                 M6A04060
00425A   233A                 407            BZS   SWTST               NO, READ DISPLAY SWITCH            M6A04070
00425C   2631                 408            AIS   R3,1                YES, INCREMENT SUBTEST NUMBER      M6A04080
00425E   C530 0009            409            CLHI  R3,X'9'             HAVE ALL SUBTESTS BEEN RUN ?       M6A04090
004262   2385                 410            BNLS  STOP                YES, CHECK SWITCH 15               M6A04100
004264   D230 86EF =004957    411   STRBYT   STB   R3,SUBTST           NO, STORE SUBTEST TO BE EXECUTED NEXT M6A04110
004268   4300 FEF2 =00415E    412            B     SUBSEL              SELECT ADDRESS OF SUBTEST          M6A04120
00426C   2431                 413   STOP     LIS   R3,1                START WITH SUBTEST ONE             M6A04130
00426E   2411                 414   SWTST    LIS   R1,1                LOAD R1 WITH DISPLAY PANEL ADRS    M6A04140
004270   5110 86F8 =00496C    415            AM    R1,TOTAL            INCREMENT TOTAL COUNT              M6A04150
004274   5840 86F4 =00496C    416            L     R4,TOTAL                                               M6A04160
004278   41E0 839C =004618    417            BAL   RETRN,WRITE2        WRITE TOTAL ON DISPLAY             M6A04170
00427C   41E0 841C =00469C    418            BAL   RETRN,TESTBRK       IS IT BREAK?                       M6A04180
004280   D320 86D6 =00495A    419            LB    R2,CONTFLG                                             M6A04190
004284   0822                 420            LR    R2,R2               IS CONTINUE FLAG SET ?             M6A04200
004286   2333                 421            BZS   SENSE4              NO, BRANCH                         M6A04210
004288   4300 FFD8 =004264    422            B     STRBYT              YES-SO REPEAT TEST                 M6A04220
00428C   9DBA                 423   SENSE4   SSR   R11,R10             SENSE TTY STATUS                   M6A04230
00428E   4210 FFD2 =004264    424            BM    STRBYT              BRANCH IF DU                       M6A04240
004292   C4A0 000C            425            NHI   R10,X'0C'           MASK PASLA STATUS(EXAMINE&BSY)     M6A04250
004296   C5A0 000C            426            CLHI  R10,X'0C'           IS IT PASLA DU?                    M6A04260
00429A   4330 FFC6 =004264    427            BE    STRBYT              YES PASLA DU SO REPEAT TEST        M6A04270
00429E   D3A0 86B7 =004959    428   TTYCHK   LB    R10,TTYFLG                                             M6A04280
0042A2   08AA                 429            LR    R10,R10             HAS TTY BEEN TURNED OFF            M6A04290
0042A4   4330 FE40 =0040E8    430            BZ    PRTMSG              NO, PRINT 'SUBTEST'                M6A04300
0042A8   5890 86C0 =00496C    431   PRTTOT   L     R9,TOTAL                                               M6A04310
0042AC   41F0 841E =0046CE    432            BAL   LINK,CONVERT        YES, PRINT TOTAL & TOTAL ERROR     M6A04320
0042B0   001C                 433            DC    X'1C'               SHIFT INDEX                        M6A04330
0042B2   4858                 434            DC    Z(TOTALMSG)         STORE INDEX                        M6A04340
0042B4   41F0 8384 =00463C    435            BAL   LINK,PRINT          PRINT TOTAL COUNT                  M6A04350
0042B8   4858                 436            DC    Z(TOTALMSG)         START ADDRESS OF MESSAGE           M6A04360
0042BA   4867                 437            DC    Z(TOTALEND)         END OF MESSAGE                     M6A04370
0042BC   5890 86B0 =004970    438            L     R9,TOTALERR                                            M6A04380
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0042C0   41F0 840A =0046CE    439          BAL   LINK,CONVERT        CONVERT TO ASCII CHARACTERS              M6A04390
0042C4   001C                 440          DC    X'1C'               SHIFT INDEX                              M6A04400
0042C6   4858                 441          DC    Z(TOTALMSG)         STORE INDEX                              M6A04410
0042C8   41F0 8370 =00463C    442          BAL   LINK,PRINT          PRINT TOTAL ERROR COUNT                  M6A04420
0042CC   4858                 443          DC    Z(TOTALMSG)         START ADDRESS OF MESSAGE                 M6A04430
0042CE   486F                 444          DC    Z(ERROREND)         END ADDRESS OF MESSAGE                   M6A04440
0042D0   4300 FE14 =0040E8    445          B     PRTMSG              PRINT 'SUBTEST'                          M6A04450
                              446  *                                                                          M6A04460
                              447  ***********************************************************************   M6A04470
                              448  *                                                                          M6A04480
0042D4   2411                 449  SUB0    LIS   R1,1                LOAD R1 WITH ONE                         M6A04490
0042D6   D210 867C =004956    450          STB   R1,TSTFLG           SET TEST FLAG TO RUN ALL TEST            M6A04500
0042DA   D210 8679 =004957    451          STB   R1,SUBTST           STORE SUBTEST NUMBER                     M6A04510
                              452  *                                 START WITH SUBTEST 1                     M6A04520
                              453  *                                                                          M6A04530
0042DE   41E0 844A =00472C    454  SUB1    BAL   RETRN,TSTNUM        PRINT TEST NUMBER                        M6A04540
0042E2   2450                 455          LIS   R5,0                R5=R6=R7=R8=0                            M6A04550
0042E4   0865                 456          LR    R6,R5                                                        M6A04560
0042E6   0875                 457          LR    R7,R5                                                        M6A04570
0042E8   0885                 458          LR    R8,R5                                                        M6A04580
0042EA   73D0 868A =004978    459          LHL   R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN            M6A04590
0042EE   01FD                 460          BALR  LINK,R13            NOW RUN THE CORRECT WORST CASE.          M6A04600
0042F0   2450                 461          LIS   R5,0                R5 = 0                                   M6A04610
0042F2   0865                 462          LR    R6,R5               R6 = 0                                   M6A04620
0042F4   0875                 463          LR    R7,R5               R7 = 0                                   M6A04630
0042F6   F880 0000 FFFF       464          LI    R8,Y'FFFF'          R8 = FFFF                                M6A04640
0042FC   73D0 8678 =004978    465          LHL   R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN            M6A04650
004300   01FD                 466          BALR  LINK,R13            NOW RUN THE CORRECT WORST CASE.          M6A04660
004302   4300 FF28 =00422E    467          B     SUBCHK                                                       M6A04670


004306   41E0 8422 =00472C    469  SUB2    BAL   RETRN,TSTNUM        PRINT TEST NUMBER                        M6A04690
00430A   F870 0000 FFFF       470          LI    R7,Y'FFFF'          R5=R6=0, R7 = FFFF                       M6A04700
004310   2480                 471          LIS   R8,0                R8=0                                     M6A04710
004312   0868                 472          LR    R6,R8                                                        M6A04720
004314   0858                 473          LR    R5,R8                                                        M6A04730
004316   73D0 865E =004978    474          LHL   R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN            M6A04740
00431A   01FD                 475          BALR  LINK,R13            NOW RUN THE CORRECT WORST CASE.          M6A04750
00431C   F880 0000 FFFF       476          LI    R8,Y'FFFF'          R8=FFFF, R5=R6=0,R7=FFFF                 M6A04760
004322   0878                 477          LR    R7,R8                                                        M6A04770
004324   2450                 478          LIS   R5,0                                                         M6A04780
004326   0865                 479          LR    R6,R5                                                        M6A04790
004328   73D0 864C =004978    480          LHL   R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN            M6A04800
00432C   01FD                 481          BALR  LINK,R13            NOW RUN THE CORRECT WORST CASE.          M6A04810
00432E   4300 FEFC =00422E    482          B     SUBCHK                                                       M6A04820


004332   41E0 83F6 =00472C    484  SUB3    BAL   RETRN,TSTNUM        PRINT TEST NUMBER                        M6A04840
004336   F860 0000 FFFF       485          LI    R6,Y'FFFF'          R6=FFFF ,R5=0                            M6A04850
00433C   2470                 486          LIS   R7,0                R7=0                                     M6A04860
00433E   0887                 487          LR    R8,R7               R8=0                                     M6A04870
004340   0857                 488          LR    R5,R7                                                        M6A04880
004342   73D0 8632 =004978    489          LHL   R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN            M6A04690
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004346   01FD                  490             BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.       M6A04900
004348   F880 0000 FFFF        491             LI     R8,Y'FFFF'          R8=FFFF,R5=0,R6=FFFF,R7=0             M6A04910
00434E   0868                  492             LR     R6,R8                                                     M6A04920
004350   2450                  493             LIS    R5,0                                                      M6A04930
004352   0875                  494             LR     R7,R5                                                     M6A04940
004354   73D0 8620 =004978     495             LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN         M6A04950
004358   01FD                  496             BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.       M6A04960
00435A   4300 FED0 =00422E     497             B      SUBCHK                                                    M6A04970


00435E   41E0 83CA =00472C     499   SUB4      BAL    RETRN,TSTNUM        PRINT TEST NUMBER                     M6A04990
004362   F870 0000 FFFF        500             LI     R7,Y'FFFF'          R7=FFFF, R5=0 ,R6=FFFF                M6A05000
004368   0867                  501             LR     R6,R7                                                     M6A05010
00436A   2450                  502             LIS    R5,0                                                      M6A05020
00436C   0885                  503             LR     R8,R5               R8=0                                  M6A05030
00436E   73D0 8606 =004978     504             LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN         M6A05040
004372   01FD                  505             BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.       M6A05050
004374   F880 0000 FFFF        506             LI     R8,Y'FFFF'          R8=FFFF,R5=0,R6=FFFF,R7=FFFF          M6A05060
00437A   0868                  507             LR     R6,R8                                                     M6A05070
00437C   0878                  508             LR     R7,R8                                                     M6A05080
00437E   2450                  509             LIS    R5,0                                                      M6A05090
004380   73D0 85F4 =004978     510             LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN         M6A05100
004384   01FD                  511             BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.       M6A05110
004386   4300 FEA4 =00422E     512             B      SUBCHK                                                    M6A05120


00438A   41E0 839E =00472C     514   SUB5      BAL    RETRN,TSTNUM        PRINT TEST NUMBER                     M6A05140
00438E   F850 0000 FFFF        515             LI     R5,Y'FFFF'          5=FFFF                                M6A05150
004394   2460                  516             LIS    R6,0                R6=0                                  M6A05160
004396   0876                  517             LR     R7,R6               R7=0                                  M6A05170
004398   0886                  518             LR     R8,R6               R8=0                                  M6A05180
00439A   73D0 85DA =004978     519             LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN         M6A05190
00439E   01FD                  520             BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.       M6A05200
0043A0   F880 0000 FFFF        521             LI     R8,Y'FFFF'          R8=FFFF,R5=FFFF,R6=0,R7=0             M6A05210
0043A6   0858                  522             LR     R5,R8                                                     M6A05220
0043A8   2460                  523             LIS    R6,0                                                      M6A05230
0043AA   0876                  524             LR     R7,R6                                                     M6A05240
0043AC   73D0 85C8 =004978     525             LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN         M6A05250
0043B0   01FD                  526             BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.       M6A05260
0043B2   4300 FE78 =00422E     527             B      SUBCHK                                                    M6A05270


0043B6   41E0 8372 =00472C     529   SUB6      BAL    RETRN,TSTNUM        PRINT TEST NUMBER                     M6A05290
0043BA   F870 0000 FFFF        530             LI     R7,Y'FFFF'          R7=FFFF,R5=FFFF,R6=0                  M6A05300
0043C0   0857                  531             LR     R5,R7                                                     M6A05310
0043C2   2460                  532             LIS    R6,0                                                      M6A05320
0043C4   0886                  533             LR     R8,R6               R8=0                                  M6A05330
0043C6   73D0 85AE =004978     534             LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN         M6A05340
0043CA   01FD                  535             BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.       M6A05350
0043CC   F880 0000 FFFF        536             LI     R8,Y'FFFF'          R8=FFFF,R5=FFFF,R6=0,R7=FFFF          M6A05360
0043D2   0878                  537             LR     R7,R8                                                     M6A05370
0043D4   0858                  538             LR     R5,R8                                                     M6A05380
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0043D6   2460                  539           LIS   R6,0                                               M6A05390
0043D8   73D0 859C =004976     540           LHL   R13,TYPSTRT          GET ADRS OF WC TEST TO BE RUN    M6A05400
0043DC   01FD                  541           BALR  LINK,R13             NOW RUN THE CORRECT WORST CASE.  M6A05410
0043DE   4300 FE4C =00422E     542           B     SUBCHK                                             M6A05420


0043E2   41E0 8346 =00472C     544  SUB7     BAL   RETRN,TSTNUM         PRINT TEST NUMBER                M6A05440
0043E6   F860 0000 FFFF        545           LI    R6,Y'FFFF'           R6=FFFF,R5=FFFF                  M6A05450
0043EC   0856                  546           LR    R5,R6                                                M6A05460
0043EE   2470                  547           LIS   R7,0                 R7=0                             M6A05470
0043F0   0887                  548           LR    R8,R7                R8=0                             M6A05480
0043F2   73D0 8582 =004978     549           LHL   R13,TYPSTRT          GET ADRS OF WC TEST TO BE RUN    M6A05490
0043F6   01FD                  550           BALR  LINK,R13             NOW RUN THE CORRECT WORST CASE.  M6A05500
0043F8   F880 0000 FFFF        551           LI    R8,Y'FFFF'           R8=FFFF,R5=R6=FFFF,R7=0          M6A05510
0043FE   0858                  552           LR    R5,R8                                                M6A05520
004400   0868                  553           LR    R6,R8                                                M6A05530
004402   2470                  554           LIS   R7,0                                                 M6A05540
004404   73D0 8570 =004978     555           LHL   R13,TYPSTRT          GET ADRS OF WC TEST TO BE RUN    M6A05550
004408   01FD                  556           BALR  LINK,R13             NOW RUN THE CORRECT WORST CASE.  M6A05560
00440A   4300 FE20 =00422E     557           B     SUBCHK                                             M6A05570


00440E   41E0 831A =00472C     559  SUB8     BAL   RETRN,TSTNUM         PRINT TEST NUMBER                M6A05590
004412   F850 0000 FFFF        560           LI    R5,Y'FFFF'                                           M6A05600
004418   0875                  561           LR    R7,R5                                                M6A05610
00441A   0865                  562           LR    R6,R5                                                M6A05620
00441C   2480                  563           LIS   R8,0                 R8=0                             M6A05630
00441E   73D0 8556 =004978     564           LHL   R13,TYPSTRT          GET ADRS OF WC TEST TO BE RUN    M6A05640
004422   01FD                  565           BALR  LINK,R13             NOW RUN THE CORRECT WORST CASE.  M6A05650
004424   F850 0000 FFFF        566           LI    R5,Y'FFFF'                                           M6A05660
00442A   0865                  567           LR    R6,R5                                                M6A05670
00442C   0875                  568           LR    R7,R5                                                M6A05680
00442E   0885                  569           LR    R8,R5                R5 = R6 = R7 = R8 = FFFF         M6A05690
004430   73D0 8544 =004978     570           LHL   R13,TYPSTRT          GET ADRS OF WC TEST TO BE RUN    M6A05700
004434   01FD                  571           BALR  LINK,R13             NOW RUN THE CORRECT WORST CASE.  M6A05710
004436   4300 FDF4 =00422E     572           B     SUBCHK                                             M6A05720
                               573  *                                                                   M6A05730
                               574  *                                                                   M6A05740
                               575  *          LOAD THE DATA PATTERN IN ADDRESS SPECIFIED BY R4         M6A05750
                               576  *          IF PAT3 = 0 & PAT4 = 0 , LOAD R5                         M6A05760
                               577  *          IF PAT3 = 0 & PAT4 = 1 , LOAD R6                         M6A05770
                               578  *          IF PAT3 = 1 & PAT4 = 0 , LOAD R7                         M6A05780
                               579  *          IF PAT3 = 1 & PAT4 = 1 , LOAD R8                         M6A05790
                               580  *                                                                   M6A05800
           0000 443A           581  START1   EQU   *                    WORST CASE ALGORITHM FOR 32-198  M6A05810
           0000 443A           582  START2   EQU   *                    WORST CASE ALGORITHM FOR 32-206  M6A05820
           0000 443A           583  START3   EQU   *                    WORST CASE ALGORITHM FOR 32-200  M6A05830
           0000 443A           584  START4   EQU   *                    WORST CASE ALGORITHM FOR 32-209  M6A05840
00443A   40F0 8536 =004974     585  ALGRM1   STH   LINK,NXTST           SAVE NEXT TEST LOC.              M6A05850
00443E   73B0 8398 =0047DA     586  LODTAQ   LHL   R11,PAT3             PAT3 IN R11                      M6A05860
004442   73C0 8396 =0047DC     587           LHL   R12,PAT4             PAT4 IN R12                      M6A05870
004446   5840 8516 =004960     588           L     R4,LOADR             START LOADING AT LOC IN LOADR    M6A05880
00444A   0804                  589  LODTA0   LR    R0,R4                                                M6A05890
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00444C   040B                   590          NR    R0,R11          BITS IN PAT3 BOTH 0 ?              M6A05900
00444E   2334                   591          BZS   BT1ZRO                                             M6A05910
004450   050B                   592          CLR   R0,R11          BITS IN PAT3 BOTH 1 ?              M6A05920
004452   4230 8016 =00446C      593          BNE   BT1ONE                                             M6A05930
004456   0804                   594 BT1ZRO   LR    R0,R4           EXCLUSIVE OR OF BITS IN PAT3 IS 0  M6A05940
004458   040C                   595          NR    R0,R12          BITS IN PAT4 BOTH 0 ?              M6A05950
00445A   2134                   596          BNZS  BT0CH2                                             M6A05960
00445C   4054 0000              597 BT00     STH   R5,0(R4)        EXCLUSIVE OR OF BITS IN PAT4 IS 0  M6A05970
004460   2305                   598          BS    LDTA2                                              M6A05980
004462   050C                   599 BT0CH2   CLR   R0,R12          BITS IN PAT4 BOTH 1 ?              M6A05990
004464   2234                   600          BES   BT00                                               M6A06000
004466   4064 0000              601 BT01     STH   R6,0(R4)                                           M6A06010
00446A   2306                   602 LDTA2    BS    LDTA3                                              M6A06020
00446C   0804                   603 BT1ONE   LR    R0,R4           EXCLUSIVE OR OF BITS IN PAT3 IS 1  M6A06030
00446E   040C                   604          NR    R0,R12          BITS IN PAT4 BOTH 0 ?              M6A06040
004470   2134                   605          BNZS  BT1CH2                                             M6A06050
004472   4074 0000              606 BT10     STH   R7,0(R4)        EXCLUSIVE OR OF BITS IN PAT4 IS 0  M6A06060
004476   2305                   607 LDTA3    BS    LOADED                                             M6A06070
004478   050C                   608 BT1CH2   CLR   R0,R12          BITS IN PAT4 BOTH 1 ?              M6A06080
00447A   2234                   609          BES   BT10                                               M6A06090
00447C   4084 0000              610 BT11     STH   R8,0(R4)        EXCLUSIVE OR OF BITS IN PAT4 IS 1  M6A06100
004480   2642                   611 LOADED   AIS   R4,2                                               M6A06110
004482   08E4                   612          LR    RETRN,R4                                           M6A06120
004484   F4E0 0000 FF00         613          NI    RETRN,Y'FF00'   MASK LOC                           M6A06130
00448A   2337                   614          BZS   REVCHK1         IF LOC > '100', BRANCH             M6A06140
00448C   55E0 84D8 =004968      615          CL    RETRN,MACLOC                                       M6A06150
004490   2134                   616          BNES  REVCHK1         IF LOC NOT = MACLOC, BRANCH        M6A06160
004492   FA40 0000 0100         617          AI    R4,Y'100'       IF LOC = MACLOC, ADD X'100'        M6A06170
004498   58E0 84C8 =004964      618 REVCHK1  L     RETRN,HIADR                                        M6A06180
00449C   05E4                   619          CLR   RETRN,R4                                           M6A06190
00449E   4380 FFA8 =00444A      620          BNL   LODTA0          WHEN R4 > HIADR, DONE              M6A06200
                                621 *                                                             M6A06210
                                622 *                                                             M6A06220
0044A2   5840 84BA =004960      623 CHKDTA   L     R4,LOADR        START CHECKING AT LOC IN LOADR     M6A06230
                                624 *        LOADS EXPECTED DATA PATTERN IN R9 TO MATCH ADDRESS IN R4 M6A06240
0044A6   0895                   625 CHKDT1   LR    R9,R5           ASSUME PAT3 = 0 , PAT4 = 0         M6A06250
0044A8   0804                   626          LR    R0,R4                                              M6A06260
0044AA   040B                   627          NR    R0,R11                                             M6A06270
0044AC   2333                   628          BZS   DT1ZRO                                             M6A06280
0044AE   050B                   629          CLR   R0,R11                                             M6A06290
0044B0   2138                   630          BNES  DT1ONE                                             M6A06300
0044B2   0804                   631 DT1ZRO   LR    R0,R4           BIT 12 = 0                         M6A06310
0044B4   040C                   632          NR    R0,R12                                             M6A06320
0044B6   2334                   633          BZS   CHKA2           BRANCH IF PAT4 = 0                 M6A06330
0044B8   050C                   634          CLR   R0,R12                                             M6A06340
0044BA   2332                   635          BES   CHKA2           BRANCH IF BIT 34 = 0               M6A06350
0044BC   0896                   636          LR    R9,R6           PAT4 = 1 SO R9 = R6                M6A06360
0044BE   2308                   637 CHKA2    BS    CHKDTE                                             M6A06370
0044C0   0897                   638 DT1ONE   LR    R9,R7           PAT3 = 1 ASSUME PAT4 = 0           M6A06380
0044C2   0804                   639          LR    R0,R4           BRING ADDRESS FROM R4 TO R0        M6A06390
0044C4   040C                   640          NR    R0,R12                                             M6A06400
0044C6   2334                   641          BZS   CHKDTE          ASSUMPTION O.K.  R9 = R7           M6A06410
0044C8   050C                   642          CLR   R0,R12                                             M6A06420
0044CA   2332                   643          BES   CHKDTE                                             M6A06430
0044CC   089B                   644          LR    R9,R8           PAT4 = 1 SO R9 = R8                M6A06440
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          0000 44CE            CHKDTE   EQU   *                R9 = DATA EXPECTED                   M6A06450
0044CE    73A4 0000                     LHL   R10,0(R4)        R10 = DATA READ                      M6A06460
0044D2    059A                          CLR   R9,R10           IF R9 = R10 , NO ERROR               M6A06470
0044D4    2335                          BES   COMP1            CHECK COMPLE. PATTERN                M6A06480
0044D6    41F0 8278 =004752             BAL   LINK,ERROR                                            M6A06490
0044DA    4300 802C =00450A             B     CHKDTG                                                M6A06500
0044DE    0809                 COMP1    LR    R0,R9            STORE R9 TEMPORARILY                 M6A06510
0044E0    F790 0000 FFFF                XI    R9,Y'FFFF'       R9 = COMPLE. PATTERN                 M6A06520
0044E6    4094 0000                     STH   R9,0(R4)                                              M6A06530
0044EA    73A4 0000                     LHL   R10,0(R4)        CHECK LOC WITH COMPLE. PATTERN       M6A06540
0044EE    059A                          CLR   R9,R10                                                M6A06550
0044F0    2334                          BES   COMP2                                                 M6A06560
0044F2    41F0 825C =004752             BAL   LINK,ERROR                                            M6A06570
0044F6    230A                          BS    CHKDTG                                                M6A06580
0044F8    0890                 COMP2    LR    R9,R0                                                 M6A06590
0044FA    4094 0000                     STH   R9,0(R4)         CHECK LOC WITH ORIGINAL PATTERN      M6A06600
0044FE    73A4 0000                     LHL   R10,0(R4)                                             M6A06610
004502    059A                          CLR   R9,R10                                                M6A06620
004504    2333                          BES   CHKDTG                                                M6A06630
004506    41F0 8248 =004752             BAL   LINK,ERROR                                            M6A06640
00450A    41E0 810A =004618    CHKDTG   BAL   RETRN,WRITE2     DISPLAY LOC.                         M6A06650
00450E    2642                          AIS   R4,2             INCREMENT LOC                        M6A06660
004510    08E4                          LR    RETRN,R4                                              M6A06670
004512    F4E0 0000 FF00                NI    RETRN,Y'FF00'    MASK LOC                             M6A06680
004518    2337                          BZS   REVCHK2          IF LOC > '100', BRANCH               M6A06690
00451A    55E0 844A =004968             CL    RETRN,MACLOC                                          M6A06700
00451E    2134                          BNES  REVCHK2          IF LOC NOT = MACLOC, BRANCH          M6A06710
004520    FA40 0000 0100                AI    R4,Y'100'        IF LOC = MACLOC, ADD X'100'          M6A06720
004526    58E0 843A =004964    REVCHK2  L     RETRN,HIADR                                           M6A06730
00452A    05E4                          CLR   RETRN,R4                                              M6A06740
00452C    4380 FF76 =0044A6             BNL   CHKDT1           WHEN R4 > HIADR , DONE               M6A06750
004530    4300 80DA =00460E             B     CHKEND           SEE IF W C IS DONE                   M6A06760
                               *                                                                    M6A06770
                               *        LOAD THE DATA PATTERNS INTO ALL OF MEMORY                   M6A06780
                               *        IF PAT1 = 0 , PAT2 = 0 LOAD R5                              M6A06790
                               *        IF PAT1 = 0 , PAT2 = 1 , LOAD R6                            M6A06800
                               *        IF PAT1 = 1 , PAT2 = 0 , LOAD R7                            M6A06810
                               *        IF PAT1 = 1 , PAT2 = 1 , LOAD R8                            M6A06820
                               *                                                                    M6A06830
          0000 4534            STARTO   EQU   *                WORST CASE ALGORITHM FOR 35-491      M6A06840
004534    40F0 843C =004974    ALGRM2   STH   LINK,NXTST       SAVE NEXT TEST LOC.                  M6A06850
004538    73B0 829A =0047D6    LODTA1   LHL   R11,PAT1         R11=CONTENTS OF PAT1                 M6A06860
00453C    73C0 8298 =0047D8             LHL   R12,PAT2         R12=CONTNTS OF PAT2                  M6A06870
004540    5840 841C =004960             L     R4,LOADR         START LOADING AT LOC IN LOADR        M6A06880
004544    0804                 LODTA3   LR    R0,R4                                                 M6A06890
004546    040B                          NR    R0,R11           CHECK FOR PAT1 SET                   M6A06900
004548    213A                          BNZS  CHKBT3                                                M6A06910
00454A    0804                 BT1ZR1   LR    R0,R4                                                 M6A06920
00454C    040C                          NR    R0,R12                                                M6A06930
00454E    2134                          BNZS  BT011                                                 M6A06940
004550    4054 0000            BT001    STH   R5,0(R4)         PAT1=0 ,PAT2=0 ,STORE R5             M6A06950
004554    2303                          BS    LODTA4                                                M6A06960
004556    4064 0000            BT011    STH   R6,0(R4)         PAT1=0 ,PAT2=1 ,STORE R6             M6A06970
00455A    2309                 LODTA4   BS    LOADE1                                                M6A06980
00455C    0804                 CHKBT3   LR    R0,R4            PAT1=1 ,CHECK FOR PAT2               M6A06990
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                                                                                      M6A07000
00455E   040C                  700           NR     R0,R12                            M6A07010
004560   2134                  701           BNZS   BT111                             M6A07020
004562   4074 0000             702  BT101    STH    R7,0(R4)       PAT1=1 ,PAT2=0 ,STORE R7    M6A07030
004566   2303                  703           BS     LOADE1                            M6A07040
004568   4084 0000             704  BT111    STH    R8,0(R4)       PAT1=1 ,PAT2=1 ,STORE R8    M6A07050
00456C   2642                  705  LOADE1   AIS    R4,2                              M6A07060
00456E   08E4                  706           LR     RETRN,R4                          M6A07070
004570   F4E0 0000 FF00        707           NI     RETRN,Y'FF00'  MASK LOC           M6A07080
004576   2337                  708           BZS    REVCHK3        IF LOC > '100', BRANCH      M6A07090
004578   55E0 83EC =004968     709           CL     RETRN,MACLOC                      M6A07100
00457C   2134                  710           BNES   REVCHK3        IF LOC NOT = MACLOC, BRANCH M6A07110
00457E   FA40 0000 0100        711           AI     R4,Y'100'      IF LOC = MACLOC, ADD X'100' M6A07120
004584   58E0 83DC =004964     712  REVCHK3  L      RETRN,HIADR                       M6A07130
004588   05E4                  713           CLR    RETRN,R4                          M6A07140
00458A   4380 FFB6 =004544     714           BNL    LODTA3         WHEN R4 > HIADR, DONE       M6A07150
                               715  *                                                 M6A07160
                               716  *                                                 M6A07170
00458E   5840 83CE =004960     717  CHKDT2   L      R4,LOADR       START CHECKING AT LOC IN LOADR  M6A07180
004592   0895                  718  CHKDT3   LR     R9,R5          R9 = R5  SET UP FOR PAT1=PAT2=0  M6A07190
004594   0804                  719           LR     R0,R4                             M6A07200
004596   040B                  720           NR     R0,R11         CHECK FOR PAT1     M6A07210
004598   2136                  721           BNZS   CHKDT4                            M6A07220
00459A   0804                  722           LR     R0,R4                             M6A07230
00459C   040C                  723           NR     R0,R12         CHECK FOR PAT2     M6A07240
00459E   2332                  724           BZS    CHKDB1                            M6A07250
0045A0   0896                  725           LR     R9,R6          PAT1=0,PAT2=1,R9=R6         M6A07260
0045A2   2307                  726  CHKDB1   BS     CHKDT6         PAT1 = 0 , PAT2 = 0 , R9 = R5  M6A07270
0045A4   0804                  727  CHKDT4   LR     R0,R4          CHECK FOR PAT2 ,PAT1=1      M6A07280
0045A6   040C                  728           NR     R0,R12                            M6A07290
0045A8   2133                  729           BNZS   CHKDT5                            M6A07300
0045AA   0897                  730           LR     R9,R7          BIT 1=1 ,PAT2=0, R9=R7      M6A07310
0045AC   2302                  731           BS     CHKDT6                            M6A07320
0045AE   0898                  732  CHKDT5   LR     R9,R8                             M6A07330
         0000 45B0             733  CHKDT6   EQU    *              R9 = DATA EXPECTED M6A07340
0045B0   73A4 0000             734           LHL    R10,0(R4)      R10 = DATA READ    M6A07350
0045B4   059A                  735           CLR    R9,R10         IF R9 = R10 , NO ERROR      M6A07360
0045B6   2333                  736           BES    COMP11         CHECK COMPLE. PATTERN       M6A07370
0045B8   41F0 8196 =004752     737           BAL    LINK,ERROR                        M6A07380
0045BC   0809                  738  COMP11   LR     R0,R9          STORE R9 TEMPORARILY        M6A07390
0045BE   F790 0000 FFFF        739           XI     R9,Y'FFFF'     R9 = COMPLE. PATTERN        M6A07400
0045C4   4094 0000             740           STH    R9,0(R4)                          M6A07410
0045C8   73A4 0000             741           LHL    R10,0(R4)      CHECK LOC WITH COMPLE. PATTERN  M6A07420
0045CC   059A                  742           CLR    R9,R10                            M6A07430
0045CE   2334                  743           BES    COMP21                            M6A07440
0045D0   41F0 817E =004752     744           BAL    LINK,ERROR                        M6A07450
0045D4   230A                  745           BS     CHKDT7                            M6A07460
0045D6   0890                  746  COMP21   LR     R9,R0                             M6A07470
0045D8   4094 0000             747           STH    R9,0(R4)       CHECK LOC WITH ORIGINAL PATTERN  M6A07480
0045DC   73A4 0000             748           LHL    R10,0(R4)                         M6A07490
0045E0   059A                  749           CLR    R9,R10                            M6A07500
0045E2   2333                  750           BES    CHKDT7                            M6A07510
0045E4   41F0 816A =004752     751           BAL    LINK,ERROR                        M6A07520
0045E8   41E0 802C =004618     752  CHKDT7   BAL    RETRN,WRITE2   DISPLAY LOC        M6A07530
0045EC   2642                  753           AIS    R4,2           INCREMENT ADDRESS  M6A07540
0045EE   08E4                  754           LR     RETRN,R4
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0045F0   F4E0 0000 FF00        755           NI    RETRN,Y'FF00'         MASK LOC                              M6A07550
0045F6   2337                  756           BZS   REVCHK4               IF LOC > '100', BRANCH                M6A07560
0045F8   55E0 836C =004968     757           CL    RETRN,MACLOC                                                M6A07570
0045FC   2134                  758           BNES  REVCHK4               IF LOC NOT = MACLOC, BRANCH           M6A07580
0045FE   FA40 0000 0100        759           AI    R4,Y'100'             IF LOC = MACLOC, ADD X'100'           M6A07590
004604   58E0 835C =004964     760  REVCHK4  L     RETRN,HIADR                                                 M6A07600
004608   05E4                  761           CLR   RETRN,R4                                                    M6A07610
00460A   4380 FF84 =004592     762           BNL   CHKDT3                WHEN R4 > HIADR , DONE                M6A07620
                               763  *                                                                          M6A07630
                               764  *                                                                          M6A07640
00460E   41F0 80EC =0046FE     765  CHKEND   BAL   LINK,FWR              CHECK FOR BREAK IN CONT. MODE         M6A07650
004612   73E0 835E =004974     766           LHL   RETRN,NXTST                                                 M6A07660
004616   030E                  767           BR    RETRN                 GO TO NEXT TEST                       M6A07670
                               768  *                                                                          M6A07680
                               769  * * * * * * * * * * * * * * * * * * * * * * * * * * * *                  M6A07690
                               770  *                                                    *                     M6A07700
                               771  *               W R I T E 2                          *                     M6A07710
                               772  *                                                    *                     M6A07720
                               773  *  THIS ROUTINE WRITES TO THE DISPLAY PANEL (D1-D4)  *                     M6A07730
                               774  *        R4 = THE DATA TO BE WRITTEN                 *                     M6A07740
                               775  *        RETRN = THE RETURN ADDRESS REGISTER         *                     M6A07750
                               776  *                                                    *                     M6A07760
                               777  * * * * * * * * * * * * * * * * * * * * * * * * * * * *                  M6A07770
                               778  *                                                                          M6A07780
004618   40E0 835A =004976     779  WRITE2   STH   RETRN,RXTURN          SAVE RETURN ADDRESS                   M6A07790
00461C   24E1                  780           LIS   RETRN,1               LOAD RETRN WITH DISPLAY ADRS          M6A07800
00461E   DEE0 832B =00494D     781           OC    RETRN,INCRMT          PUT DISPLAY IN INCREMENTAL MODE       M6A07810
004622   08F4                  782           LR    LINK,R4               PUT ADRESS IN DISPLAY REG.            M6A07820
004624   94FF                  783           EXBR  LINK,LINK             WRITE VALUE ON DISPLAY PANEL          M6A07830
004626   98EF                  784           WHR   RETRN,LINK                                                  M6A07840
004628   34FF                  785           EXHR  LINK,LINK                                                   M6A07850
00462A   94FF                  786           EXBR  LINK,LINK                                                   M6A07860
00462C   98EF                  787           WHR   RETRN,LINK                                                  M6A07870
00462E   DAE0 8325 =004957     788           WD    RETRN,SUBTST          WRITE SUBTEST NUMBER TO DISPLAY       M6A07880
004632   DEE0 8316 =00494C     789           OC    RETRN,NORM            PUT DISPLAY IN NORMAL MODE            M6A07890
004636   73F0 833C =004976     790           LHL   LINK,RXTURN                                                 M6A07900
00463A   030F                  791           BR    LINK                  RETURN TO SUBTEST                     M6A07910
                               792  *                                                                          M6A07920
                               793  * * * * * * * * * * * * * * * * * * * * * * * * * * * *                  M6A07930
                               794  *                                                    *                     M6A07940
                               795  *                           P R I N T                *                     M6A07950
                               796  *                                                    *                     M6A07960
                               797  * THIS ROUTINE PRINTS MESSAGES ON THE CONSOLE DEVICE. *                    M6A07970
                               798  * R12 = THE STARTING ADDRESS OF THE MESSAGE.         *                     M6A07980
                               799  * R13 = THE ENDING ADDRESS OF THE MESSAGE.           *                     M6A07990
                               800  * LINK = THE RETURN ADDRESS.                         *                     M6A08000
                               801  *                                                    *                     M6A08010
                               802  * * * * * * * * * * * * * * * * * * * * * * * * * * * *                  M6A08020
                               803  *                                                                          M6A08030
00463C   D3B0 819E =0047DE     804  PRINT    LB    R11,ADDRESS           GET CONSOLE ADDRESS                   M6A08040
004640   9DBA                  805           SSR   R11,R10               WHAT'S UP CONSOLE?                    M6A08050
004642   C4A0 000C             806           NHI   R10,X'0C'             MASK PASLA EXAMINE & BUSY             M6A08060
004646   C5A0 000C             807           CLHI  R10,X'0C'             ARE THEY SET?                         M6A08070
00464A   233B                  808           BES   PRDU                  YUP SO RETURN DU FLAG                 M6A08080
00464C   73A0 8302 =004952     809           LHL   R10,CRTFLG            IS CONSOLE DEVICE ON PASLA ?          M6A08090
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004650   2332                     810          BZS   CMD               NO, CONTINUE                            M6A08100
004652   26B1                     811          AIS   R11,1             YES, MODIFY ADDRESS                     M6A08110
004654   DEB0 8189 =0047E1        812  CMD     OC    R11,WRITE1        PUT IN WRITE MODE                       M6A08120
004658   9DBA                     813  SENSEW  SSR   R11,R10                                                   M6A08130
00465A   2081                     814          BTBS  8,SENSEW          WAIT FOR BUSY TO DROP                   M6A08140
00465C   2112                     815          BMS   PRDU              BRANCH ON  DU                      M6A  M6A08150
00465E   2305                     816          BS    CONT02            NOT DU SO CONTINUE                      M6A08160
004660   D2B0 82F5 =004959        817  PRDU    STB   R11,TTYFLG                                                M6A08170
004664   430F 0004                818          B     4(LINK)           RETURN ON DU                            M6A08180
004668   73CF 0000                819  CONT02  LHL   R12,0(LINK)       LOAD START ADDRESS OF MESSAGE           M6A08190
00466C   73DF 0002                820          LHL   R13,2(LINK)       LOAD END ADDRESS OF MESSAGE             M6A08200
004670   96BC                     821          WBR   R11,R12           WRITE MESSAGE TO CONSOLE DEVICE         M6A08210
004672   9DBA                     822          SSR   R11,R10                                                   M6A08220
004674   2081                     823          BTBS  8,1               WAIT FOR BUSY TO DROP                   M6A08230
004676   73A0 82D8 =004952        824          LHL   R10,CRTFLG        IS CONSOLE DEVICE ON PASLA ?            M6A08240
00467A   433F 0004                825          BZ    4(LINK)           NO, RETURN                              M6A08250
00467E   07AA                     826          XR    R10,R10                                                   M6A08260
004680   9ABA                     827          WDR   R11,R10           YES, WRITE A NULL CHAR.                 M6A08270
004682   9DBA                     828          SSR   R11,R10                                                   M6A08280
004684   2081                     829          BTBS  8,1               WAIT FOR BUSY TO DROP                   M6A08290
004686   27B1                     830          SIS   R11,1             RESTORE CONSOLE DEVICE ADDRESS          M6A08300
004688   430F 0004                831          B     4(LINK)           RETURN                                  M6A08310
                                  832  *                                                                       M6A08320
                                  833  * * * * * * * * * * * * * * * * * * * * * * * * * * * *                 M6A08330
                                  834  *                                                     *                 M6A08340
                                  835  *                          R E A D                    *                 M6A08350
                                  836  *                                                     *                 M6A08360
                                  837  * THIS ROUTINE READS ASCII CHARACTERS FROM THE TTY     *                 M6A08370
                                  838  * OR THE CONSOLE. IT ALSO STRIPS OFF THE PARITY BIT.  *                 M6A08380
                                  839  * IT THEN RETURNS  ON LINK.                           *                 M6A08390
                                  840  * R11 = THE TTY ADDRESS.                              *                 M6A08400
                                  841  * R7 = THE HEX VALUE OF THE CHARACTER READ.           *                 M6A08410
                                  842  *                                                     *                 M6A08420
                                  843  * * * * * * * * * * * * * * * * * * * * * * * * * * * *                 M6A08430
                                  844  *                                                                       M6A08440
00468C   DEB0 8150 =0047E0        845  READ    OC    R11,READ1         READ=DISABLE UNBLOCK READ=X'A4'         M6A08450
004690   9DB7                     846  SENSER  SSR   R11,R7            SENSE CONSOLE STATUS                    M6A08460
004692   2081                     847          BCS   SENSER            BUSY SO SENSE AGAIN                     M6A08470
004694   9BB7                     848          RDR   R11,R7            READ A CHARACTER FROM CONSOLE           M6A08480
004696   C470 007F                849          NHI   R7,X'7F'          MASK OFF PARITY BIT                     M6A08490
00469A   030F                     850          BR    LINK              AND RETURN                              M6A08500
                                  851  *********************************************                           M6A08510
                                  852  *                                           *                           M6A08520
                                  853  *       T E S T  B R E A K                  *                           M6A08530
                                  854  *                                           *                           M6A08540
                                  855  *         CHECKS THE CONSOLE FOR A          *                           M6A08550
                                  856  *         BREAK CONDITION..(PASLA OR        *                           M6A08560
                                  857  *         CLI). IF NO BREAK KEY IS          *                           M6A08570
                                  858  *         PRESSED IT RETURNS ON             *                           M6A08580
                                  859  *         "RETRN"...IF BREAK EXISTS         *                           M6A08590
                                  860  *         IT GOES TO COMMAND MODE.          *                           M6A08600
                                  861  *                                           *                           M6A08610
                                  862  *********************************************                           M6A08620
00469C   D3B0 813E =0047DE        863  TESTBRK LB    R11,ADDRESS       GET ADDRESS                             M6A08630
0046A0   9DBA                     864          SSR   R11,R10           WHAT'S UP CONSOLE?                      M6A08640
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0046A2    C3A0 0020              865           THI    R10,X'20'          IS IT BREAK?                             M6A08650
0046A6    033E                   866           BZR    RETRN              NO--RETURN                               M6A08660
0046A8    4820 82A6 =004952      867           LH     R2,CRTFLG          IS IT A PASLA?                           M6A08670
0046AC    4330 8012 =0046C2      868           BZ     CHECKR             NO,TEST IT AGAIN ANYWAY                  M6A08680
0046B0    C3A0 0008              869           THI    R10,8              ALREADY ACKNOWLEDGED?                    M6A08690
0046B4    023E                   870           BNZR   RETRN              YES RETURN                               M6A08700
0046B6    9BB2                   871           RDR    R11,R2             READ A CHARACTER FROM PASLA              M6A08710
0046B8    9DBA                   872  PASSENS  SSR    R11,R10            WHAT'S UP PAL(SA)?                       M6A08720
0046BA    2281                   873           BFBS   8,PASSENS          OH--YOU'RE BUSY ASK AGAIN?               M6A08730
0046BC    0822                   874           LR     R2,R2              NOT BUSY ANYMORE                         M6A08740
0046BE    023E                   875           BNZR   RETRN              AND GOT A FRAMING ERROR SO RETURN        M6A08750
0046C0    2305                   876           BS     TRUEBRK            GOT A NULL CHAR..VALID PASLA BREAK       M6A08760
0046C2    9DBA                   877  CHECKR   SSR    R11,R10            WHAT'S UP CONSOLE?                       M6A08770
0046C4    C3A0 0020              878           THI    R10,X'20'          IS IT BREAK?                             M6A08780
0046C8    2033                   879           BNZS   CHECKR             YES - WAIT FOR RELEASE OF KEY            M6A08790
0046CA    4300 FA1A =0040E8      880  TRUEBRK  B      PRTMSG             VALID BREAK- GOTO COMMAND MODE           M6A08800
                                 881  *                                                                         M6A08810
                                 882  *                                                                         M6A08820
                                 883  * * * * * * * * * * * * * * * * * * * * * * * * * * *                   M6A08830
                                 884  *                                                   *                   M6A08840
                                 885  *                    C O N V E R T                  *                   M6A08850
                                 886  *                                                   *                   M6A08860
                                 887  * THE ROUTINE CONVERTS HEX CHARACTERS TO ASCII AND   *                   M6A08870
                                 888  * STORES THE IN MEMORY.                             *                   M6A08880
                                 889  * R7 = THE SHIFT INDEX (THE NUM OF  BITS IN THE HEX  *                   M6A08890
                                 890  *      CHARACTER MINUS 4).                          *                   M6A08900
                                 891  * R9 = THE HEX VALUE TO BE CONVERTED.               *                   M6A08910
                                 892  * R12 = THE STARTING ADDRESS WHERE THE CHARACTER IS *                   M6A08920
                                 893  *       TO BE STORED.                               *                   M6A08930
                                 894  * LINK = THE RETURN ADDRESS.                        *                   M6A08940
                                 895  *                                                   *                   M6A08950
                                 896  * * * * * * * * * * * * * * * * * * * * * * * * * * *                   M6A08960
                                 897  *                                                                         M6A08970
0046CE    737F 0000              898  CONVERT  LHL    R7,0(LINK)         LOAD SHIFT INDEX                         M6A08980
0046D2    73CF 0002              899           LHL    R12,2(LINK)        LOAD ADRS INDEX                          M6A08990
0046D6    0869                   900  CONVERT1 LR     R6,R9              LOAD VALUE TO BE CONVERTED               M6A09000
0046D8    EC67 0000              901           SRL    R6,0(R7)           SHIFT DIGIT INTO PLACE                   M6A09010
0046DC    C460 000F              902           NHI    R6,X'F'            MASK OFF ALL BUT LEAST SIGNIF DIGIT      M6A09020
0046E0    C660 0030              903           OHI    R6,X'30'           CONVERT TO ASCII                         M6A09030
0046E4    C560 003A              904           CLHI   R6,X'3A'           IS CHARACTER A NUMBER                    M6A09040
0046E8    2182                   905           BLS    CONT9              YES, CONTINUE ROUTINE                    M6A09050
0046EA    2667                   906           AIS    R6,7               NO, CONVERT TO ASCII LETTER              M6A09060
0046EC    D26C 0000              907  CONT9    STB    R6,0(R12)          STORE VALUE IN MESSAGE                   M6A09070
0046F0    0877                   908           LR     R7,R7              IS CONVERSION COMPLETE                   M6A09080
0046F2    433F 0004              909           BZ     4(LINK)            YES, RETURN TO SUBTEST                   M6A09090
0046F6    2774                   910           SIS    R7,4               NO, DECREMENT SHIFT INDEX                M6A09100
0046F8    26C1                   911           AIS    R12,1              INCREMENT STORE INDEX                    M6A09110
0046FA    4300 FFD8 =0046D6      912           B      CONVERT1           CONVERT NEXT HEX DIGIT                   M6A09120
                                 913  *                                                                         M6A09130
                                 914  * * * * * * * * * * * * * * * * * * * * * * * * * * *                   M6A09140
                                 915  *                                                   *                   M6A09150
                                 916  *                      F W R                        *                   M6A09160
                                 917  *                                                   *                   M6A09170
                                 918  *        DETECT BREAK IN CONTINUOUS MODE            *                   M6A09180
                                 919  *                                                   *                   M6A09190
```

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                              *         LINK = THE RETURN ADDRESS                 *            M6A09200
                              *                                                   *            M6A09210
                              * * * * * * * * * * * * * * * * * * * * * * * * * * *            M6A09220
                              *                                                                M6A09230
0046FE   D320 8258 =00495A    FWR       LB     R2,CONTFLG           IS CONTINUE FLAG SET ?     M6A09240
004702   0822                           LR     R2,R2                                           M6A09250
004704   033F                           BZR    LINK                 NO, RETURN                 M6A09260
004706   D3A0 80D4 =0047DE              LB     WORK,ADDRESS                                    M6A09270
00470A   9DA2                           SSR    WORK,R2                                         M6A09280
00470C   C320 0020                      THI    R2,X'20'             YES, IS "BREAK" DEPRESSED ? M6A09290
004710   033F                           BZR    LINK                 NO, RETURN                 M6A09300
004712   7320 823C =004952              LHL    R2,CRTFLG            YES, IS CONSOLE DEV ON PASLA ? M6A09310
004716   4330 800A =004724              BZ     TTYSNS               NO, BRANCH                 M6A09320
00471A   DEA0 80C2 =0047E0              OC     WORK,READ1           YES, CLEAR CHARACTER       M6A09330
00471E   9BA2                           RDR    WORK,R2                                         M6A09340
004720   4300 FB7A =00429E              B      TTYCHK               BRANCH                     M6A09350
004724   9DA2                 TTYSNS    SSR    WORK,R2              IS CONSOLE DEV IN SYSTEM ? M6A09360
004726   2041                           BTBS   4,1                  NO, WAIT                   M6A09370
004728   4300 FB72 =00429E              B      TTYCHK               YES, BRANCH                M6A09380
                              *                                                                M6A09390
                              * * * * * * * * * * * * * * * * * * * * * * * * * * *            M6A09400
                              *                                                   *            M6A09410
                              *                     T S T N U M                   *            M6A09420
                              *                                                   *            M6A09430
                              * THIS ROUTINE STORES THE CURRENT SUBTEST NUMBER IN *            M6A09440
                              * THE ERROR MESSAGE AND ALSO PRINTS IT ON THE TTY.  *            M6A09450
                              * RETRN = THE RETURN ADDRESS.                       *            M6A09460
                              *                                                   *            M6A09470
                              * * * * * * * * * * * * * * * * * * * * * * * * * * *            M6A09480
                              *                                                                M6A09490
00472C   D390 8227 =004957    TSTNUM    LB     R9,SUBTST            LOAD CURRENT SUBTEST NUMBER M6A09500
004730   41F0 FF9A =0046CE              BAL    LINK,CONVERT         CONVERT TO ASCII CHARACTERS M6A09510
004734   0004                           DC     X'4'                 SHIFT INDEX                M6A09520
004736   4844                           DC     Z(SUBNUM)            STORE INDEX                M6A09530
004738   7390 8108 =004844              LHL    R9,SUBNUM            LOAD ASCII VALUE OF SUBTEST NUMBER M6A09540
00473C   4090 80E8 =004828              STH    R9,TT                STORE SUBTEST NUMBER IN ERROR MSG M6A09550
004740   D390 8216 =00495A              LB     R9,CONTFLG           IS CONTINUE FLAG SET       M6A09560
004744   0899                           LR     R9,R9                                           M6A09570
004746   023E                           BNZR   RETRN                YES, RETURN TO SUBTEST     M6A09580
004748   41F0 FEF0 =00463C              BAL    LINK,PRINT           NO, PRINT SUBTEST NUMBER   M6A09590
00474C   4844                           DC     Z(SUBNUM)            START ADRS OF MESSAGE      M6A09600
00474E   4847                           DC     Z(ENDMSG)            END ADRS OF MESSAGE        M6A09610
004750   030E                           BR     RETRN                RETURN TO SUBTEST          M6A09620
                              *                                                                M6A09630
                              * * * * * * * * * * * * * * * * * * * * * * * * * * *            M6A09640
                              *                                                   *            M6A09650
                              *                      E R R O R                    *            M6A09660
                              *                                                   *            M6A09670
                              * THIS ROUTINE PRINTS THE FOLLOWING MESSAGE:        *            M6A09680
                              *                                                   *            M6A09690
                              *    TT  XXXXX  YYYYYYYY  ZZZZZZZZ                  *            M6A09700
                              *                                                   *            M6A09710
                              * TT = THE SUBTEST NUMBER THE ERROR OCCURED IN      *            M6A09720
                              * XXXXX = THE ADDRESS OF THE LOCATION UNDER TEST    *            M6A09730
                              * YYYYYYYY = THE CORRECT DATA EXPECTED              *            M6A09740
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                               975  * ZZZZZZZZ = THE INCORRECT DATA READ                   *                M6A09750
                               976  *                                                     *                M6A09760
                               977  * R4 = MEMORY LOCATION UNDER TEST                      *                M6A09770
                               978  * R9 = EXPECTED DATA                                   *                M6A09780
                               979  * R10= DATA READ                                       *                M6A09790
                               980  * LINK = THE RETURN ADDRESS                            *                M6A09800
                               981  *                                                     *                M6A09810
                               982  * * * * * * * * * * * * * * * * * * * * * * * * * * * *                M6A09820
                               983  *                                                                      M6A09830
004752  D000 826A =0049C0      984  ERROR     STM   R0,REGSAV10        SAVE TEST REGISTERS                 M6A09840
004756  D3B0 8084 =0047DE      985            LB    R11,ADDRESS        LOAD CONSOLE DEVICE ADDRESS         M6A09850
00475A  24FF                   986            LIS   LINK,X'F'                                              M6A09860
00475C  D2F0 81F8 =004958      987            STB   LINK,ERRFLG        SET ERROR FLAG                      M6A09870
004760  24F1                   988            LIS   LINK,1                                                 M6A09880
004762  51F0 820A =004970      989            AM    LINK,TOTALERR      INCREMENT ERROR COUNT               M6A09890
004766  238D                   990            BNCS  CONT7              CONTINUE UNTIL COUNT = X'FFFFFFFF'  M6A09900
004768  9DBA                   991            SSR   R11,R10            IS TTY DU ?                         M6A09910
00476A  21C2                   992            BTFS  12,QRZ                                                 M6A09920
00476C  231A                   993            BNMS  CONT7              NO, CONTINUE WITH ROUTINE           M6A09930
00476E  2541                   994  QRZ       LCS   R4,1                                                   M6A09940
004770  5040 81FC =004970      995            ST    R4,TOTALERR                                            M6A09950
004774  41E0 FEA0 =004618      996            BAL   RETRN,WRITE2       YES WRITE Y'FFFFFFFF' ON DISPLAY    M6A09960
004778  F810 0000 80F0         997            LI    R1,Y'80F0'         GET HALT PSW                        M6A09970
00477E  9501                   998            EPSR  R0,R1              HALT PROCESR,TEST HAS AN ERROR      M6A09980
004780  9DBA                   999  CONT7     SSR   R11,R10                                                M6A09990
004782  C3A0 0020             1000            THI   R10,X'20'                                              M6A10000
004786  4230 8032 =0047BC     1001            BNZ   BRKWAIT                                                M6A10010
00478A  5890 8242 =0049D0     1002            L     R9,REGSAV14        LOAD ADRS WHERE ERROR OCCURED       M6A10020
00478E  41F0 FF3C =0046CE     1003            BAL   LINK,CONVERT       CONVERT TO ASCII CHARACTERS         M6A10030
004792  0010                  1004            DC    X'10'              SHIFT INDEX                         M6A10040
004794  482C                  1005            DC    Z(XXXXX)           STORE INDEX                         M6A10050
004796  5890 824A =0049E4     1006            L     R9,REGSAV19        LOAD EXPECTED DATA                  M6A10060
00479A  41F0 FF30 =0046CE     1007            BAL   LINK,CONVERT       CONVERT TO ASCII CHARACTERS         M6A10070
00479E  001C                  1008            DC    X'1C'              SHIFT INDEX                         M6A10080
0047A0  4834                  1009            DC    Z(YYYYYYYY)        STORE INDEX                         M6A10090
0047A2  5890 8242 =0049E8     1010            L     R9,REGSAV1A        LOAD DATA READ                      M6A10100
0047A6  41F0 FF24 =0046CE     1011            BAL   LINK,CONVERT       CONVERT TO ASCII CHARACTERS         M6A10110
0047AA  001C                  1012            DC    X'1C'              SHIFT INDEX                         M6A10120
0047AC  483E                  1013            DC    Z(ZZZZZZZZ)        STORE INDEX                         M6A10130
0047AE  41F0 FE8A =00463C     1014  RTN       BAL   LINK,PRINT         PRINT ERROR MESSAGE                 M6A10140
0047B2  4828                  1015            DC    Z(TT)              START ADRS OF MESSAGE               M6A10150
0047B4  4847                  1016            DC    Z(ENDMSG)          END ADRS OF MESSAGE                 M6A10160
0047B6  D100 8206 =0049C0     1017            LM    R0,REGSAV10        PICK UP TEST REGISTERS              M6A10170
0047BA  030F                  1018            BR    LINK               RETURN TO SUBTEST                   M6A10180
0047BC  73E0 8192 =004952     1019  BRKWAIT   LHL   RETRN,CRTFLG       IS CONSOLE DEV ON PASLA ?           M6A10190
0047C0  2335                  1020            BZS   BRKWAIT1           NO, BRANCH                          M6A10200
0047C2  DEB0 801A =0047E0     1021            OC    R11,READ1          YES, CLEAR CHARACTER                M6A10210
0047C6  9BBE                  1022            RDR   R11,RETRN                                              M6A10220
0047C8  2303                  1023            BS    RTN5                                                   M6A10230
0047CA  9DBA                  1024  BRKWAIT1  SSR   R11,R10            WAIT FOR BUSY TO DROP               M6A10240
0047CC  2041                  1025            BTBS  4,1                                                    M6A10250
0047CE  D100 81EE =0049C0     1026  RTN5      LM    R0,REGSAV10        PICK UP TESTING RFGISTERS           M6A10260
0047D2  4300 FA58 =00422E     1027            B     SUBCHK             RETURN                              M6A10270
                              1028  ***********************************************************************  M6A10280
                              1029  *                                                                      M6A10290
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0047D6   0200                1030  PAT1      DC     X'200'                                                 M6A10300
0047D8   0010                1031  PAT2      DC     X'10'                                                  M6A10310
0047DA   0220                1032  PAT3      DC     X'220'                                                 M6A10320
0047DC   0014                1033  PAT4      DC     X'14'                                                  M6A10330
0047DE   00                  1034  ADDRESS   DB     X'0'                 CONSOLE DEV ADDRESS               M6A10340
0047DF   F8                  1035  PADSET    DB     X'F8'                PASLA SETUP COMMAND               M6A10350
0047E0   A498                1036  READ1     DC     X'A498'              CONSOLE DEV COMMANDS              M6A10360
         0000 47E1           1037  WRITE1    EQU    *-1                                                    M6A10370
                             1038  *                                                                       M6A10380
                             1039  ***********************************************************************  M6A10390
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                          1041  *                                                                   M6A10410
                          1042  * * * * * * * * * * * * * * * * * * * * * * * * * * *               M6A10420
                          1043  *                                                   *               M6A10430
                          1044  *                  M E S S A G E S                  *               M6A10440
                          1045  *                                                   *               M6A10450
                          1046  * * * * * * * * * * * * * * * * * * * * * * * * * * *               M6A10460
                          1047  *                                                                   M6A10470
0047E2  0D0A              1048  TITLE    DC    X'0D0A',C'32 BIT S6A MEMORY TEST 06-157F01R01',X'0D0A'    M6A10480
0047E4  3332 2042 4954 2053
0047EC  3641 204D 454D 4F52
0047F4  5920 5445 5354 2030
0047FC  362D 3135 3746 3031
004804  5230 3120
004808  0D0A
        0000 4809         1049  ENDOF    EQU   *-1                                                  M6A10490
                          1050  *                                                                   M6A10500
                          1051  *                                                                   M6A10510
00480A  4156 4149 4C41 424C 1052  MEMSG    DC    C'AVAILABLE MEMORY',X'0D0A',C'0000-3FFF',X'0D0A'      M6A10520
004812  4520 4D45 4D4F 5259
00481A  0D0A
00481C  3030 3030 2D33 4646
004824  4620
004826  0D0A
        0000 4827         1053  END      EQU   *-1                                                  M6A10530
                          1054  *                                                                   M6A10540
                          1055  *                                                                   M6A10550
                          1056  * ERROR MESSAGE    TT  XXXXX  YYYYYYYY  ZZZZZZZZ                      M6A10560
                          1057  *                                                                   M6A10570
004828  0000 2020         1058  TT       DC    Y'2020'                                              M6A10580
00482C  0000 0000         1059  XXXXX    DC    Y'0',Y'2020'                                         M6A10590
004830  0000 2020
004834  0000 0000         1060  YYYYYYYY DC    Y'0',Y'0',X'2020'                                    M6A10600
004838  0000 0000
00483C  2020
00483E  0000 0000         1061  ZZZZZZZZ DC    Y'0',X'0'                                            M6A10610
004842  0000
004844  0000 0D0A         1062  SUBNUM   DC    Y'0D0A'                                              M6A10620
        0000 4847         1063  ENDMSG   EQU   *-1                                                  M6A10630
                          1064  *                                                                   M6A10640
004846  0D0A              1065  TYPEMSG  DC    X'0D0A',C'TYPE= '                                    M6A10650
00484A  5459 5045 3D20
        0000 484F         1066  TYPEND   EQU   *-1                                                  M6A10660
        0000 484F         1067  TYPNO    EQU   TYPEND                                               M6A10670
                          1068  *                                                                   M6A10680
                          1069  *                                                                   M6A10690
004850  0D0A              1070  QUEST    DC    X'0D0A',C'? '        CR,LF,?,CR,LF                   M6A10700
004852  3F20
004854  0D0A              1071           DC    X'0D0A',C'* '        CR,LF,*                         M6A10710
004856  2A20
        0000 4857         1072  QUEND    EQU   *-1                                                  M6A10720
                          1073  *                                                                   M6A10730
                          1074  *                                                                   M6A10740
004858  0000 0000         1075  TOTALMSG DC    0,0,C' TOTAL '                                       M6A10750
00485C  0000 0000
004860  2054 4F54 414C 2020
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        0000 4867            1076  TOTALEND EQU    *-1                                            M6A10760
004868  4552 524F 5253       1077           DC     C'ERRORS',X'0D0A'                              M6A10770
00486E  0D0A
        0000 486F            1078  ERROREND EQU    *-1                                            M6A10780
                             1079  *                                                              M6A10790
                             1080  *                                                              M6A10800
                             1081  *                                                              M6A10810
004870  0D0A                 1082  MACMSG   DC     X'0D0A',C'MAC ADDRESS = '                      M6A10820
004872  4D41 4320 4144 4452
00487A  4553 5320 3D20
        0000 487F            1083  EDMACMSG EQU    *-1                                            M6A10830
                             1084  *                                                              M6A10840
                             1085  *                                                              M6A10850
004880  0D0A                 1086  TSTMSG   DC     X'0D0A',C'SUBTEST',X'0D0A',C'*'                M6A10860
004882  5355 4254 4553 5420
00488A  0D0A
00488C  2A20
        0000 488D            1087  TSTEND   EQU    *-1                                            M6A10870
                             1088  *                                                              M6A10880
                             1089  *                                                              M6A10890
00488E  4E4F 2045 5252 4F52  1090  NOERR    DC     C'NO ERROR',X'0D0A'                            M6A10900
004896  0D0A
        0000 4897            1091  ERREND   EQU    *-1                                            M6A10910
004898  0D0A                 1092  PARNOMSG DC     X'0D0A'                                        M6A10920
00489A  5641 4C49 4420 5459  1093           DC     C'VALID TYPE NUMBERS ARE: ',X'0D0A'            M6A10930
0048A2  5045 204E 554D 4245
0048AA  5253 2041 5245 3A20
0048B2  0D0A
0048B4  2D54 5950 453D 3020  1094           DC     C'-TYPE=0 FOR 35-491 16KB ',X'0D0A'            M6A10940
0048BC  464F 5220 3335 2D34
0048C4  3931 2031 364B 4220
0048CC  0D0A
0048CE  2D54 5950 453D 3120  1095           DC     C'-TYPE=1 FOR 32-198 32KB ',X'0D0A'            M6A10950
0048D6  464F 5220 3332 2D31
0048DE  3938 2033 324B 4220
0048E6  0D0A
0048E8  2D54 5950 453D 3220  1096           DC     C'-TYPE=2 FOR 32-206 32KB ',X'0D0A'            M6A10960
0048F0  464F 5220 3332 2D32
0048F8  3036 2033 324B 4220
004900  0D0A
004902  2D54 5950 453D 3320  1097           DC     C'-TYPE=3 FOR 32-200 64KB(1000 NS)',X'0D0A'    M6A10970
00490A  464F 5220 3332 2D32
004912  3030 2036 344B 4228
00491A  3130 3030 204E 5329
004922  0D0A
004924  2D54 5950 453D 3420  1098           DC     C'-TYPE=4 FOR 32-209 64KB(750 NS) ',X'0D0A'    M6A10980
00492C  464F 5220 3332 2D32
004934  3039 2036 344B 4228
00493C  3735 3020 4E53 2920
004944  0D0A
004946  5459 5045 3D20       1099           DC     C'TYPE= '                                      M6A10990
        0000 494B            1100  PARNOEND EQU    *-1                                            M6A11000
                             1101  *                                                              M6A11010
                             1102  *                                                              M6A11020
                             1103  *                                                              M6A11030
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                          1104 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *     M6A11040
                          1105 *                                                       *     M6A11050
                          1106 *             D A T A   C O N S T A N T S               *     M6A11060
                          1107 *                                                       *     M6A11070
                          1108 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *     M6A11080
                          1109 *                                                             M6A11090
                          1110 *        NOTE: CONSTANTS USED FOR I/O CONTROL                 M6A11100
                          1111 *                                                             M6A11110
00494C   80               1112 NORM     DB     X'80'                                         M6A11120
00494D   40               1113 INCRMT   DB     X'40'                                         M6A11130
00494E   A498             1114 READ2    DC     X'A498'                                       M6A11140
004950   B9AB             1115 READ3    DC     X'B9AB'                                       M6A11150
004952   0000             1116 CRTFLG   DC     X'0'                                          M6A11160
004954   0000             1117          DC     X'0'                                          M6A11170
                          1118 *                                                             M6A11180
                          1119 *        NOTE: FLAGS USED IN TEST AND I/O                     M6A11190
                          1120 *                                                             M6A11200
004956   00               1121 TSTFLG   DB     0                                             M6A11210
004957   00               1122 SUBTST   DB     0                                             M6A11220
004958   00               1123 ERRFLG   DB     0                                             M6A11230
004959   00               1124 TTYFLG   DB     0                                             M6A11240
00495A   00               1125 CONTFLG  DB     0                                             M6A11250
00495B   00               1126 TYPEFLG  DB     0                                             M6A11260
00495C   0000             1127          DC     X'0'                                          M6A11270
                          1128 *                                                             M6A11280
                          1129 *        NOTE: ADDRESS SAVE LOCATIONS USED IN THIS TEST       M6A11290
                          1130 *                                                             M6A11300
004960                    1131          ALIGN 4                                              M6A11310
004960   0000 0000        1132 LOADR    DC     0                                             M6A11320
004964   0000 0000        1133 HIADR    DC     0                                             M6A11330
004968   0000 0000        1134 MACLOC   DC     0                                             M6A11340
00496C   0000 0000        1135 TOTAL    DC     0                                             M6A11350
004970   0000 0000        1136 TOTALERR DC     0                                             M6A11360
004974   0000             1137 NXTST    DC     X'0'                                          M6A11370
004976   0000             1138 RXTURN   DC     X'0'                                          M6A11380
004978   443A             1139 TYPSTRT  DC     Z(ALGRM1)          STARTING ADDRRESS OF WC TEST M6A11390
                          1140 *                                                             M6A11400
                          1141 *        NOTE: EIGHT SIMULATED REGISTER SETS                  M6A11410
                          1142 *                                                             M6A11420
004980                    1143          ALIGN 8                                              M6A11430
004980   0000 0000        1144 REGSAV00 DC     0                                             M6A11440
004984   0000 0000        1145 REGSAV01 DC     0                                             M6A11450
004988   0000 0000        1146 REGSAV02 DC     0                                             M6A11460
00498C   0000 0000        1147 REGSAV03 DC     0                                             M6A11470
004990   0000 0000        1148 REGSAV04 DC     0                                             M6A11480
004994   0000 0000        1149 REGSAV05 DC     0                                             M6A11490
004998   0000 0000        1150 REGSAV06 DC     0                                             M6A11500
00499C   0000 0000        1151 REGSAV07 DC     0                                             M6A11510
0049A0   0000 0000        1152 REGSAV08 DC     0                                             M6A11520
0049A4   0000 0000        1153 REGSAV09 DC     0                                             M6A11530
0049A8   0000 0000        1154 REGSAV0A DC     0                                             M6A11540
0049AC   0000 0000        1155 REGSAV0B DC     0                                             M6A11550
0049B0   0000 0000        1156 REGSAV0C DC     0                                             M6A11560
0049B4   0000 0000        1157 REGSAV0D DC     0                                             M6A11570
0049B8   0000 0000        1158 REGSAV0E DC     0                                             M6A11580
```

```
0049BC   0000 0000         1159  REGSAV0F  DC     0                                      M6A11590
0049C0   0000 0000         1160  REGSAV10  DC     0                                      M6A11600
0049C4   0000 0000         1161  REGSAV11  DC     0                                      M6A11610
0049C8   0000 0000         1162  REGSAV12  DC     0                                      M6A11620
0049CC   0000 0000         1163  REGSAV13  DC     0                                      M6A11630
0049D0   0000 0000         1164  REGSAV14  DC     0                                      M6A11640
0049D4   0000 0000         1165  REGSAV15  DC     0                                      M6A11650
0049D8   0000 0000         1166  REGSAV16  DC     0                                      M6A11660
0049DC   0000 0000         1167  REGSAV17  DC     0                                      M6A11670
0049E0   0000 0000         1168  REGSAV18  DC     0                                      M6A11680
0049E4   0000 0000         1169  REGSAV19  DC     0                                      M6A11690
0049E8   0000 0000         1170  REGSAV1A  DC     0                                      M6A11700
0049EC   0000 0000         1171  REGSAV1B  DC     0                                      M6A11710
0049F0   0000 0000         1172  REGSAV1C  DC     0                                      M6A11720
0049F4   0000 0000         1173  REGSAV1D  DC     0                                      M6A11730
0049F8   0000 0000         1174  REGSAV1E  DC     0                                      M6A11740
0049FC   0000 0000         1175  REGSAV1F  DC     0                                      M6A11750
004A00   0000 0000         1176  REGSAV20  DC     0                                      M6A11760
004A04   0000 0000         1177  REGSAV21  DC     0                                      M6A11770
004A08   0000 0000         1178  REGSAV22  DC     0                                      M6A11780
004A0C   0000 0000         1179  REGSAV23  DC     0                                      M6A11790
004A10   0000 0000         1180  REGSAV24  DC     0                                      M6A11800
004A14   0000 0000         1181  REGSAV25  DC     0                                      M6A11810
004A18   0000 0000         1182  REGSAV26  DC     0                                      M6A11820
004A1C   0000 0000         1183  REGSAV27  DC     0                                      M6A11830
004A20   0000 0000         1184  REGSAV28  DC     0                                      M6A11840
004A24   0000 0000         1185  REGSAV29  DC     0                                      M6A11850
004A28   0000 0000         1186  REGSAV2A  DC     0                                      M6A11860
004A2C   0000 0000         1187  REGSAV2B  DC     0                                      M6A11870
004A30   0000 0000         1188  REGSAV2C  DC     0                                      M6A11880
004A34   0000 0000         1189  REGSAV2D  DC     0                                      M6A11890
004A38   0000 0000         1190  REGSAV2E  DC     0                                      M6A11900
004A3C   0000 0000         1191  REGSAV2F  DC     0                                      M6A11910
004A40   0000 0000         1192  REGSAV30  DC     0                                      M6A11920
004A44   0000 0000         1193  REGSAV31  DC     0                                      M6A11930
004A48   0000 0000         1194  REGSAV32  DC     0                                      M6A11940
004A4C   0000 0000         1195  REGSAV33  DC     0                                      M6A11950
004A50   0000 0000         1196  REGSAV34  DC     0                                      M6A11960
004A54   0000 0000         1197  REGSAV35  DC     0                                      M6A11970
004A58   0000 0000         1198  REGSAV36  DC     0                                      M6A11980
004A5C   0000 0000         1199  REGSAV37  DC     0                                      M6A11990
004A60   0000 0000         1200  REGSAV38  DC     0                                      M6A12000
004A64   0000 0000         1201  REGSAV39  DC     0                                      M6A12010
004A68   0000 0000         1202  REGSAV3A  DC     0                                      M6A12020
004A6C   0000 0000         1203  REGSAV3B  DC     0                                      M6A12030
004A70   0000 0000         1204  REGSAV3C  DC     0                                      M6A12040
004A74   0000 0000         1205  REGSAV3D  DC     0                                      M6A12050
004A78   0000 0000         1206  REGSAV3E  DC     0                                      M6A12060
004A7C   0000 0000         1207  REGSAV3F  DC     0                                      M6A12070
004A80   0000 0000         1208  REGSAV40  DC     0                                      M6A12080
004A84   0000 0000         1209  REGSAV41  DC     0                                      M6A12090
004A88   0000 0000         1210  REGSAV42  DC     0                                      M6A12100
004A8C   0000 0000         1211  REGSAV43  DC     0                                      M6A12110
004A90   0000 0000         1212  REGSAV44  DC     0                                      M6A12120
004A94   0000 0000         1213  REGSAV45  DC     0                                      M6A12130
```

```
004A98   0000 0000           1214  REGSAV46 DC     0                                                            M6A12140
004A9C   0000 0000           1215  REGSAV47 DC     0                                                            M6A12150
004AA0   0000 0000           1216  REGSAV48 DC     0                                                            M6A12160
004AA4   0000 0000           1217  REGSAV49 DC     0                                                            M6A12170
004AA8   0000 0000           1218  REGSAV4A DC     0                                                            M6A12180
004AAC   0000 0000           1219  REGSAV4B DC     0                                                            M6A12190
004AB0   0000 0000           1220  REGSAV4C DC     0                                                            M6A12200
004AB4   0000 0000           1221  REGSAV4D DC     0                                                            M6A12210
004AB8   0000 0000           1222  REGSAV4E DC     0                                                            M6A12220
004ABC   0000 0000           1223  REGSAV4F DC     0                                                            M6A12230
004AC0   0000 0000           1224  REGSAV50 DC     0                                                            M6A12240
004AC4   0000 0000           1225  REGSAV51 DC     0                                                            M6A12250
004AC8   0000 0000           1226  REGSAV52 DC     0                                                            M6A12260
004ACC   0000 0000           1227  REGSAV53 DC     0                                                            M6A12270
004AD0   0000 0000           1228  REGSAV54 DC     0                                                            M6A12280
004AD4   0000 0000           1229  REGSAV55 DC     0                                                            M6A12290
004AD8   0000 0000           1230  REGSAV56 DC     0                                                            M6A12300
004ADC   0000 0000           1231  REGSAV57 DC     0                                                            M6A12310
004AE0   0000 0000           1232  REGSAV58 DC     0                                                            M6A12320
004AE4   0000 0000           1233  REGSAV59 DC     0                                                            M6A12330
004AE8   0000 0000           1234  REGSAV5A DC     0                                                            M6A12340
004AEC   0000 0000           1235  REGSAV5B DC     0                                                            M6A12350
004AF0   0000 0000           1236  REGSAV5C DC     0                                                            M6A12360
004AF4   0000 0000           1237  REGSAV5D DC     0                                                            M6A12370
004AF8   0000 0000           1238  REGSAV5E DC     0                                                            M6A12380
004AFC   0000 0000           1239  REGSAV5F DC     0                                                            M6A12390
004B00   0000 0000           1240  REGSAV60 DC     0                                                            M6A12400
004B04   0000 0000           1241  REGSAV61 DC     0                                                            M6A12410
004B08   0000 0000           1242  REGSAV62 DC     0                                                            M6A12420
004B0C   0000 0000           1243  REGSAV63 DC     0                                                            M6A12430
004B10   0000 0000           1244  REGSAV64 DC     0                                                            M6A12440
004B14   0000 0000           1245  REGSAV65 DC     0                                                            M6A12450
004B18   0000 0000           1246  REGSAV66 DC     0                                                            M6A12460
004B1C   0000 0000           1247  REGSAV67 DC     0                                                            M6A12470
004B20   0000 0000           1248  REGSAV68 DC     0                                                            M6A12480
004B24   0000 0000           1249  REGSAV69 DC     0                                                            M6A12490
004B28   0000 0000           1250  REGSAV6A DC     0                                                            M6A12500
004B2C   0000 0000           1251  REGSAV6B DC     0                                                            M6A12510
004B30   0000 0000           1252  REGSAV6C DC     0                                                            M6A12520
004B34   0000 0000           1253  REGSAV6D DC     0                                                            M6A12530
004B38   0000 0000           1254  REGSAV6E DC     0                                                            M6A12540
004B3C   0000 0000           1255  REGSAV6F DC     0                                                            M6A12550
004B40   0000 0000           1256  REGSAV70 DC     0                                                            M6A12560
004B44   0000 0000           1257  REGSAV71 DC     0                                                            M6A12570
004B48   0000 0000           1258  REGSAV72 DC     0                                                            M6A12580
004B4C   0000 0000           1259  REGSAV73 DC     0                                                            M6A12590
004B50   0000 0000           1260  REGSAV74 DC     0                                                            M6A12600
004B54   0000 0000           1261  REGSAV75 DC     0                                                            M6A12610
004B58   0000 0000           1262  REGSAV76 DC     0                                                            M6A12620
004B5C   0000 0000           1263  REGSAV77 DC     0                                                            M6A12630
004B60   0000 0000           1264  REGSAV78 DC     0                                                            M6A12640
004B64   0000 0000           1265  REGSAV79 DC     0                                                            M6A12650
004B68   0000 0000           1266  REGSAV7A DC     0                                                            M6A12660
004B6C   0000 0000           1267  REGSAV7B DC     0                                                            M6A12670
004B70   0000 0000           1268  REGSAV7C DC     0                                                            M6A12680
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                                                                                                             M6A12690
004B74    0000 0000            1269  REGSAV7D DC     0                                                       M6A12700
004B78    0000 0000            1270  REGSAV7E DC     0                                                       M6A12710
004B7C    0000 0000            1271  REGSAV7F DC     0                                                       M6A12720
004B80    0000 0000            1272  REGSAVF0 DC     0                                                       M6A12730
004B84    0000 0000            1273  REGSAVF1 DC     0                                                       M6A12740
004B88    0000 0000            1274  REGSAVF2 DC     0                                                       M6A12750
004B8C    0000 0000            1275  REGSAVF3 DC     0                                                       M6A12760
004B90    0000 0000            1276  REGSAVF4 DC     0                                                       M6A12770
004B94    0000 0000            1277  REGSAVF5 DC     0                                                       M6A12780
004B98    0000 0000            1278  REGSAVF6 DC     0                                                       M6A12790
004B9C    0000 0000            1279  REGSAVF7 DC     0                                                       M6A12800
004BA0    0000 0000            1280  REGSAVF8 DC     0                                                       M6A12810
004BA4    0000 0000            1281  REGSAVF9 DC     0                                                       M6A12820
004BA8    0000 0000            1282  REGSAVFA DC     0                                                       M6A12830
004BAC    0000 0000            1283  REGSAVFB DC     0                                                       M6A12840
004BB0    0000 0000            1284  REGSAVFC DC     0                                                       M6A12850
004BB4    0000 0000            1285  REGSAVFD DC     0                                                       M6A12860
004BB8    0000 0000            1286  REGSAVFE DC     0                                                       M6A12870
004BBC    0000 0000            1287  REGSAVFF DC     0                                                       M6A12880
          0000 4BC0            1288  LNZB     EQU    *                                                       M6A12890
                               1289  *                                                                       M6A12900
                               1290  ********************************************************************** M6A12910
                               1291  *                                                                       M6A12920
004BC0                         1292  PSWSAVE  DS     16                                                      M6A12930
004BD0                         1293  TABLE    DS     12                                                      M6A12940
004BDC                         1294  RSAVE    DS     128                                                     M6A12950
                               1295  *
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```
004C5C   2400                 1297  $CHKSUM  LIS   R0,0              PUNCH M17 TAPE WITH CHECKSUM             M6A12970
004C5E   9510                 1298           EPSR  R1,R0             SELECT REG. SET 0 & CLEAR PSW     ***    M6A12980
                              1299  *                                                                         M6A12990
004C60   E610 F39C =004000    1300           LDAI  R1,ORIGIN1        LOAD START ADDRESS                       M6A13000
004C64   2421                 1301           LIS   R2,1              LOAD INCREMENT VALUE                     M6A13010
004C66   E630 FF56 =004BC0    1302           LDAI  R3,LNZB           LOAD FINAL ADDRESS                       M6A13020
004C6A   2440                 1303           LIS   R4,0              INITIALIZE CHKSUM BYTE                   M6A13030
                              1304  *                                                                         M6A13040
004C6C   D351 0000            1305  $GEN     LB    R5,0(R1)                                                   M6A13050
004C70   0745                 1306           XAR   R4,R5             CALCULATE CHKSUM BYTE                    M6A13060
004C72   C110 FFF6 =004C6C    1307           BXLE  R1,$GEN                                                    M6A13070
004C76   D240 0099            1308           STB   R4,MN+3           CHECKSUM BYTE TO BOOT LOADER             M6A13080
                              1309  *                                                                         M6A13090
004C7A   C810 0080            1310  $TAPE    LHI   R1,X'0080'                                                 M6A13100
004C7E   9E21                 1311           OCR   R2,R1             DISPLAY IN NORMAL MODE                   M6A13110
004C80   9444                 1312           EXBR  R4,R4                                                      M6A13120
004C82   9824                 1313           WHR   R2,R4             DISPLAY CHKSUM BYTE (TO D1)              M6A13130
004C84   9411                 1314           EXBR  R1,R1                                                      M6A13140
004C86   9501                 1315           EPSR  R0,R1             HALT PROCESSOR.                          M6A13150
                              1316  *                                                                         M6A13160
                              1317  *******************************************************************       M6A13170
                              1318  *                                                                         M6A13180
004C88   D360 007A            1319  $PUNCH   LB    R6,X'7A'          GET BOUTDV (PUNCH) ADDRESS.              M6A13190
004C8C   DE60 007B            1320           OC    R6,X'7B'          START TAPE PUNCH                         M6A13200
004C90   9D60                 1321           SSR   R6,R0                                                      M6A13210
004C92   2081                 1322           BTBS  8,1                                                        M6A13220
004C94   41F0 803E =004CD6    1323           BAL   LINK,$TAPL        PUNCH LEADER (256 CHARACTERS)            M6A13230
004C98   9411                 1324           EXBR  R1,R1             (R1) = X'0080'                           M6A13240
004C9A   C830 00CF            1325           LHI   R3,X'CF'                                                   M6A13250
                              1326  *                                                                         M6A13260
004C9E   DA61 0000            1327  $PNCH1   WD    R6,0(R1)          PUNCH BOOT LOADER                        M6A13270
004CA2   9D60                 1328           SSR   R6,R0                                                      M6A13280
004CA4   2081                 1329           BTBS  8,1                                                        M6A13290
004CA6   C110 FFF4 =004C9E    1330           BXLE  R1,$PNCH1                                                  M6A13300
004CAA   41F0 802E =004CDC    1331           BAL   LINK,$TAPL1       PUNCH ONE-FOLD GAP.                      M6A13310
                              1332  *                                                                         M6A13320
004CAE   D340 0099            1333           LB    R4,MN+3           GET CHECKSUM BYTE                        M6A13330
004CB2   E610 F34A =004000    1334           LDAI  R1,ORIGIN1        (NORMALLY X'A00')                        M6A13340
004CB6   E630 FF06 =004BC0    1335           LDAI  R3,LNZB                                                    M6A13350
                              1336  *                                                                         M6A13360
004CBA   D351 0000            1337  $PNCH2   LB    R5,0(R1)          PUNCH PROGRAM                            M6A13370
004CBE   0745                 1338           XAR   R4,R5             (ORIGIN1 TO LNZB)                        M6A13380
004CC0   9A65                 1339           WDR   R6,R5                                                      M6A13390
004CC2   9401                 1340           EXBR  R0,R1                                                      M6A13400
004CC4   9820                 1341           WHR   R2,R0             DISPLAY ADDRESS PUNCHED                  M6A13410
004CC6   9D60                 1342           SSR   R6,R0                                                      M6A13420
004CC8   2081                 1343           BTBS  8,1                                                        M6A13430
004CCA   C110 FFEC =004CBA    1344           BXLE  R1,$PNCH2                                                  M6A13440
004CCE   41F0 8004 =004CD6    1345           BAL   LINK,$TAPL        PUNCH TRAILER.                           M6A13450
004CD2   4300 FFA4 =004C7A    1346           B     $TAPE             DISPLAY CHECKSUM, HALT PROCESSOR.        M6A13460
                              1347  *                                                                         M6A13470
004CD6   C800 0100            1348  $TAPL    LHI   R0,256            TO PUNCH BLANK LEADER                    M6A13480
004CDA   2303                 1349           BS    $TAPLP                                                     M6A13490
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CHKSUM/M17 PUNCHER

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                                     1350  *                                                                M6A13500
004CDC   C800 0080                   1351  $TAPL1    LHI    R0,128            TO PUNCH 1-FOLD GAP      ***  M6A13510
                                     1352  *                                                                M6A13520
004CE0   2701                        1353  $TAPLP    SIS    R0,1                                            M6A13530
004CE2   032F                        1354            BNPR   LINK              RETURN                        M6A13540
004CE4   2430                        1355            LIS    R3,0                                            M6A13550
004CE6   9A63                        1356            WDR    R6,R3             PUNCH BLANK FRAME             M6A13560
004CE8   9D68                        1357            SSR    R6,R8                                           M6A13570
004CEA   2081                        1358            BTBS   8,1                                             M6A13580
004CEC   2206                        1359            BS     $TAPLP            CONTINUE.                     M6A13590
                                     1360  *                                                                M6A13600
004CEE                               1361            END                                                    M6A13610
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    CHKSUM/M17 PUNCHER

ASSEMBLED BY CAL 03-066R05-00   (32-BIT)

START OPTIONS:  SCR,CRO,T=32

   NO CAL ERRORS
   NO CAL WARNINGS
    2 PASSES

 $CHKSUM   0000 4C5C       1297*
 $GEN      0000 4C6C       1305*  1307
 $PNCH1    0000 4C9E       1327*  1330
 $PNCH2    0000 4CBA       1337*  1344
 $PUNCH    0000 4C88       1319*
 $TAPE     0000 4C7A       1310*  1346
 $TAPL     0000 4CD6       1323   1345   1348*
 $TAPL1    0000 4CDC       1331   1351*
 $TAPLP    0000 4CE0       1349   1353*  1359
 ABSTOP    0000 4CEE
 ADC       0000 0004
 ADDRESS   0000 47DE        207    214    804    863    927    985   1034*
 ALGRM1    0000 443A        585*  1139
 ALGRM2    0000 4534        685*
 BOOT      0000 0088        142    145*
 BRKWAIT   0000 47BC       1001   1019*
 BRKWAIT1  0000 47CA       1020   1024*
 BT00      0000 445C        597*   600
 BT001     0000 4550        695*
 BT01      0000 4466        601*
 BT011     0000 4556        694    697*
 BT0CH2    0000 4462        596    599*
 BT10      0000 4472        606*   609
 BT101     0000 4562        702*
 BT11      0000 447C        610*
 BT111     0000 4568        701    704*
 BT1CH2    0000 4478        605    608*
 BT1ONE    0000 446C        593    603*
 BT1ZR1    0000 454A        692*
 BT1ZRO    0000 4456        591    594*
 CHECKR    0000 46C2        868    877*   879
 CHKA2     0000 44BE        633    635    637*
 CHKBT3    0000 455C        691    699*
 CHKDB1    0000 45A2        724    726*
 CHKDT1    0000 44A6        625*   675
 CHKDT2    0000 458E        717*
 CHKDT3    0000 4592        718*   762
 CHKDT4    0000 45A4        721    727*
 CHKDT5    0000 45AE        729    732*
 CHKDT6    0000 45B0        726    731    733*
 CHKDT7    0000 45E8        745    750    752*
 CHKDTA    0000 44A2        623*
 CHKDTE    0000 44CE        637    641    643    645*
 CHKDTG    0000 450A        650    658    663    665*
 CHKEND    0000 460E        676    765*
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```
CMD        0000 4654       810     812*
COMP1      0000 44DE       648     651*
COMP11     0000 45BC       736     738*
COMP2      0000 44F8       656     659*
COMP21     0000 45D6       743     746*
CONT02     0000 4668       816     819*
CONT7      0000 4780       990     993     999*
CONT9      0000 46EC       905     907*
CONTFLG    0000 495A       278     299     396     419     924     956     1125*
CONVERT    0000 46CE       432     439     898*    951     1003    1007    1011
CONVERT1   0000 46D6       900*    912
CRCHK      0000 4140       297     301*
CRT        0000 403E       203     211*
CRTADR     0000 4012       191*    213
CRTFLG     0000 4952       209     217     809     824     867     931     1019    1116*
DEVCHK     0000 401C       201*
DT1ONE     0000 44C0       630     638*
DT1ZRO     0000 44B2       628     631*
EDMACMSG   0000 487F       239     1083*
ENABLE1    0000 40CE       182     267*
ENBMAC     0000 4078       185     237*    247     249     253     263
END        0000 4827       230     308     309     1053*
ENDMSG     0000 4847       961     1016    1063*
ENDOF      0000 4809       225     1049*
ERREND     0000 4897       401     1091*
ERRFLG     0000 4958       276     393     403     987     1123*
ERROR      0000 4752       649     657     664     737     744     751     984*
ERROREND   0000 486F       444     1078*
EXECUTE    0000 4058       210     220*
FWR        0000 46FE       765     924*
GOREAD     0000 4084       242*    254
HIADR      0000 4964       234     618     673     712     760     1133*
IMPTOP     0000 0000I
INCRMT     0000 494D       781     1113*
IO         0000 4010       190*    201
LADC       0000 0002
LCHK       0000 412E       295*
LDTA2      0000 446A       598     602*
LDTA3      0000 4476       602     607*
LDWT       0000 00C8       168*    171
LEADER     0000 00A2       152*    156
LINK       0000 000F       126*    223     228     237     242     271     274     279     289     295     303     307     346
                           347     358     399     432     435     439     442     460     466     475     481     490     496
                           505     511     520     526     535     541     550     556     565     571     585     649     657
                           664     685     737     744     751     765     782     783     783     784     785     785     786
                           786     787     790     791     818     819     820     825     831     850     898     899     909
                           926     930     951     959     986     987     988     989     1003    1007    1011    1014    1018
                           1323    1331    1345    1354
LNZB       0000 4BC0       146     1288*   1302    1335
LOAD       0000 00AC       157*    165
LOADE1     0000 456C       698     703     705*
LOADED     0000 4480       607     611*
LOADR      0000 4960       232     588     623     688     717     1132*
```

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LODTA0        0000 444A        589*    620
LODTA1        0000 4538        686*
LODTA3        0000 4544        689*    714
LODTA4        0000 455A        696     698*
LODTAQ        0000 443E        586*
MACGO         0000 40B0        245     255*
MACLOC        0000 4968        264     615     670     709     757    1134*
MACMSG        0000 4870        236    1082*
MACOK         0000 40CA        256     258     260     262     264*
MEMSG         0000 480A        229    1052*
MN            0000 0096        149*   1308    1333
NOERR         0000 488E        400    1090*
NORM          0000 494C        789    1112*
NXTST         0000 4974        585     685     766    1137*
OKIN          0000 4152        300     302     307*
ORIGIN1       0000 4000        145     179*   1300    1334
PADSET        0000 47DF        215    1035*
PARNOEND      0000 494B        360    1100*
PARNOMSG      0000 4898        359    1092*
PASSENS       0000 46B8        872*    873
PAT1          0000 47D6        686    1030*
PAT2          0000 47D8        687    1031*
PAT3          0000 47DA        378     386     586    1032*
PAT4          0000 47DC        380     388     587    1033*
PRDU          0000 4660        808     815     817*
PRINT         0000 463C        223     228     237     271     279     303     307     358     399     435     442     804*    959
                              1014
PRTMSG        0000 40E8        275*    430     445     880
PRTMSG1       0000 410E        284     287*
PRTTITLE      0000 4058        223*
PRTTOT        0000 42A8        431*
PSWSAVE       0000 4BC0        143    1292*
PURETOP       0000 0000P
QRZ           0C00 476E        992     994*
QUEND         0000 4857        305    1072*
QUEST         0000 4850        304    1070*
R0            0000 0000        113*    198     201     202     204     205     206     207     208     208     209     211     212
                               213     214     216     217     268     286     316     317     589     590     592     594     595
                               599     603     604     608     626     627     629     631     632     634     639     640     642
                               651     659     689     690     692     693     699     700     719     720     722     723     727
                               728     738     746     984     998    1017    1026    1297    1298    1315    1321    1328    1340
                              1341    1342    1348    1351    1353
R1            0000 0001        114*    145     157     158     160     165     197     198     231     232     233     234     240
                               250     251     255     255     257     259     261     264     267     268     269     270     275
                               275     276     277     278     285     286     287     288     310     311     312     313     393
                               394     394     396     397     397     402     402     403     405     406     406     414     415
                               449     450     451     997     998    1298    1300    1305    1307    1310    1311    1314    1314
                              1315    1324    1324    1327    1330    1334    1337    1340    1344
R10           0000 000A        123*    423     425     426     428     429     429     646     647     654     655     661     662
                               734     735     741     742     748     749     805     806     807     809     813     822     824
                               826     826     827     828     864     865     869     872     877     878     991     999    1000
                              1024
R11           0000 000B        124*    215     423     586     590     592     627     629     686     690     720     804     805
```

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                         811    812    813    817    821    822    827    828    830    845    846    848    863
                         864    871    872    877    985    991    999    1021   1022   1024
R12           0000 000C  125*   587    595    599    604    608    632    634    640    642    687    693    700
                         723    728    819    821    899    907    911
R13           0000 000D  126*   459    460    465    466    474    475    480    481    489    490    495    496
                         504    505    510    511    519    520    525    526    534    535    540    541    549
                         550    555    556    564    565    570    571    820
R2            0000 0002  115*   141    161    167    419    420    420    867    871    874    874    924    925
                         925    928    929    931    934    936    1301   1311   1313   1341
R3            0000 0003  116*   146    147    148    404    408    409    411    413    1302   1325   1335   1355
                         1356
R4            0000 0004  117*   150    151    152    154    162    164    315    416    588    589    594    597
                         601    603    606    610    611    612    617    619    623    626    631    639    646
                         653    654    660    661    666    667    672    674    688    689    692    695    697
                         699    702    704    705    706    711    713    717    719    722    727    734    740
                         741    747    748    753    754    759    761    782    994    995    1303   1306   1308
                         1312   1312   1313   1333   1338
R5            0000 0005  118*   152    154    155    155    157    158    159    162    164    170    455    456
                         457    458    461    462    463    473    478    479    488    493    494    502    503
                         509    515    522    531    538    546    552    560    561    562    566    567    568
                         569    597    625    695    718    1305   1306   1337   1338   1339
R6            0000 0006  119*   149    159    166    166    167    456    462    472    479    485    492    501
                         507    516    517    518    523    524    532    533    539    545    546    553    562
                         567    601    636    697    725    900    901    902    903    904    906    907    1319
                         1320   1321   1327   1328   1339   1342   1356   1357
R7            0000 0007  120*   168    169    170    244    246    248    251    282    283    283    290    292
                         294    296    298    299    301    348    350    352    354    356    362    363    364
                         366    367    368    370    371    372    374    375    376    382    383    384    457
                         463    470    477    486    487    488    494    500    501    508    517    524    530
                         531    537    547    548    554    561    568    606    638    702    730    846    848
                         849    898    901    908    908    910
R8            0000 0008  121*   160    161    458    464    471    472    473    476    477    487    491    492
                         503    506    507    508    518    521    522    533    536    537    538    548    551
                         552    553    563    569    610    644    704    732    1357
R9            0000 0009  122*   431    438    625    636    638    644    647    651    652    653    655    659
                         660    662    718    725    730    732    735    738    739    740    742    746    747
                         749    900    950    954    955    956    957    957    1002   1006   1010
READ          0000 468C  242    289    295    347    845*
READ1         0000 47E0  205    212    845    933    1021   1036*
READ2         0000 494E  204    1114*
READ3         0000 4950  211    1115*
READERR       0000 4146  291    293    303*
REGSAV00      0000 4980  316    1144*
REGSAV01      0000 4984  1145*
REGSAV02      0000 4988  1146*
REGSAV03      0000 498C  1147*
REGSAV04      0000 4990  1148*
REGSAV05      0000 4994  1149*
REGSAV06      0000 4998  1150*
REGSAV07      0000 499C  1151*
REGSAV08      0000 49A0  1152*
REGSAV09      0000 49A4  1153*
REGSAV0A      0000 49A8  1154*
```

```
REGSAV0B  0000 49AC      1155*
REGSAV0C  0000 49B0      1156*
REGSAV0D  0000 49B4      1157*
REGSAV0E  0000 49B8      1158*
REGSAV0F  0000 49BC      1159*
REGSAV10  0000 49C0       317    984   1017   1026   1160*
REGSAV11  0000 49C4      1161*
REGSAV12  0000 49C8      1162*
REGSAV13  0000 49CC      1163*
REGSAV14  0000 49D0       315   1002   1164*
REGSAV15  0000 49D4      1165*
REGSAV16  0000 49D8      1166*
REGSAV17  0000 49DC      1167*
REGSAV18  0000 49E0      1168*
REGSAV19  0000 49E4      1006   1169*
REGSAV1A  0000 49E8      1010   1170*
REGSAV1B  0000 49EC      1171*
REGSAV1C  0000 49F0      1172*
REGSAV1D  0000 49F4      1173*
REGSAV1E  0000 49F8       314   1174*
REGSAV1F  0000 49FC      1175*
REGSAV20  0000 4A00      1176*
REGSAV21  0000 4A04      1177*
REGSAV22  0000 4A08      1178*
REGSAV23  0000 4A0C      1179*
REGSAV24  0000 4A10      1180*
REGSAV25  0000 4A14      1181*
REGSAV26  0000 4A18      1182*
REGSAV27  0000 4A1C      1183*
REGSAV28  0000 4A20      1184*
REGSAV29  0000 4A24      1185*
REGSAV2A  0000 4A28      1186*
REGSAV2B  0000 4A2C      1187*
REGSAV2C  0000 4A30      1188*
REGSAV2D  0000 4A34      1189*
REGSAV2E  0000 4A38      1190*
REGSAV2F  0000 4A3C      1191*
REGSAV30  0000 4A40      1192*
REGSAV31  0000 4A44      1193*
REGSAV32  0000 4A48      1194*
REGSAV33  0000 4A4C      1195*
REGSAV34  0000 4A50      1196*
REGSAV35  0000 4A54      1197*
REGSAV36  0000 4A58      1198*
REGSAV37  0000 4A5C      1199*
REGSAV38  0000 4A60      1200*
REGSAV39  0000 4A64      1201*
REGSAV3A  0000 4A68      1202*
REGSAV3B  0000 4A6C      1203*
REGSAV3C  0000 4A70      1204*
REGSAV3D  0000 4A74      1205*
REGSAV3E  0000 4A78      1206*
REGSAV3F  0000 4A7C      1207*
```

CHKSUM/M17 PUNCHER

```
REGSAV40  0000 4A80       1208*
REGSAV41  0000 4A84       1209*
REGSAV42  0000 4A88       1210*
REGSAV43  0000 4A8C       1211*
REGSAV44  0000 4A90       1212*
REGSAV45  0000 4A94       1213*
REGSAV46  0000 4A98       1214*
REGSAV47  0000 4A9C       1215*
REGSAV48  0000 4AA0       1216*
REGSAV49  0000 4AA4       1217*
REGSAV4A  0000 4AA8       1218*
REGSAV4B  0000 4AAC       1219*
REGSAV4C  0000 4AB0       1220*
REGSAV4D  0000 4AB4       1221*
REGSAV4E  0000 4AB8       1222*
REGSAV4F  0000 4ABC       1223*
REGSAV50  0000 4AC0       1224*
REGSAV51  0000 4AC4       1225*
REGSAV52  0000 4AC8       1226*
REGSAV53  0000 4ACC       1227*
REGSAV54  0000 4AD0       1228*
REGSAV55  0000 4AD4       1229*
REGSAV56  0000 4AD8       1230*
REGSAV57  0000 4ADC       1231*
REGSAV58  0000 4AE0       1232*
REGSAV59  0000 4AE4       1233*
REGSAV5A  0000 4AE8       1234*
REGSAV5B  0000 4AEC       1235*
REGSAV5C  0000 4AF0       1236*
REGSAV5D  0000 4AF4       1237*
REGSAV5E  0000 4AF8       1238*
REGSAV5F  0000 4AFC       1239*
REGSAV60  0000 4B00       1240*
REGSAV61  0000 4B04       1241*
REGSAV62  0000 4B08       1242*
REGSAV63  0000 4B0C       1243*
REGSAV64  0000 4B10       1244*
REGSAV65  0000 4B14       1245*
REGSAV66  0000 4B18       1246*
REGSAV67  0000 4B1C       1247*
REGSAV68  0000 4B20       1248*
REGSAV69  0000 4B24       1249*
REGSAV6A  0000 4B28       1250*
REGSAV6B  0000 4B2C       1251*
REGSAV6C  0000 4B30       1252*
REGSAV6D  0000 4B34       1253*
REGSAV6E  0000 4B38       1254*
REGSAV6F  0000 4B3C       1255*
REGSAV70  0000 4B40       1256*
REGSAV71  0000 4B44       1257*
REGSAV72  0000 4B48       1258*
REGSAV73  0000 4B4C       1259*
REGSAV74  0000 4B50       1260*
```

```
REGSAV75   0000 4B54       1261*
REGSAV76   0000 4B58       1262*
REGSAV77   0000 4B5C       1263*
REGSAV78   0000 4B60       1264*
REGSAV79   0000 4B64       1265*
REGSAV7A   0000 4B68       1266*
REGSAV7B   0000 4B6C       1267*
REGSAV7C   0000 4B70       1268*
REGSAV7D   0000 4B74       1269*
REGSAV7E   0000 4B78       1270*
REGSAV7F   0000 4B7C       1271*
REGSAVF0   0000 4B80       1272*
REGSAVF1   0000 4B84       1273*
REGSAVF2   0000 4B88       1274*
REGSAVF3   0000 4B8C       1275*
REGSAVF4   0000 4B90       1276*
REGSAVF5   0000 4B94       1277*
REGSAVF6   0000 4B98       1278*
REGSAVF7   0000 4B9C       1279*
REGSAVF8   0000 4BA0       1280*
REGSAVF9   0000 4BA4       1281*
REGSAVFA   0000 4BA8       1282*
REGSAVFB   0000 4BAC       1283*
REGSAVFC   0000 4BB0       1284*
REGSAVFD   0000 4BB4       1285*
REGSAVFE   0000 4BB8       1286*
REGSAVFF   0000 4BBC       1287*
RETRN      0000 000E        127*   313    314    318    346    365    369    373    381    389    392    417    418
                            454    469    484    499    514    529    544    559    612    613    615    618    619
                            665    667    668    670    673    674    706    707    709    712    713    752    754
                            755    757    760    761    766    767    779    780    781    784    787    788    789
                            866    870    875    958    962    996   1019   1022
REVCHK1    0000 4498        614    616    618*
REVCHK2    0000 4526        669    671    673*
REVCHK3    0000 4584        708    710    712*
REVCHK4    0000 4604        756    758    760*
RSAVE      0000 4BDC        144   1294*
RTN        0000 47AE       1014*
RTN5       0000 47CE       1023   1026*
RXTURN     0000 4976        779    790   1138*
SELTST     0000 415A        310*
SENSE4     0000 428C        421    423*
SENSER     0000 4690        846*   847
SENSEW     0000 4658        813*   814
START      0000 4016        179    187    197*
START0     0000 4534        363    684*
START1     0000 443A        367    581*
START2     0000 443A        371    582*
START3     0000 443A        375    583*
START4     0000 443A        383    584*
STOP       0000 426C        410    413*
STRBYT     0000 4264        411*   422    424    427
SUB        0000 417A        313    319*
```

```
SUB0      0000 42D4      319    449*
SUB1      0000 42DE      320    454*
SUB2      0000 4306      321    469*
SUB3      0000 4332      322    484*
SUB4      0000 435E      323    499*
SUB5      0000 438A      324    514*
SUB6      0000 43B6      325    529*
SUB7      0000 43E2      326    544*
SUB8      0000 440E      327    559*
SUBCHK    0000 422E      392*   467    482    497    512    527    542    557    572   1027
SUBGET    0000 4116      289*   306
SUBNUM    0000 4844      953    954    960   1062*
SUBSEL    0000 415E      311*   412
SUBTST    0000 4957      294    311    404    411    451    788    950   1122*
SWTST     0000 426E      407    414*
TABLE     0000 4BD0     1293*
TESTBRK   0000 469C      392    418    863*
TITLE     0000 47E2      224   1048*
TOCS      0000 4060      228*
TOTAL     0000 496C      287    415    416    431   1135*
TOTALEND  0000 4867      437   1076*
TOTALERR  0000 4970      288    438    989    995   1136*
TOTALMSG  0000 4858      434    436    441    443   1075*
TRUEBRK   0000 46CA      876    880*
TSTEND    0000 488D      281   1087*
TSTFLG    0000 4956      310    405    450   1121*
TSTMSG    0000 4880      280   1086*
TSTNUM    0000 472C      454    469    484    499    514    529    544    559    950*
TSTSEL    0000 424A      395    398    402*
TT        0000 4828      955   1015   1058*
TTY       0000 4026      204*
TTYADR    0000 4014      192*   206
TTYCHK    0000 429E      428*   935    938
TTYFLG    0000 4959      277    282    428    817   1124*
TTYSNS    0000 4724      932    936*
TYPEFLG   0000 495B     1126*
TYPEGET   0000 418E      347*   361
TYPEMSG   0000 4848      272   1065*
TYPEND    0000 484F      273   1066*  1067
TYPESENS  0000 40E4      274*
TYPNO     0000 484F      270    362    366    370    374    382   1067*
TYPSENS   0000 418C      274    346*
TYPSET0   0000 41C6      349    362*
TYPSET1   0000 41D4      351    366*
TYPSET2   0000 41E2      353    370*
TYPSET3   0000 41F0      355    374*
TYPSET4   0000 4210      357    382*
TYPSTRT   0000 4978      364    368    372    376    384    459    465    474    480    489    495    504    510
                         519    525    534    540    549    555    564    570   1139*
WORK      0000 000A      129*   241    243    252    377    378    379    380    385    386    387    388    927
                         928    933    934    936
WRITE1    0000 47E1      812   1037*
WRITE2    0000 4618      417    665    752    779*   996
```

```
   CHKSUM/M17 PUNCHER

XXXXX      0000 482C        1005    1059*
YYYYYYYY   0000 4834        1009    1060*
ZZZZZZZZ   0000 483E        1013    1061*
```

```
PROG= *NONE*     ASSEMBLED BY CAL 03-066R05-00    (32-BIT)
```

```
         CROSS                                                            M6A20010
         WIDTH 120                                                        M6A20020
         TARGT 32                                                         M6A20030
         NORX3                                                            M6A20040
         PROG  32 BIT SERIES 6A MEMORY TEST  06-157F02M91R01A13           M6A20050
*                                                                         M6A20060
* COPYRIGHT  INTERDATA, INC.         NOVEMBER 1977                        M6A20070
*                                                                         M6A20080
* PROGRAM USES SERIES 32 INSTRUCTION SET.                                 M6A20090
*                                                                         M6A20100
* PURPOSE OF THIS TEST:                                                   M6A20110
*        THIS PROGRAM IS DESIGNED TO TEST THE 16 ,32 & 64 KB CORE MEMORY  M6A20120
*MODULES WITH THE WORST CASE PATTERNS.                                    M6A20130
* PATTERNS (THIS IS A FUNCTION OF THE INTERNAL WIRING OF THE CORES).     M6A20140
*        THE 06-157F02 LOADS INTO LOW CORE (X'A00') AND CHECKS HIGH       M6A20150
* CORE FROM X'4000' TO THE TOP OF ALL AVAILABLE CORE.                     M6A20160
*                                                                         M6A20170
* ASSUMPTIONS:                                                            M6A20180
*        IT IS ASSUMED THAT THE FOLLOWING TESTS HAVE BEEN RUN             M6A20190
* WITHOUT DETECTING AN ERROR PRIOR TO LOADING THE 32 BIT SERIES 6A       M6A20200
* MEMORY TEST:                                                            M6A20210
*                                                                         M6A20220
*        SERIES 32 BASIC TEST           06-158                            M6A20230
*                                                                         M6A20240
*        SERIES 32 PROCESSOR TEST                                         M6A20250
*              PART 1                   06-154                            M6A20260
*              PART 2                   06-155                            M6A20270
*              PART 3                   06-178                            M6A20280
*                                                                         M6A20290
*        SERIES 32 MEMORY TEST          06-156                            M6A20300
*                                                                         M6A20310
*    THE FOLLOWING TESTS ARE ALSO APPLICABLE:                             M6A20320
*                                                                         M6A20330
*        TELETYPE BASIC CONFIDENCE TEST 06-004                            M6A20340
*        CRT TEST                       06-146                            M6A20350
*        MEMORY ACCESS CONTROLLER TEST  06-160                            M6A20360
*                                                                         M6A20370
* LOADING PROCEDURE:                                                      M6A20380
*        THE 06-157F02M17 PAPER TAPE IS LOADED USING THE STANDARD         M6A20390
*  '50' SEQUENCE:                                                         M6A20400
*                                                                         M6A20410
*              LOC                 DATA                                   M6A20420
*            X'0050'             X'D500'                                  M6A20430
*            X'0052'             X'00CF'                                  M6A20440
*            X'0054'             X'4300'                                  M6A20450
*            X'0056'             X'0080'                                  M6A20460
*                                                                         M6A20470
*   TTY      X'0078'             X'0294'                                  M6A20480
*   HSPTR    X'0078'             X'0399'                                  M6A20490
*   HSPTR/P  X'0078'             X'1399'                                  M6A20500
*                                                                            M6A20520
* NORMAL TESTING:                                                            M6A20530
*        A TELETYPE MUST BE ATTACHED AT THE DEVICE ADDRESS X'02'. IF        M6A20540
* THE TELETYPE IS ATTACHED AT A DIFFERENT ADDRESS, CHANGE THE LOCATION      M6A20550
* LABELED "TTYADR" TO THE ACTUAL TELETYPE ADDRESS. IF A CRT ON PASLA        M6A20560
* (FOX ONLY) IS TO BE USED FOR I/O, CHANGE LOCATION LABELED "IO" TO         M6A20570
* X'0101'. PASLA DEVICE ADDRESSES ARE ASSUMED TO BE X'10' (READ SIDE)       M6A20580
* AND X'11' (WRITE SIDE). IF PASLA ADDRESSES ARE DIFFERENT, CHANGE          M6A20590
* LOCATION LABELED "CRTADR" TO THE ACTUAL PASLA ADDRESS. AFTER              M6A20600
* STARTING THE PROGRAM EXECUTION AT LOC X'A00', SUBTESTS 1 THROUGH 8        M6A20610
* MAY BE SELECTED INDIVIDUALLY OR ALL 8 SUBTESTS MAY BE RUN IN              M6A20620
* SUCESSION BY SELECTING SUBTEST 0. ALL ENTRIES ARE TERMINATED WITH         M6A20630
* A CARRIAGE RETURN (CR).                                                   M6A20640
*        ERROR MESSAGES ARE PRINTED ON THE TELETYPE (OR CRT).               M6A20650
*                                                                            M6A20660
* OPTIONAL TESTING:                                                          M6A20670
*        HIGH AND LOW TESTING ADDRESS LIMITS MAY BE SELECTED BY             M6A20680
* DEPRESSING LINE FEED (LF) AND ENTERING THE PROPER VALUES.                 M6A20690
*        A SUBTEST MAY BE RUN CONTINUOUSLY BY DEPRESSING THE LETTER         M6A20700
* "L" AFTER SELECTING THE DESIRED SUBTEST. DEPRESS "BREAK" TO HALT          M6A20710
* THE SUBTEST AND RETURN TO THE SUBTEST SELECTION ROUTINE.                  M6A20720
*                                                                            M6A20730
* ERROR PROCEDURES                                                           M6A20740
*        FOR A MEMORY ERROR, THE FOLLOWING ERROR MESSAGE WILL BE            M6A20750
* PRINTED ON THE CONSOLE DEVICE:                                            M6A20760
*                                                                            M6A20770
*      TT  XXXXX  YYYYYYYY  ZZZZZZZZ                                         M6A20780
*                                                                            M6A20790
*        WHERE:                                                              M6A20800
*        TT = THE SUBTEST NUMBER THE ERROR OCCURRED IN                      M6A20810
*        XXXXX = THE ADDRESS OF THE LOCATION UNDER TEST                     M6A20820
*        YYYYYYYY = THE CORRECT DATA EXPECTED                               M6A20830
*        ZZZZZZZZ = THE INCORRECT DATA READ                                 M6A20840
*                                                                            M6A20850
*        FOR ALL OTHER ERROR MESSAGES, REFER TO THE TEST DESCRIPTION.       M6A20860
*                                                                            M6A20870
```

MEMORY LOADER

```
    0000 0000              89  R0       EQU   0                                               M6A20890
    0000 0001              90  R1       EQU   1                                               M6A20900
    0000 0002              91  R2       EQU   2                                               M6A20910
    0000 0003              92  R3       EQU   3                                               M6A20920
    0000 0004              93  R4       EQU   4                  LOC BEING TESTED             M6A20930
    0000 0005              94  R5       EQU   5                  *  DATA PATTERN              M6A20940
    0000 0006              95  R6       EQU   6                  *                            M6A20950
    0000 0007              96  R7       EQU   7                  *                            M6A20960
    0000 0008              97  R8       EQU   8                  *                            M6A20970
    0000 0009              98  R9       EQU   9                  DATA STORED IN LOC           M6A20980
    0000 000A              99  R10      EQU   10                 DATA READ FROM LOC           M6A20990
    0000 000B             100  R11      EQU   11                 CONSOLE DEVICE ADDRESS       M6A21000
    0000 000C             101  R12      EQU   12                                              M6A21010
    0000 000D             102  R13      EQU   13                                              M6A21020
    0000 000E             103  RETRN    EQU   14                 BAL REGISTER                 M6A21030
    0000 000F             104  LINK     EQU   15                 BAL REGISTER                 M6A21040
    0000 000A             105  WORK     EQU   10                                              M6A21050
                          106  *                                                              M6A21060
                          107  *                                                              M6A21070
```

BOOTSTRAP LOADER

```
                                 109  *                                                                    M6A21090
                                 110  *  BOOTLOADER WITH CHKSUM                                            M6A21100
                                 111  *                                                                    M6A21110
000000I                          112            ORG   X'80'                                                M6A21120
                                 113  *                                                                    M6A21130
000080   2421                    114            LIS   R2,1                                                 M6A21140
000082   2303                    115            BS    BOOT                                                 M6A21150
000084   19CC                    116            DC    Z(PSWSAVE)         CURRENT PSW SAVE POINTER(32-BIT M/C)  M6A21160
000086   1A08                    117            DC    Z(RSAVE)           REGISTER SAVE POINTER(32-BIT M/C)     M6A21170
000088   C810 0A00               118  BOOT      LHI   R1,ORIGIN1         R1 = ADR( FIRST BYTE OF TEST PROG )   M6A21180
00008C   C830 17AB               119            LHI   R3,LNZB+1                                            M6A21190
000090   4030 0022               120            STH   R3,X'22'                                             M6A21200
000094   2731                    121            SIS   R3,1               R3 = ADR( LAST NON-ZERO BYTE )        M6A21210
000096   C860 0000               122  MN        LHI   R6,0               R6 = CHKSUM BYTE = X'MN'              M6A21220
00009A   D340 0078               123            LB    R4,X'78'           INPUT DEV ADR                         M6A21230
00009E   DE40 0079               124            OC    R4,X'79'                                             M6A21240
0000A2   9D45                    125  LEADER    SSR   R4,R5                                                M6A21250
0000A4   2091                    126            BTBS  9,1                DU,BSY                                M6A21260
0000A6   9B45                    127            RDR   R4,R5                                                M6A21270
0000A8   0855                    128            LDAR  R5,R5                                                M6A21280
0000AA   2234                    129            BZS   LEADER             IGNORE LEADER                         M6A21290
0000AC   D251 0000               130  LOAD      STB   R5,0(R1)           STORE 1ST NON-ZERO & SUBSEQUENT BYTE  M6A21300
0000B0   D351 0000               131            LB    R5,0(R1)           FETCH BYTE AS STORRED                 M6A21310
0000B4   0765                    132            XAR   R6,R5              GENERATE CHKSUM                       M6A21320
0000B6   9481                    133            EXBR  R8,R1                                                M6A21330
0000B8   9828                    134            WHR   R2,R8              DISPLAY ADDRESS BEING LOADED          M6A21340
0000BA   9D45                    135            SSR   R4,R5                                                M6A21350
0000BC   2091                    136            BTBS  9,1                DU,BSY                                M6A21360
0000BE   9B45                    137            RDR   R4,R5                                                M6A21370
0000C0   C110 00AC               138            BXLE  R1,LOAD            LOAD TILL LAST BYTE                   M6A21380
0000C4   9466                    139            EXBR  R6,R6                                                M6A21390
0000C6   9826                    140            WHR   R2,R6              DISPLAY FINAL CHKSUM                  M6A21400
0000C8   2478                    141  LDWT      LIS   R7,8                                                 M6A21410
0000CA   917C                    142            SLHLS R7,12                                                M6A21420
0000CC   9557                    143            EPSR  R5,R7              PSW = X'8000' (HALT)                  M6A21430
0000CE   2203                    144            BS    LDWT               HALT !                                M6A21440
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0000D0                          148           ORG   X'A00'                                       M6A21480
                                149  *                                                           M6A21490
                                150  *                                                           M6A21500
000A00   4300 0A16              151  ORIGIN1  B     START            ENTRY AT THIS POINT WILL INITIALIZE  M6A21510
                                152  *                               LOW CORE & ESTABLISH MEMORY TABLE    M6A21520
000A04   4300 0BD0              153           B     RESTART2         ENTRY HERE WILL ALLOW TYPE NUMBER TO M6A21530
                                154  *                               BE SELECTED WITHOUT REESTABLISHING   M6A21540
                                155  *                               THE MEMORY TABLE*******              M6A21550
000A08   4300 0B0E              156           B     RESTART1         ENTRY HERE CAUSES NEW MEMORY TABLE   M6A21560
                                157  *                               WITHOUT LOW CORE SETUP****           M6A21570
000A0C   4300 0A16              158           B     START                                        M6A21580
                                159  *****************************************************          M6A21590
000A10   0202                   160  IO       DC    X'0202'          CONSOLE DEVICE NUMBER        M6A21600
000A12   1011                   161  CRTADR   DC    X'1011'          PASLA DEVICE ADDRESS         M6A21610
000A14   0202                   162  TTYADR   DC    X'0202'          TTY DEVICE ADDRESS           M6A21620
                                163  *                                                           M6A21630
                                164  ***************************************************************** M6A21640
                                165  *                                                           M6A21650
                                166  *                                                           M6A21660
000A16   F810 0000 00F0         167  START    LI    R1,Y'00F0'       GO TO RS F                   M6A21670
000A1C   9501                   168           EPSR  R0,R1                                        M6A21680
                                169  *                                                           M6A21690
                                170  *                                                           M6A21700
000A1E   D300 0A10              171  DEVCHK   LB    R0,IO            GET CONSOLE DEVICE NUMBER    M6A21710
000A22   C500 0001              172           CLHI  R0,1                                         M6A21720
000A26   4330 0A44              173           BE    CRT              BRANCH IF CRT ON PASLA       M6A21730
000A2A   7300 176A              174  TTY      LHL   R0,READ2                                     M6A21740
000A2E   4000 153C              175           STH   R0,READ1         SET UP TTY COMMANDS          M6A21750
000A32   D300 0A14              176           LB    R0,TTYADR                                    M6A21760
000A36   D200 153A              177           STB   R0,ADDRESS       SET UP TTY ADDRESS           M6A21770
000A3A   0700                   178           XR    R0,R0                                        M6A21780
000A3C   4000 176E              179           STH   R0,CRTFLG        ZERO PASLA FLAG              M6A21790
000A40   4300 0A5E              180           B     EXECUTE          BRANCH TO PROGRAM            M6A21800
000A44   7300 176C              181  CRT      LHL   R0,READ3                                     M6A21810
000A48   4000 153C              182           STH   R0,READ1         SET UP PASLA COMMANDS        M6A21820
000A4C   240F                   183           LIS   R0,X'F'                                      M6A21830
000A4E   4000 176E              184           STH   R0,CRTFLG        SET PASLA FLAG               M6A21840
000A52   D300 0A12              185           LB    R0,CRTADR                                    M6A21850
000A56   D200 153A              186           STB   R0,ADDRESS       SET UP PASLA ADDRESS         M6A21860
000A5A   DE00 153B              187           OC    R0,PADSET                                    M6A21870
                                188  *                                                           M6A21880
                                189  *                                                           M6A21890
000A5E   0700                   190  EXECUTE  XR    R0,R0            SET UP LOW CORE              M6A21900
000A60   5000 0000              191           ST    R0,0                                         M6A21910
000A64   5000 0020              192           ST    R0,X'20'         MACHINE MALFUNCTION INTRPT.  M6A21920
000A68   5000 0024              193           ST    R0,X'24'         OLD PSW                      M6A21930
000A6C   5000 0028              194           ST    R0,X'28'         RESERVED,MUST BE ZERO        M6A21940
000A70   5000 002C              195           ST    R0,X'2C'                                     M6A21950
000A74   5000 0030              196           ST    R0,X'30'         ILLEG.INSTR.NEW PSW          M6A21960
000A78   E610 14B4              197           LA    R1,ILGINT        NEW PSW LOC.                 M6A21970
000A7C   5010 0034              198           ST    R1,X'34'                                     M6A21980
000A80   C810 00F0              199           LHI   R1,X'F0'                                     M6A21990
000A84   5010 0038              200           ST    R1,X'38'         MACHINE MALFUNCTION INTRPT.  M6A22000
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                                146  *                                                           M6A21460
                                147  *                                                           M6A21470
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000A88   E610 1436        201          LA    R1,MALFTN          NEW PSW LOC.                              M6A22010
000A8C   5010 003C        202          ST    R1,X'3C'                                                     M6A22020
000A90   5000 0040        203          ST    R0,X'40'           RESERVED,MUST BE ZERO                     M6A22030
000A94   5000 0044        204          ST    R0,X'44'                                                     M6A22040
000A98   5000 0048        205          ST    R0,X'48'           ARITH.FAULT NEW PSW                       M6A22050
000A9C   E610 1502        206          LA    R1,ARTFLT                                                    M6A22060
000AA0   5010 004C        207          ST    R1,X'4C'                                                     M6A22070
000AA4   E610 19FC        208          LA    R1,TABLE           SYSTEM QUEUE POINTER                      M6A22080
000AA8   5010 0080        209          ST    R1,X'80'                                                     M6A22090
000AAC   E610 19EC        210          LA    R1,PSWSAVE         CURRENT PSW SAVE POINTER                  M6A22100
000AB0   4010 0084        211          STH   R1,X'84'                                                     M6A22110
000AB4   E610 1A08        212          LA    R1,RSAVE           REG.SAV POINTER (SET 1)                   M6A22120
000AB8   4010 0086        213          STH   R1,X'86'                                                     M6A22130
000ABC   5000 0088        214          ST    R0,X'88'           SYS.Q SERVICE INTRPT. NEW PSW             M6A22140
000AC0   E610 1510        215          LA    R1,SYSQ                                                      M6A22150
000AC4   5010 008C        216          ST    R1,X'8C'                                                     M6A22160
000AC8   5000 0090        217          ST    R0,X'90'           MEMORY ACCESS CONTROLLER INTRPT.          M6A22170
000ACC   E610 14E6        218          LA    R1,MACINT          NEW PSW                                   M6A22180
000AD0   5010 0094        219          ST    R1,X'94'                                                     M6A22190
000AD4   5000 0098        220          ST    R0,X'98'           SVC INTRPT,NEW PSW                        M6A22200
000AD8   E640 14F4        221          LA    R4,SVCERR                                                    M6A22210
000ADC   C810 009C        222          LHI   R1,X'9C'                                                     M6A22220
000AE0   2422             223          LIS   R2,2                                                         M6A22230
000AE2   C830 00BC        224          LHI   R3,X'BC'                                                     M6A22240
000AE6   4041 0000        225 X9C      STH   R4,0(R1)                                                     M6A22250
000AEA   C110 0AE6        226          BXLE  R1,X9C                                                       M6A22260
000AEE   2424             227          LIS   R2,4                                                         M6A22270
000AF0   C830 00CC        228          LHI   R3,X'CC'                                                     M6A22280
000AF4   5001 0000        229 XBC      ST    R0,0(R1)           RESERVED,MUST BE ZERO                     M6A22290
000AF8   C110 0AF4        230          BXLE  R1,XBC                                                       M6A22300
000AFC   E640 151E        231          LA    R4,EXTINT          EXTERNAL INTERRUPT SERVICE ROUTINE        M6A22310
000B00   2422             232          LIS   R2,2                                                         M6A22320
000B02   C830 02CC        233          LHI   R3,X'2CC'                                                    M6A22330
000B06   4041 0000        234 XCC      STH   R4,0(R1)           INTERRUPT SERVICE TABLE                   M6A22340
000B0A   C110 0B06        235          BXLE  R1,XCC                                                       M6A22350
                          236 *                                                                           M6A22360
                          237 *                                                                           M6A22370
         0000 0B0E        238 RESTART1 EQU   *                  ENTRY AT THIS POINT ESTABLISHES           M6A22380
                          239 *                                    MEMORY TABLE                           M6A22390
                          240 *                                                                           M6A22400
                          241 *                                                                           M6A22410
000B0E   41F0 1114        242 PRTTITLE BAL   LINK,PRINT         PRINT TITLE                               M6A22420
000B12   153E             243          DC    Z(TITLE)           START ADDRESS OF MESSAGE                  M6A22430
000B14   1565             244          DC    Z(ENDOF)           END ADDRESS OF MESSAGE                    M6A22440
                          245 *                                                                           M6A22450
                          246 *                                                                           M6A22460
000B16   41F0 1114        247 TOCS     BAL   LINK,PRINT         PRINT AVAILABLE MEMORY MESSAGE            M6A22470
000B1A   1566             248          DC    Z(MEMSG)           START ADDRESS OF MESSAGE                  M6A22480
000B1C   1577             249          DC    Z(END)                                                       M6A22490
000B1E   0700             250          XR    R0,R0                                                        M6A22500
000B20   5000 0000        251          ST    R0,0                                                         M6A22510
000B24   4000 1776        252          STH   R0,FLAG                                                      M6A22520
000B28   4000 1778        253          STH   R0,WRAPFLG                                                   M6A22530
000B2C   D200 175F        254          STB   R0,KB0144                                                    M6A22540
000B30   4000 1760        255          STH   R0,KB0272                                                    M6A22550
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000B34   4000 1762            256           STH   R0,KB0528                                            M6A22560
000B38   4000 1764            257           STH   R0,KB0784                                            M6A22570
000B3C   F800 1234 5678       258           LI    R0,Y'12345678'     LOAD DATA PATTERN                 M6A22580
000B42   C810 4000            259           LHI   R1,X'4000'         LOAD START ADDRESS OF SEARCH      M6A22590
000B46   0821                 260           LR    R2,R1              LOAD SEARCH INCREMENT VALUE       M6A22600
000B48   F830 000F C000       261           LI    R3,Y'FC000'        YES, CHECK FOR WRAP AROUND        M6A22610
000B4E   2441                 262           LIS   R4,1               LOAD STARTING TABLE INDEX         M6A22620
000B50   0755                 263           XR    R5,R5              ESTABLISH ADRS OF 1ST MEMORY LOC  M6A22630
000B52   5011 0000            264  REP      ST    R1,0(R1)           STORE DATA PATTERN                M6A22640
000B56   5871 0000            265           L     R7,0(R1)           LOAD DATA PATTERN FROM SEARCH LOC M6A22650
000B5A   249F                 266           LIS   R9,X'F'                                              M6A22660
000B5C   0517                 267           CLR   R1,R7              IS DATA READ = DATA STORED ?      M6A22670
000B5E   2137                 268           BNES  MEMLIST                                              M6A22680
000B60   5870 0000            269           L     R7,0               WAS DATA STORED IN LOCATION ZERO? M6A22690
000B64   4330 0BA2            270           BZ    SETBIT                                               M6A22700
000B68   4090 1778            271  STFLG    STH   R9,WRAPFLG         SET FLAG IF WRAP AROUND OCCURED   M6A22710
000B6C   4090 1776            272  MEMLIST  STH   R9,FLAG                                              M6A22720
000B70   0894                 273           LR    R9,R4              NO, WAS LAST BIT SET ?            M6A22730
000B72   2791                 274           SIS   R9,1                                                 M6A22740
000B74   7490 175E            275           TBT   R9,KB0016                                            M6A22750
000B78   4330 0BB4            276           BZ    NEXT               NO, ZERO NEXT BIT IN MEMORY TABLE M6A22760
000B7C   0895                 277           LR    R9,R5              YES, LOAD START ADRS OF MEMORY SEG M6A22770
000B7E   41F0 11A6            278           BAL   LINK,CONVERT       CONVERT TO ASCII CHARACTERS       M6A22780
000B82   0010                 279           DC    X'10'              SHIFT INDEX                       M6A22790
000B84   1578                 280           DC    Z(MEMSG1)          STORE INDEX                       M6A22800
000B86   0891                 281           LR    R9,R1                                                M6A22810
000B88   2791                 282           SIS   R9,1               ESTABLISH LAST ADRS OF MEMORY SEGMENT M6A22820
000B8A   41F0 11A6            283           BAL   LINK,CONVERT       CONVERT TO ASCII CHARACTERS       M6A22830
000B8E   0010                 284           DC    X'10'              SHIFT INDEX                       M6A22840
000B90   1580                 285           DC    Z(ENDVAL)          STORE INDEX                       M6A22850
000B92   41F0 1114            286           BAL   LINK,PRINT         PRINT MEMORY SEGMENT ADDRESSES    M6A22860
000B96   1578                 287           DC    Z(MEMSG1)          START ADRS OF MESSAGE             M6A22870
000B98   1587                 288           DC    Z(END1)            END ADRS OF MESSAGE               M6A22880
000B9A   2791                 289           SIS   R9,1                                                 M6A22890
000B9C   5090 1790            290           ST    R9,LAST                                              M6A22900
000BA0   230A                 291           BS    NEXT               CHECK NEXT 8K OF MEMORY           M6A22910
000BA2   7540 175E            292  SETBIT   SBT   R4,KB0016          SET BIT IN MEMORY TABLE           M6A22920
000BA6   7390 1776            293           LHL   R9,FLAG                                              M6A22930
000BAA   2335                 294           BZS   NEXT                                                 M6A22940
000BAC   0851                 295           LR    R5,R1              LOAD START ADRS OF MEMORY SEGMENT M6A22950
000BAE   0799                 296           XR    R9,R9                                                M6A22960
000BB0   4090 1776            297           STH   R9,FLAG                                              M6A22970
000BB4   7390 1778            298  NEXT     LHL   R9,WRAPFLG                                           M6A22980
000BB8   213C                 299           BNZS  ENABLE1                                              M6A22990
000BBA   2641                 300           AIS   R4,1               INCREMENT TABLE INDEX             M6A23000
000BBC   7640 175E            301           RBT   R4,KB0016          ZERO NEXT BIT IN MEMORY TABLE     M6A23010
000BC0   FA00 0000 0001       302           AI    R0,1               ADD ONE TO DATA PATTERN           M6A23020
000BC6   C110 0B52            303           BXLE  R1,REP             REPEAT UNTIL ALL OF MEMORY IS CHECKED M6A23030
000BCA   249F                 304           LIS   R9,X'F'                                              M6A23040
000BCC   4300 0B68            305           B     STFLG                                                M6A23050
                              306  *                                                                   M6A23060
                              307  *                                                                   M6A23070
         0000 0BD0            308  RESTART2 EQU   *                  ENTRY AT THIS POINT WILL NOT      M6A23080
                              309  *                                    ESTABLISH MEMORY TABLE         M6A23090
                              310  *                                                                   M6A23100
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000BD0   F810 0000 20F0   ENABLE1  LI     R1,X'20F0'                                              M6A23110
000BD6   9501                      EPSR   R0,R1             NOW ENABLE INTERRUPTS                 M6A23120
000BD8   C810 4000        SETVAL   LHI    R1,X'4000'                                              M6A23130
000BDC   5010 1784                 ST     R1,LOVAL          SET LOVAL                             M6A23140
000BE0   5810 1790                 L      R1,LAST                                                 M6A23150
000BE4   5010 1788                 ST     R1,HIVAL          SET HIVAL                             M6A23160
000BE8   C870 0020                 LHI    R7,C' '           GET READY TO CLEAR TYPNO              M6A23170
000BEC   D270 1667                 STB    R7,TYPNO          CLEAR TYPNO                           M6A23180
000BF0   41F0 1114                 BAL    LINK,PRINT        PRINT "TYPE= "                        M6A23190
000BF4   1660                      DC     Z(TYPEMSG)        STARTING ADDRESS OF MESSAGE           M6A23200
000BF6   1667                      DC     Z(TYPEND)         ENDING ADDRESS OF MESSAGE             M6A23210
000BF8   41F0 0CA8        TYPESENS BAL    LINK,TYPSENS      GO FIND OUT WHAT TYPE OF CORE MAT     M6A23220
000BFC   0711             PRTMSG   XR     R1,R1                                                   M6A23230
000BFE   D210 177D                 STB    R1,ERRFLG                                               M6A23240
000C02   4010 177E                 STH    R1,TTYFLG         ZERO TTY & CONTINUE FLAG              M6A23250
000C06   4010 1778                 STH    R1,WRAPFLG        ZERO WRAPAROUND FLAG                  M6A23260
000C0A   41F0 1114                 BAL    LINK,PRINT        PRINT 'SUBTEST'                       M6A23270
000C0E   16C2                      DC     Z(TSTMSG)         START ADDRESS OF MESSAGE              M6A23280
000C10   16CF                      DC     Z(TSTEND)         END ADDRESS OF MESSAGE                M6A23290
000C12   D370 177E                 LB     R7,TTYFLG                                               M6A23300
000C16   0877                      LR     R7,R7             IS TTY FLAG SET ?                     M6A23310
000C18   2335                      BZS    PRTMSG1           NO, CONTINUE                          M6A23320
000C1A   F810 0000 A0F0            LI     R1,Y'A0F0'        YES, HALT                             M6A23330
000C20   9501                      EPSR   R0,R1             PROCESSOR HALTED                      M6A23340
000C22   5010 179C        PRTMSG1  ST     R1,TOTAL          ZERO TOTAL COUNT                      M6A23350
000C26   5010 17A0                 ST     R1,TOTALERR       ZERO TOTAL ERROR COUNT                M6A23360
000C2A   41F0 1164        SUBGET   BAL    LINK,READ         GET A CHARACTER                       M6A23370
000C2E   C570 000A                 CLHI   R7,X'0A'          IS IT A "LF"?                         M6A23380
000C32   4330 135A                 BE     HILO              YES SO GOT "HILO" LIM SURROUTINE      M6A23390
000C36   CB70 0030                 SHI    R7,X'30'          IS IT AN ASCII NUMBER?                M6A23400
000C3A   4280 0C62                 BL     READERR           NO SO ASK AGAIN                       M6A23410
000C3E   C570 0009                 CLHI   R7,X'9'           IS IT LESS THAN 9?                    M6A23420
000C42   4380 0C62                 BNL    READERR           NO SO ASK AGAIN                       M6A23430
000C46   D270 177C                 STB    R7,SUBTST         VALID NUMBER SO SAVE IT               M6A23440
000C4A   41F0 1164        LCHK     BAL    LINK,READ         GET ANOTHER CHARACTER                 M6A23450
000C4E   C570 004C                 CLHI   R7,C'L'           IS IT AN "L"?                         M6A23460
000C52   2135                      BNES   CRCHK             NO IS IT A "CR"?                      M6A23470
000C54   2471                      LIS    R7,1              YES- SO SET THE                       M6A23480
000C56   D270 177F                 STB    R7,CONTFLG        CONTINUE FLAG                         M6A23490
000C5A   230A                      BS     OKIN              OK SO  RUN THE TEST                   M6A23500
000C5C   C570 000D        CRCHK    CLHI   R7,X'0D'          IS IT A "CR"?                         M6A23510
000C60   2337                      BES    OKIN              YES SO RUN                            M6A23520
000C62   41F0 1114        READERR  BAL    LINK,PRINT        PRINT THE ERRONEOUS                   M6A23530
000C66   1668                      DC     Z(QUEST)          INPUT                                 M6A23540
000C68   166F                      DC     Z(QUEND)          MESSAGE                               M6A23550
000C6A   4300 0C2A                 B      SUBGET            TRY AGAIN                             M6A23560
000C6E   41F0 1114        OKIN     BAL    LINK,PRINT        PRINT A "LF"                          M6A23570
000C72   1577                      DC     Z(END)                                                  M6A23580
000C74   1577                      DC     Z(END)                                                  M6A23590
000C76   D210 177B        SELTST   STB    R1,TSTFLG         ZERO TEST FLAG                        M6A23600
000C7A   D310 177C        SUBSEL   LB     R1,SUBTST         LOAD R1 WITH SUBTEST SELECTED         M6A23610
000C7E   1111                      SLLS   R1,1              GENERATE CORRECT INDEX VALUE          M6A23620
000C80   73E1 0C96                 LHL    RETRN,SUB(R1)     LOAD ADDRS OF SUBTEST                 M6A23630
000C84   50E0 1824                 ST     RETRN,REGSAV1E    SAVE BRANCH ADDRESS                   M6A23640
000C88   5040 17FC                 ST     R4,REGSAV14       SAVE TESTING LOC.                     M6A23650
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000C8C   D000 17AC        366           STM    R0,REGSAV00         SAVE WORKING REGISTERS               M6A23660
000C90   D100 17EC        367           LM     R0,REGSAV10         PICKUP TESTING REGISTERS             M6A23670
000C94   030E             368           BR     RETRN               BRANCH TO SUBTEST SELECTED           M6A23680
000C96   0DF8             369  SUB      DC     Z(SUB0)                                                  M6A23690
000C98   0E02             370           DC     Z(SUB1)                                                  M6A23700
000C9A   0E2A             371           DC     Z(SUB2)                                                  M6A23710
000C9C   0E56             372           DC     Z(SUB3)                                                  M6A23720
000C9E   0E82             373           DC     Z(SUB4)                                                  M6A23730
000CA0   0EAE             374           DC     Z(SUB5)                                                  M6A23740
000CA2   0EDA             375           DC     Z(SUB6)                                                  M6A23750
000CA4   0F06             376           DC     Z(SUB7)                                                  M6A23760
000CA6   0F32             377           DC     Z(SUB8)                                                  M6A23770
                          378  *********************************************                            M6A23780
                          379  *   "TYPSENS" IS CALLED TO DETERMINE WHICH *                            M6A23790
                          380  *TYPE OF CORE MAT IS BEING TESTED:         *                            M6A23800
                          381  *       -TYPE=0 FOR 35-491 (16 KB)         *                            M6A23810
                          382  *       -TYPE=1 FOR 32-198 (32 KB 750NS)   *                            M6A23820
                          383  *                          (32 KB 1000NS)  *                            M6A23830
                          384  *       -TYPE=2 FOR 32-206 (32 KB 750NS)   *                            M6A23840
                          385  *                          (32 KB 1000NS)  *                            M6A23850
                          386  *       -TYPE=3 FOR 32-200 (64 KB 1000NS)  *                            M6A23860
                          387  *       -TYPE=4 FOR 32-209 (64 KB 750NS)   *                            M6A23870
                          388  *ONCE THE CORRECT TYPE NUMBER HAS BEEN      *                            M6A23880
                          389  *ENTERER THIS MODULE THEN SETS UP THE COR- *                            M6A23890
                          390  *RESPONDING WORST CASE PATTERN-IF REQUIRED.*                            M6A23900
                          391  * IT THEN RETURNS AND IS READY TO RUN THE  *                            M6A23910
                          392  *SUBTESTS.                                 *                            M6A23920
                          393  *********************************************                            M6A23930
000CA8   08EF             394  TYPSENS  LR     RETRN,LINK          SAVE RETURN ADDRESS                  M6A23940
000CAA   41F0 1164        395  TYPEGET  BAL    LINK,READ           GOO GET CHARACTER FROM CONSOLE       M6A23950
000CAE   C570 0030        396           CLHI   R7,C'0'             TYPE=0? (35-491)                     M6A23960
000CB2   4330 0CE2        397           BE     TYPSET0             YES,SET TYPEFLAG=0                   M6A23970
000CB6   C570 0031        398           CLHI   R7,C'1'             TYPE=1? (32-198)                     M6A23980
000CBA   4330 0CF0        399           BE     TYPSET1             YES,SET TYPEFLAG=1                   M6A23990
000CBE   C570 0032        400           CLHI   R7,C'2'             TYPE=2? (32-206)                     M6A24000
000CC2   4330 0CFE        401           BE     TYPSET2             YES,SET TYPEFLAG=2                   M6A24010
000CC6   C570 0033        402           CLHI   R7,C'3'             TYPE=3? (32-200)                     M6A24020
000CCA   4330 0D0C        403           BE     TYPSET3             YES,SET TYPEFLAG=3                   M6A24030
000CCE   C570 0034        404           CLHI   R7,C'4'             TYPE=4? (32-209)                     M6A24040
000CD2   4330 0D2C        405           BE     TYPSET4             YES,SET TYPEFLAG=4                   M6A24050
000CD6   41F0 1114        406           BAL    LINK,PRINT          INVALID TYPE NUMBER                  M6A24060
000CDA   1588             407           DC     Z(PARNOMSG)         PRINT VALID TYPE NUMBERS AND         M6A24070
000CDC   1633             408           DC     Z(PARNOEND)         CORRESPONDING PART NUMBERS.          M6A24080
000CDE   4300 0CAA        409           B      TYPEGET             LOOK FOR CORRECT TYPE NUMBER AGAIN   M6A24090
000CE2   D270 1667        410  TYPSET0  STB    R7,TYPNO            PUT TYPE NUMBER IN MESSAGE           M6A24100
000CE6   C870 1030        411           LHI    R7,START0           GET START0 ADDRESS                   M6A24110
000CEA   4070 17A4        412           STH    R7,TYPSTRT          SAVE START0 ADDRESS FOR TESTING      M6A24120
000CEE   030E             413           BR     RETRN               TYPE IS SET,RETURN TO SUBTEST INIT.  M6A24130
000CF0   D270 1667        414  TYPSET1  STB    R7,TYPNO            PUT TYPE NUMBER IN MESSAGE           M6A24140
000CF4   C870 0F5E        415           LHI    R7,START1           GET START1 ADDRESS FOR TESTING       M6A24150
000CF8   4070 17A4        416           STH    R7,TYPSTRT          SAVE IT.                             M6A24160
000CFC   030E             417           BR     RETRN               TYPE IS SET,RETURN TO SUBTEST INIT.  M6A24170
000CFE   D270 1667        418  TYPSET2  STB    R7,TYPNO            PUT TYPE NUMBER IN MESSAGE           M6A24180
000D02   C870 0F5E        419           LHI    R7,START2           GET START2 ADDRESS                   M6A24190
000D06   4070 17A4        420           STH    R7,TYPSTRT          SAVE START2 ADDRESS FOR TESTING      M6A24200
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000D0A   030E                421           BR     RETRN                TYPE IS SET,RETURN TO SUBTEST INIT.     M6A24210
000D0C   D270 1667           422  TYPSET3  STB    R7,TYPNO             PUT TYPE NUMBER IN MESSAGE              M6A24220
000D10   C870 0F5E           423           LHI    R7,START3            GET START3 ADDRESS                      M6A24230
000D14   4070 17A4           424           STH    R7,TYPSTRT           SAVE START3 ADDRESS FOR TESTING         M6A24240
000D18   C8A0 0210           425           LHI    WORK,X'0210'                                                 M6A24250
000D1C   40A0 1536           426           STH    WORK,PAT3            PAT1,PAT2,PAT3&PAT4 ARE USED FOR        M6A24260
000D20   73A0 4000 8400      427           LHL    WORK,X'8400'         THE WORST CASE PATTERN GENERATION       M6A24270
000D26   40A0 1538           428           STH    WORK,PAT4            FOR ALL DIFFERENT CORE MATS             M6A24280
000D2A   030E                429           BR     RETRN                TYPE&PAT ARE SET,SO RETURN              M6A24290
000D2C   D270 1667           430  TYPSET4  STB    R7,TYPNO                                                     M6A24300
000D30   C870 0F5E           431           LHI    R7,START4                                                    M6A24310
000D34   4070 17A4           432           STH    R7,TYPSTRT                                                   M6A24320
000D38   C8A0 0012           433           LHI    WORK,X'0012'                                                 M6A24330
000D3C   40A0 1536           434           STH    WORK,PAT3            PAT3 & PAT4 ARE NOW LOADED              M6A24340
000D40   C8A0 4400           435           LHI    WORK,X'4400'         WITH THE WORST CASE BITS TO GENERATE    M6A24350
000D44   40A0 1538           436           STH    WORK,PAT4            THE WORST CASE PATTERN FOR 32-209       M6A24360
000D48   030E                437           BR     RETRN                TYPE&PAT ARE SET,SO RETURN              M6A24370
                             438  *THIS IS AN ENTRY POINTER TO ALLOW THE TEST(FWR1) TO                         M6A24380
                             439  *ENTER THE CORRECT WORST CASE GENERATOR                                      M6A24390
000D4A   73F0 17A4           440  TRESTRT  LHL    LINK,TYPSTRT         GET ENTRY POINTER                       M6A24400
000D4E   430F 0008           441           B      8(LINK)              RE-ENTER WORST CASE GENERATOR           M6A24410
                             442  *                                                                            M6A24420
                             443  ************************************************************************     M6A24430
                             444  *                                                                            M6A24440
000D52   41E0 1174           445  SUBCHK   BAL    RETRN,TESTBRK        IS BREAK KEY DEPRESSED?                 M6A24450
000D56   D310 177D           446           LB     R1,ERRFLG                                                    M6A24460
000D5A   0811                447           LR     R1,R1                IS ERROR FLAG SET ?                     M6A24470
000D5C   2139                448           BNZS   TSTSEL               YES, CHECK FOR NEXT SUBTEST             M6A24480
000D5E   D310 177F           449           LB     R1,CONTFLG           IS CONTINUE FLAG SET ?                  M6A24490
000D62   0811                450           LR     R1,R1                                                        M6A24500
000D64   2135                451           BNZS   TSTSEL               YES, CHECK FOR NEXT SUBTEST             M6A24510
000D66   41F0 1114           452           BAL    LINK,PRINT           NO, PRINT 'NO ERROR'                    M6A24520
000D6A   16D0                453           DC     Z(NOERR)             START ADDRESS OF MESSAGE                M6A24530
000D6C   16D9                454           DC     Z(ERREND)            END ADDRESS OF MESSAGE                  M6A24540
000D6E   0711                455  TSTSEL   XR     R1,R1                ZERO REGISTER R1                        M6A24550
000D70   D210 177D           456           STB    R1,ERRFLG            ZERO ERROR FLAG                         M6A24560
000D74   D330 177C           457           LB     R3,SUBTST            LOAD R3 WITH CURRENT SUBTEST            M6A24570
000D78   D310 177B           458           LB     R1,TSTFLG            LOAD R1 WITH TEST FLAG                  M6A24580
000D7C   0811                459           LR     R1,R1                IS TEST FLAG SET ?                      M6A24590
000D7E   233A                460           BZS    SWTST                NO, READ DISPLAY SWITCH                 M6A24600
000D80   2631                461           AIS    R3,1                 YES, INCREMENT SUBTEST NUMBER           M6A24610
000D82   C530 0009           462           CLHI   R3,X'9'              HAVE ALL SUBTESTS BEEN RUN ?            M6A24620
000D86   2385                463           BNLS   STOP                 YES, CHECK SWITCH 15                    M6A24630
000D88   D230 177C           464  STRBYT   STB    R3,SUBTST            NO, STORE SUBTEST TO BE EXECUTED NEXT   M6A24640
000D8C   4300 0C7A           465           B      SUBSEL               SELECT ADDRESS OF SUBTEST               M6A24650
000D90   2431                466  STOP     LIS    R3,1                 START WITH SUBTEST ONE                  M6A24660
000D92   2411                467  SWTST    LIS    R1,1                 LOAD R1 WITH DISPLAY PANEL ADRS         M6A24670
000D94   5110 179C           468           AM     R1,TOTAL             INCREMENT TOTAL COUNT                   M6A24680
000D98   5840 179C           469           L      R4,TOTAL                                                     M6A24690
000D9C   41E0 10F0           470           BAL    RETRN,WRITE2         WRITE TOTAL ON DISPLAY                  M6A24700
000DA0   41E0 1174           471           BAL    RETRN,TESTBRK        GO SEE IF BREAK KEY IS PRESSED          M6A24710
000DA4   D320 177F           472           LB     R2,CONTFLG           IS CONTINUE FLAG SET?                   M6A24720
000DA8   0822                473           LR     R2,R2                                                        M6A24730
000DAA   2333                474           BZS    SENSE4               NO - IS CONSOLE DU?                     M6A24740
000DAC   4300 0D88           475           B      STRBYT               YES SO REPEAT TEST                      M6A24750
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000DB0   9DBA                476  SENSE4   SSR   R11,R10            SENSE TTY STATUS                       M6A24760
000DB2   4210 0D88           477           BM    STRBYT             BRANCH IF DU                           M6A24770
000DB6   C4A0 000C           478           NHI   R10,X'000C'        MASK FOR PASLA EXAMIN & BSY            M6A24780
000DBA   C5A0 000C           479           CLHI  R10,X'0C'          IS THE PASLA DU?                       M6A24790
000DBE   4330 0D88           480           BE    STRBYT             YES-SO REPEAT TEST                     M6A24800
000DC2   D3A0 177E           481  TTYCHK   LB    R10,TTYFLG                                                M6A24810
000DC6   08AA                482           LR    R10,R10            HAS TTY BEEN TURNED OFF                M6A24820
000DC8   4330 0BFC           483           BZ    PRTMSG             NO, PRINT 'SUBTEST'                    M6A24830
000DCC   5890 179C           484  PRTTOT   L     R9,TOTAL                                                  M6A24840
000DD0   41F0 11A6           485           BAL   LINK,CONVERT       YES, PRINT TOTAL & TOTAL ERROR         M6A24850
000DD4   001C                486           DC    X'1C'              SHIFT INDEX                            M6A24860
000DD6   1670                487           DC    Z(TOTALMSG)        STORE INDEX                            M6A24870
000DD8   41F0 1114           488           BAL   LINK,PRINT         PRINT TOTAL COUNT                      M6A24880
000DDC   1670                489           DC    Z(TOTALMSG)        START ADDRESS OF MESSAGE               M6A24890
000DDE   167F                490           DC    Z(TOTALEND)        END OF MESSAGE                         M6A24900
000DE0   5890 17A0           491           L     R9,TOTALERR                                               M6A24910
000DE4   41F0 11A6           492           BAL   LINK,CONVERT       CONVERT TO ASCII CHARACTERS            M6A24920
000DE8   001C                493           DC    X'1C'              SHIFT INDEX                            M6A24930
000DEA   1670                494           DC    Z(TOTALMSG)        STORE INDEX                            M6A24940
000DEC   41F0 1114           495           BAL   LINK,PRINT         PRINT TOTAL ERROR COUNT                M6A24950
000DF0   1670                496           DC    Z(TOTALMSG)        START ADDRESS OF MESSAGE               M6A24960
000DF2   1687                497           DC    Z(ERROREND)        END ADDRESS OF MESSAGE                 M6A24970
000DF4   4300 0BFC           498           B     PRTMSG             PRINT 'SUBTEST'                        M6A24980
                             499  *                                                                        M6A24990
                             500  ************************************************************************ M6A25000
                             501  *                                                                        M6A25010
000DF8   2411                502  SUB0     LIS   R1,1               LOAD R1 WITH ONE                       M6A25020
000DFA   D210 177B           503           STB   R1,TSTFLG          SET TEST FLAG TO RUN ALL TEST          M6A25030
000DFE   D210 177C           504           STB   R1,SUBTST          STORE SUBTEST NUMBER                   M6A25040
                             505  *                                 START WITH SUBTEST 1                   M6A25050
                             506  *                                                                        M6A25060
000E02   41E0 1282           507  SUB1     BAL   RETRN,TSTNUM       PRINT TEST NUMBER                      M6A25070
000E06   2450                508           LIS   R5,0               R5=R6=R7=R8=0                          M6A25080
000E08   0865                509           LR    R6,R5                                                     M6A25090
000E0A   0875                510           LR    R7,R5                                                     M6A25100
000E0C   0885                511           LR    R8,R5                                                     M6A25110
000E0E   73D0 17A4           512           LHL   R13,TYPSTRT        GET ADRS OF WC TEST TO BE RUN          M6A25120
000E12   01FD                513           BALR  LINK,R13           NOW RUN THE CORRECT WORST CASE.        M6A25130
000E14   2450                514           LIS   R5,0               R5 = 0                                 M6A25140
000E16   0865                515           LR    R6,R5              R6 = 0                                 M6A25150
000E18   0875                516           LR    R7,R5              R7 = 0                                 M6A25160
000E1A   F880 0000 FFFF      517           LI    R8,Y'FFFF'         R8 = FFFF                              M6A25170
000E20   73D0 17A4           518           LHL   R13,TYPSTRT        GET ADRS OF WC TEST TO BE RUN          M6A25180
000E24   01FD                519           BALR  LINK,R13           NOW RUN THE CORRECT WORST CASE.        M6A25190
000E26   4300 0052           520           B     SUBCHK                                                    M6A25200


000E2A   41E0 1282           522  SUB2     BAL   RETRN,TSTNUM       PRINT TEST NUMBER                      M6A25220
000E2E   F870 0000 FFFF      523           LI    R7,Y'FFFF'         R5=R6=0, R7 = FFFF                     M6A25230
000E34   2480                524           LIS   R8,0               R8=0                                   M6A25240
000E36   0868                525           LR    R6,R8                                                     M6A25250
000E38   0858                526           LR    R5,R8                                                     M6A25260
000E3A   73D0 17A4           527           LHL   R13,TYPSTRT        GET ADRS OF WC TEST TO BE RUN          M6A25270
000E3E   01FD                528           BALR  LINK,R13           NOW RUN THE CORRECT WORST CASE.        M6A25280
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000E40   F880 0000 FFFF          529          LI    R8,Y'FFFF'        R8=FFFF, R5=R6=0,R7=FFFF           M6A25290
000E46   0878                    530          LR    R7,R8                                                M6A25300
000E48   2450                    531          LIS   R5,0                                                 M6A25310
000E4A   0865                    532          LR    R6,R5                                                M6A25320
000E4C   73D0 17A4               533          LHL   R13,TYPSTRT       GET ADRS OF WC TEST TO BE RUN      M6A25330
000E50   01FD                    534          BALR  LINK,R13          NOW RUN THE CORRECT WORST CASE.    M6A25340
000E52   4300 0052               535          B     SUBCHK                                               M6A25350


000E56   41E0 1282               537   SUB3   BAL   RETRN,TSTNUM      PRINT TEST NUMBER                  M6A25370
000E5A   F860 0000 FFFF          538          LI    R6,Y'FFFF'        R6=FFFF ,R5=0                      M6A25380
000E60   2470                    539          LIS   R7,0              R7=0                               M6A25390
000E62   0887                    540          LR    R8,R7             R8=0                               M6A25400
000E64   0857                    541          LR    R5,R7                                                M6A25410
000E66   73D0 17A4               542          LHL   R13,TYPSTRT       GET ADRS OF WC TEST TO BE RUN      M6A25420
000E6A   01FD                    543          BALR  LINK,R13          NOW RUN THE CORRECT WORST CASE.    M6A25430
000E6C   F880 0000 FFFF          544          LI    R8,Y'FFFF'        R8=FFFF,R5=0,R6=FFFF,R7=0          M6A25440
000E72   0868                    545          LR    R6,R8                                                M6A25450
000E74   2450                    546          LIS   R5,0                                                 M6A25460
000E76   0875                    547          LR    R7,R5                                                M6A25470
000E78   73D0 17A4               548          LHL   R13,TYPSTRT       GET ADRS OF WC TEST TO BE RUN      M6A25480
000E7C   01FD                    549          BALR  LINK,R13          NOW RUN THE CORRECT WORST CASE.    M6A25490
000E7E   4300 0052               550          B     SUBCHK                                               M6A25500


000E82   41E0 1282               552   SUB4   BAL   RETRN,TSTNUM      PRINT TEST NUMBER                  M6A25520
000E86   F870 0000 FFFF          553          LI    R7,Y'FFFF'        R7=FFFF, R5=0 ,R6=FFFF             M6A25530
000E8C   0867                    554          LR    R6,R7                                                M6A25540
000E8E   2450                    555          LIS   R5,0                                                 M6A25550
000E90   0885                    556          LR    R8,R5             R8=0                               M6A25560
000E92   73D0 17A4               557          LHL   R13,TYPSTRT       GET ADRS OF WC TEST TO BE RUN      M6A25570
000E96   01FD                    558          BALR  LINK,R13          NOW RUN THE CORRECT WORST CASE.    M6A25580
000E98   F880 0000 FFFF          559          LI    R8,Y'FFFF'        R8=FFFF,R5=0,R6=FFFF,R7=FFFF       M6A25590
000E9E   0868                    560          LR    R6,R8                                                M6A25600
000EA0   0878                    561          LR    R7,R8                                                M6A25610
000EA2   2450                    562          LIS   R5,0                                                 M6A25620
000EA4   73D0 17A4               563          LHL   R13,TYPSTRT       GET ADRS OF WC TEST TO BE RUN      M6A25630
000EA8   01FD                    564          BALR  LINK,R13          NOW RUN THE CORRECT WORST CASE.    M6A25640
000EAA   4300 0052               565          B     SUBCHK                                               M6A25650


000EAE   41E0 1282               567   SUB5   BAL   RETRN,TSTNUM      PRINT TEST NUMBER                  M6A25670
000EB2   F850 0000 FFFF          568          LI    R5,Y'FFFF'        5=FFFF                             M6A25680
000EB8   2460                    569          LIS   R6,0              R6=0                               M6A25690
000EBA   0876                    570          LR    R7,R6             R7=0                               M6A25700
000EBC   0886                    571          LR    R8,R6             R8=0                               M6A25710
000EBE   73D0 17A4               572          LHL   R13,TYPSTRT       GET ADRS OF WC TEST TO BE RUN      M6A25720
000EC2   01FD                    573          BALR  LINK,R13          NOW RUN THE CORRECT WORST CASE.    M6A25730
000EC4   F880 0000 FFFF          574          LI    R8,Y'FFFF'        R8=FFFF,R5=FFFF,R6=0,R7=0          M6A25740
000ECA   0858                    575          LR    R5,R8                                                M6A25750
000ECC   2460                    576          LIS   R6,0                                                 M6A25760
000ECE   0876                    577          LR    R7,R6                                                M6A25770
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000ED0   73D0 17A4         578          LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN       M6A25780
000ED4   01FD              579          BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.     M6A25790
000ED6   4300 0D52         580          B      SUBCHK                                                  M6A25800

000EDA   41E0 1282         582   SUB6   BAL    RETRN,TSTNUM        PRINT TEST NUMBER                   M6A25820
000EDE   F870 0000 FFFF    583          LI     R7,Y'FFFF'          R7=FFFF,R5=FFFF,R6=0                M6A25830
000EE4   0857              584          LR     R5,R7                                                   M6A25840
000EE6   2460              585          LIS    R6,0                                                    M6A25850
000EE8   0886              586          LR     R8,R6               R8=0                                M6A25860
000EEA   73D0 17A4         587          LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN       M6A25870
000EEE   01FD              588          BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.     M6A25880
000EF0   F880 0000 FFFF    589          LI     R8,Y'FFFF'          R8=FFFF,R5=FFFF,R6=0,R7=FFFF        M6A25890
000EF6   0878              590          LR     R7,R8                                                   M6A25900
000EF8   0858              591          LR     R5,R8                                                   M6A25910
000EFA   2460              592          LIS    R6,0                                                    M6A25920
000EFC   73D0 17A4         593          LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN       M6A25930
000F00   01FD              594          BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.     M6A25940
000F02   4300 0D52         595          B      SUBCHK                                                  M6A25950

000F06   41E0 1282         597   SUB7   BAL    RETRN,TSTNUM        PRINT TEST NUMBER                   M6A25970
000F0A   F860 0000 FFFF    598          LI     R6,Y'FFFF'          R6=FFFF,R5=FFFF                     M6A25980
000F10   0856              599          LR     R5,R6                                                   M6A25990
000F12   2470              600          LIS    R7,0                R7=0                                M6A26000
000F14   0887              601          LR     R8,R7               R8=0                                M6A26010
000F16   73D0 17A4         602          LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN       M6A26020
000F1A   01FD              603          BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.     M6A26030
000F1C   F880 0000 FFFF    604          LI     R8,Y'FFFF'          R8=FFFF,R5=R6=FFFF,R7=0             M6A26040
000F22   0858              605          LR     R5,R8                                                   M6A26050
000F24   0868              606          LR     R6,R8                                                   M6A26060
000F26   2470              607          LIS    R7,0                                                    M6A26070
000F28   73D0 17A4         608          LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN       M6A26080
000F2C   01FD              609          BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.     M6A26090
000F2E   4300 0D52         610          B      SUBCHK                                                  M6A26100

000F32   41E0 1282         612   SUB8   BAL    RETRN,TSTNUM        PRINT TEST NUMBER                   M6A26120
000F36   F850 0000 FFFF    613          LI     R5,Y'FFFF'                                              M6A26130
000F3C   0875              614          LR     R7,R5                                                   M6A26140
000F3E   0865              615          LR     R6,R5                                                   M6A26150
000F40   2480              616          LIS    R8,0                R8=0                                M6A26160
000F42   73D0 17A4         617          LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN       M6A26170
000F46   01FD              618          BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.     M6A26180
000F48   F850 0000 FFFF    619          LI     R5,Y'FFFF'                                              M6A26190
000F4E   0865              620          LR     R6,R5                                                   M6A26200
000F50   0875              621          LR     R7,R5                                                   M6A26210
000F52   0885              622          LR     R8,R5               R5 = R6 = R7 = R8 = FFFF            M6A26220
000F54   73D0 17A4         623          LHL    R13,TYPSTRT         GET ADRS OF WC TEST TO BE RUN       M6A26230
000F58   01FD              624          BALR   LINK,R13            NOW RUN THE CORRECT WORST CASE.     M6A26240
000F5A   4300 0D52         625          B      SUBCHK                                                  M6A26250
                           626   *                                                                     M6A26260
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                                   627  *                     LOAD THE DATA PATTERN IN ADDRESS SPECIFIED BY R4     M6A26270
                                   628  *                     IF PAT3 = 0 & PAT4 = 0 , LOAD R5                     M6A26280
                                   629  *                     IF PAT3 = 0 & PAT4 = 1 , LOAD R6                     M6A26290
                                   630  *                     IF PAT3 = 1 & PAT4 = 0 , LOAD R7                     M6A26300
                                   631  *                     IF PAT3 = 1 & PAT4 = 1 , LOAD R8                     M6A26310
                                   632  *                                                                          M6A26320
          0000 0F5E                633  START1   EQU   *                 WORST CASE ALGORITHM FOR 32-198            M6A26330
          0000 0F5E                634  START2   EQU   *                 WORST CASE ALGORITHM FOR 32-206            M6A26340
          0000 0F5E                635  START3   EQU   *                 WORST CASE ALGORITHM FOR 32-200            M6A26350
          0000 0F5E                636  START4   EQU   *                 WORST CASE ALGORITHM FOR 32-209            M6A26360
000F5E    40F0 17A6                637  ALGRM1   STH   LINK,NXTST        SAVE NEXT TEST LOC.                        M6A26370
000F62    41F0 11D8                638           BAL   LINK,FWR1         FIND STARTING LOC.                         M6A26380
000F66    73B0 1536                639  LODTAQ   LHL   R11,PAT3          PAT3 IN R11                                M6A26390
000F6A    73C0 1538                640           LHL   R12,PAT4          PAT4 IN R12                                M6A26400
000F6E    5840 1794                641           L     R4,LOADR          START LOADING AT LOC IN LOADR              M6A26410
000F72    0804                     642  LODTA0   LR    R0,R4                                                        M6A26420
000F74    040B                     643           NR    R0,R11            BITS IN PAT3 BOTH 0 ?                      M6A26430
000F76    2333                     644           BZS   BT1ZRO                                                       M6A26440
000F78    050B                     645           CLR   R0,R11            BITS IN PAT3 BOTH 1 ?                      M6A26450
000F7A    213C                     646           BNES  BT1ONE                                                       M6A26460
000F7C    0804                     647  BT1ZRO   LR    R0,R4             EXCLUSIVE OR OF BITS IN PAT3 IS 0          M6A26470
000F7E    040C                     648           NR    R0,R12            BITS IN PAT4 BOTH 0 ?                      M6A26480
000F80    2134                     649           BNZS  BTOCH2                                                       M6A26490
000F82    4054 0000                650  BT00     STH   R5,0(R4)          EXCLUSIVE OR OF BITS IN PAT4 IS 0          M6A26500
000F86    2305                     651           BS    LDTA2                                                        M6A26510
000F88    050C                     652  BTOCH2   CLR   R0,R12            BITS IN PAT4 BOTH 1 ?                      M6A26520
000F8A    2234                     653           BES   BT00                                                         M6A26530
000F8C    4064 0000                654  BT01     STH   R6,0(R4)                                                     M6A26540
000F90    2306                     655  LDTA2    BS    LDTA3                                                        M6A26550
000F92    0804                     656  BT1ONE   LR    R0,R4             EXCLUSIVE OR OF BITS IN PAT3 IS 1          M6A26560
000F94    040C                     657           NR    R0,R12            BITS IN PAT4 BOTH 0 ?                      M6A26570
000F96    2134                     658           BNZS  BT1CH2                                                       M6A26580
000F98    4074 0000                659  BT10     STH   R7,0(R4)          EXCLUSIVE OR OF BITS IN PAT4 IS 0          M6A26590
000F9C    2305                     660  LDTA3    BS    LOADED                                                       M6A26600
000F9E    050C                     661  BT1CH2   CLR   R0,R12            BITS IN PAT4 BOTH 1 ?                      M6A26610
000FA0    2234                     662           BES   BT10                                                         M6A26620
000FA2    4084 0000                663  BT11     STH   R8,0(R4)          EXCLUSIVE OR OF BITS IN PAT4 IS 1          M6A26630
000FA6    2642                     664  LOADED   AIS   R4,2                                                         M6A26640
000FA8    58E0 1798                665           L     RETRN,HIADR                                                  M6A26650
000FAC    05E4                     666           CLR   RETRN,R4                                                     M6A26660
000FAE    4380 0F72                667           BNL   LODTA0                                                       M6A26670
                                   668  *                                                                          M6A26680
                                   669  *                                                                          M6A26690
000FB2    5840 1794                670  CHKDTA   L     R4,LOADR          START CHECKING AT LOC IN LOADR             M6A26700
                                   671  *        LOADS EXPECTED DATA PATTERN IN R9 TO MATCH ADDRESS IN R4           M6A26710
000FB6    0895                     672  CHKDT1   LR    R9,R5             ASSUME PAT3 = 0 , PAT4 = 0                 M6A26720
000FB8    0804                     673           LR    R0,R4                                                        M6A26730
000FBA    040B                     674           NR    R0,R11                                                       M6A26740
000FBC    2333                     675           BZS   DT1ZRO                                                       M6A26750
000FBE    050B                     676           CLR   R0,R11                                                       M6A26760
000FC0    2138                     677           BNES  DT1ONE                                                       M6A26770
000FC2    0804                     678  DT1ZRO   LR    R0,R4             BIT 12 = 0                                 M6A26780
000FC4    040C                     679           NR    R0,R12                                                       M6A26790
000FC6    2334                     680           BZS   CHKA2             BRANCH IF PAT4 = 0                         M6A26800
000FC8    050C                     681           CLR   R0,R12                                                       M6A26810
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000FCA   2332              682          BES   CHKA2              BRANCH IF BIT 34 = 0            M6A26820
000FCC   0896              683          LR    R9,R6              PAT4 = 1 SO R9 = R6             M6A26830
000FCE   2308              684 CHKA2    BS    CHKDTE                                             M6A26840
000FD0   0897              685 DT1ONE   LR    R9,R7              PAT3 = 1 ASSUME PAT4 = 0        M6A26850
000FD2   0804              686          LR    R0,R4              BRING ADDRESS FROM R4 TO R0     M6A26860
000FD4   040C              687          NR    R0,R12                                             M6A26870
000FD6   2334              688          BZS   CHKDTE             ASSUMPTION O.K.  R9 = R7        M6A26880
000FD8   050C              689          CLR   R0,R12                                             M6A26890
000FDA   2332              690          BES   CHKDTE                                             M6A26900
000FDC   0898              691          LR    R9,R8              PAT4 = 1 SO R9 = R8             M6A26910
                           692 ****                              R9=DATA EXPECTED                M6A26920
000FDE   73A4 0000         693 CHKDTE   LHL   R10,0(R4)          R10=DATA READ                   M6A26930
000FE2   059A              694          CLR   R9,R10             IF R9 = R10 , NO ERROR          M6A26940
000FE4   2335              695          BES   COMP1              CHECK COMPLE. PATTERN           M6A26950
000FE6   41F0 12A8         696          BAL   LINK,ERROR                                         M6A26960
000FEA   4300 101C         697          B     CHKDTG                                             M6A26970
000FEE   0809              698 COMP1    LR    R0,R9              STORE R9 TEMPORARILY            M6A26980
000FF0   F790 0000 FFFF    699          XI    R9,Y'FFFF'         R9 = COMPLE. PATTERN            M6A26990
000FF6   4094 0000         700          STH   R9,0(R4)                                           M6A27000
000FFA   73A4 0000         701          LHL   R10,0(R4)                                          M6A27010
000FFE   059A              702          CLR   R9,R10                                             M6A27020
001000   2335              703          BES   COMP2                                              M6A27030
001002   41F0 12A8         704          BAL   LINK,ERROR                                         M6A27040
001006   4300 101C         705          B     CHKDTG                                             M6A27050
00100A   0890              706 COMP2    LR    R9,R0                                              M6A27060
00100C   4094 0000         707          STH   R9,0(R4)                                           M6A27070
001010   73A4 0000         708          LHL   R10,0(R4)                                          M6A27080
001014   059A              709          CLR   R9,R10                                             M6A27090
001016   2333              710          BES   CHKDTG                                             M6A27100
001018   41F0 12A8         711          BAL   LINK,ERROR                                         M6A27110
00101C   41E0 10F0         712 CHKDTG   BAL   RETRN,WRITE2       DISPLAY LOC                     M6A27120
001020   2642              713          AIS   R4,2               INCREMENT LOC                   M6A27130
001022   58E0 1798         714          L     RETRN,HIADR                                        M6A27140
001026   05E4              715          CLR   RETRN,R4                                           M6A27150
001028   4380 0FB6         716          BNL   CHKDT1             WHEN R4 > HIADR , DONE          M6A27160
00102C   4300 10E2         717          B     CHKEND             ELSE GOTO CHECK END OF WC       M6A27170
                           718 *                                                                 M6A27180
                           719 *        LOAD THE DATA PATTERNS INTO ALL OF MEMORY                M6A27190
                           720 *        IF PAT1 = 0 , PAT2 = 0 LOAD R5                           M6A27200
                           721 *        IF PAT1 = 0 , PAT2 = 1 , LOAD R6                         M6A27210
                           722 *        IF PAT1 = 1 , PAT2 = 0 , LOAD R7                         M6A27220
                           723 *        IF PAT1 = 1 , PAT2 = 1 , LOAD R8                         M6A27230
                           724 *                                                                 M6A27240
         0000 1030         725 STARTO   EQU   *                  WORST CASE ALGORITHM FOR 35-491 M6A27250
001030   40F0 17A6         726 ALGRM2   STH   LINK,NXTST         SAVE NEXT TEST LOC.             M6A27260
001034   41F0 11D8         727          BAL   LINK,FWR1          FIND STARTING LOC.              M6A27270
001038   73B0 1532         728 LODTA1   LHL   R11,PAT1           R11=PAT1                        M6A27280
00103C   73C0 1534         729          LHL   R12,PAT2           R12=PAT2                        M6A27290
001040   5840 1794         730          L     R4,LOADR           START LOADING AT LOC IN LOADR   M6A27300
001044   0804              731 LODTA3   LR    R0,R4                                              M6A27310
001046   040B              732          NR    R0,R11             CHECK FOR PAT1 SET              M6A27320
001048   213A              733          BNZS  CHKBT3                                             M6A27330
00104A   0804              734 BT1ZR1   LR    R0,R4                                              M6A27340
00104C   040C              735          NR    R0,R12                                             M6A27350
00104E   2134              736          BNZS  BT011                                              M6A27360
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001050    4054 0000          737  BT001    STH   R5,0(R4)          PAT1=0 ,PAT2=0 ,STORE R5             M6A27370
001054    2303               738           BS    LODTA4                                                 M6A27380
001056    4064 0000          739  BT011    STH   R6,0(R4)          PAT1=0 ,PAT2=1 ,STORE R6             M6A27390
00105A    2309               740  LODTA4   BS    LOADE1                                                 M6A27400
00105C    0804               741  CHKBT3   LR    R0,R4             PAT1=1 ,CHECK FOR PAT2               M6A27410
00105E    040C               742           NR    R0,R12                                                 M6A27420
001060    2134               743           BNZS  BT111                                                  M6A27430
001062    4074 0000          744  BT101    STH   R7,0(R4)          PAT1=1 ,PAT2=0 ,STORE R7             M6A27440
001066    2303               745           BS    LOADE1                                                 M6A27450
001068    4084 0000          746  BT111    STH   R8,0(R4)          PAT1=1 ,PAT2=1 ,STORE R8             M6A27460
00106C    2642               747  LOADE1   AIS   R4,2                                                   M6A27470
00106E    58E0 1798          748           L     RETRN,HIADR                                            M6A27480
001072    05E4               749           CLR   RETRN,R4                                               M6A27490
001074    4380 1044          750           BNL   LODTA3                                                 M6A27500
                             751  *                                                                     M6A27510
                             752  *                                                                     M6A27520
001076    5840 1794          753  CHKDT2   L     R4,LOADR          START CHECKING AT LOC IN LOADR       M6A27530
00107C    0895               754  CHKDT3   LR    R9,R5             R9 = R5  SET UP FOR PAT1=PAT2=0      M6A27540
00107E    0804               755           LR    R0,R4                                                  M6A27550
001080    040B               756           NR    R0,R11            CHECK FOR PAT1                       M6A27560
001082    2136               757           BNZS  CHKDT4                                                 M6A27570
001084    0804               758           LR    R0,R4                                                  M6A27580
001086    040C               759           NR    R0,R12            CHECK FOR PAT2                       M6A27590
001088    2332               760           BZS   CHKDB1                                                 M6A27600
00108A    0896               761           LR    R9,R6             PAT1=0,PAT2=1,R9=R6                  M6A27610
00108C    2307               762  CHKDB1   BS    CHKDT6            PAT1 = 0 , PAT2 = 0 , R9 = R5        M6A27620
00108E    0804               763  CHKDT4   LR    R0,R4             CHECK FOR PAT2 ,PAT1=1               M6A27630
001090    040C               764           NR    R0,R12                                                 M6A27640
001092    2133               765           BNZS  CHKDT5                                                 M6A27650
001094    0897               766           LR    R9,R7             PAT1=1 ,PAT2=0, R9=R7                M6A27660
001096    2302               767           BS    CHKDT6                                                 M6A27670
001098    0898               768  CHKDT5   LR    R9,R8             R9=DATA EXPECTED                     M6A27680
00109A    73A4 0000          769  CHKDT6   LHL   R10,0(R4)         R10=DATA READ                        M6A27690
00109E    059A               770           CLR   R9,R10            IF R9 = R10 , NO ERROR               M6A27700
0010A0    2333               771           BES   COMP11            CHECK COMPLE. PATTERN                M6A27710
0010A2    41F0 12A8          772           BAL   LINK,ERROR                                             M6A27720
0010A6    0809               773  COMP11   LR    R0,R9             STORE R9 TEMPORARILY                 M6A27730
0010A8    F790 0000 FFFF     774           XI    R9,Y'FFFF'        R9 = COMPLE. PATTERN                 M6A27740
0010AE    4094 0000          775           STH   R9,0(R4)                                               M6A27750
0010B2    73A4 0000          776           LHL   R10,0(R4)                                              M6A27760
0010B6    059A               777           CLR   R9,R10                                                 M6A27770
0010B8    2334               778           BES   COMP21                                                 M6A27780
0010BA    41F0 12A8          779           BAL   LINK,ERROR                                             M6A27790
0010BE    230A               780           BS    CHKDT7                                                 M6A27800
0010C0    0890               781  COMP21   LR    R9,R0                                                  M6A27810
0010C2    4094 0000          782           STH   R9,0(R4)                                               M6A27820
0010C6    73A4 0000          783           LHL   R10,0(R4)                                              M6A27830
0010CA    059A               784           CLR   R9,R10                                                 M6A27840
0010CC    2333               785           BES   CHKDT7                                                 M6A27850
0010CE    41F0 12A8          786           BAL   LINK,ERROR                                             M6A27860
0010D2    41E0 10F0          787  CHKDT7   BAL   RETRN,WRITE2      DISPLAY LOC                          M6A27870
0010D6    2642               788           AIS   R4,2              INCREMENT ADDRESS                    M6A27880
0010D8    58E0 1798          789           L     RETRN,HIADR                                            M6A27890
0010DC    05E4               790           CLR   RETRN,R4                                               M6A27900
0010DE    4380 107C          791           BNL   CHKDT3            WHEN R4 > HIADR , DONE               M6A27910
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                               *                                                          M6A27920
                               *                                                          M6A27930
                               *                                                          M6A27940
0010E2   41F0 11E4             CHKEND   BAL   LINK,FWR             GOTO RE-ENTRY POINTER   M6A27950
0010E6   4300 0D4A                      B     TRESTRT                                      M6A27960
0010EA   73E0 17A6                      LHL   RETRN,NXTST                                  M6A27970
0010EE   030E                           BR    RETRN                                        M6A27980
                               *                                                          M6A27990
                               *                                                          M6A28000
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * *   M6A28010
                               *                                                      *   M6A28020
                               *              W R I T E 2                             *   M6A28030
                               *                                                      *   M6A28040
                               *  THIS ROUTINE WRITES TO THE DISPLAY PANEL (D1-D4)    *   M6A28050
                               *        R4 = THE DATA TO BE WRITTEN                   *   M6A28060
                               *        RETRN = THE RETURN ADDRESS REGISTER           *   M6A28070
                               *                                                      *   M6A28080
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * *   M6A28090
                               *                                                          M6A28100
0010F0   40E0 17A8             WRITE2   STH   RETRN,RXTURN         SAVE RETURN ADDRESS                  M6A28110
0010F4   24E1                           LIS   RETRN,1              LOAD RETRN WITH DISPLAY ADRS         M6A28120
0010F6   DEE0 1768                      OC    RETRN,INCRMT         PUT DISPLAY IN INCREMENTAL MODE      M6A28130
0010FA   08F4                           LR    LINK,R4              GET FULL ADDRESS IS DISPLAY REG.     M6A28140
0010FC   94FF                           EXBR  LINK,LINK            WRITE VALUE ON DISPLAY PANEL         M6A28150
0010FE   98EF                           WHR   RETRN,LINK                                                M6A28160
001100   34FF                           EXHR  LINK,LINK                                                 M6A28170
001102   94FF                           EXBR  LINK,LINK                                                 M6A28180
001104   98EF                           WHR   RETRN,LINK                                                M6A28190
001106   DAE0 177C                      WD    RETRN,SUBTST         WRITE SUBTEST NUMBER TO DISPLAY      M6A28200
00110A   DEE0 1767                      OC    RETRN,NORM           PUT DISPLAY IN NORMAL MODE           M6A28210
00110E   73F0 17A8                      LHL   LINK,RXTURN                                               M6A28220
001112   030F                           BR    LINK                 RETURN TO SUBTEST                    M6A28230
                               *                                                          M6A28240
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * *   M6A28250
                               *                                                      *   M6A28260
                               *                      P R I N T                       *   M6A28270
                               *                                                      *   M6A28280
                               * THIS ROUTINE PRINTS MESSAGES ON THE TELETYPE.        *   M6A28290
                               * R12 = THE STARTING ADDRESS OF THE MESSAGE.           *   M6A28300
                               * R13 = THE ENDING ADDRESS OF THE MESSAGE.             *   M6A28310
                               * LINK = THE RETURN ADDRESS.                           *   M6A28320
                               *                                                      *   M6A28330
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * *   M6A28340
                               *                                                          M6A28350
001114   D3B0 153A             PRINT    LB    R11,ADDRESS          GET CONSOLE ADDRESS                  M6A28360
001118   9DBA                           SSR   R11,R10              SENSE CONSOLE                        M6A28370
00111A   C4A0 000C                      NHI   R10,X'000C'          MASK PASLA STATUS BITS               M6A28380
00111E   C5A0 000C                      CLHI  R10,X'000C'          IS IT DU?                            M6A28390
001122   233B                           BES   PRDU                 YES SO SET FLAG AND RETURN           M6A28400
001124   73A0 176E                      LHL   R10,CRTFLG           IS CONSOLE DEVICE ON PASLA ?         M6A28410
001128   2332                           BZS   CMD                  NO, CONTINUE                         M6A28420
00112A   26B1                           AIS   R11,1                YES, MODIFY ADDRESS                  M6A28430
00112C   DEB0 153D             CMD      OC    R11,WRITE1           PUT IN WRITE MODE                    M6A28440
001130   9DBA                  SENSE    SSR   R11,R10                                                   M6A28450
001132   2081                           BTBS  8,SENSE              WAIT FOR BUSY TO DROP                M6A28460
001134   2112                           BMS   PRDU                 DU SO SET FLAG & RETURN
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001136   2305                  847          BS    CONT02               NO PRINT                          M6A28470
001138   D2B0 177E             848  PRDU    STB   R11,TTYFLG           SET DU FLAG                       M6A28480
00113C   430F 0004             849          B     4(LINK)              AND RETURN                        M6A28490
001140   73CF 0000             850  CONT02  LHL   R12,0(LINK)          LOAD START ADDRESS OF MESSAGE     M6A28500
001144   73DF 0002             851          LHL   R13,2(LINK)          LOAD END ADDRESS OF MESSAGE       M6A28510
001148   96BC                  852          WBR   R11,R12              WRITE MESSAGE TO CONSOLE DEVICE   M6A28520
00114A   9DBA                  853          SSR   R11,R10                                                M6A28530
00114C   2081                  854          BTBS  8,1                  WAIT FOR BUSY TO DROP             M6A28540
00114E   73A0 176E             855          LHL   R10,CRTFLG           IS CONSOLE DEVICE ON PASLA ?      M6A28550
001152   433F 0004             856          BZ    4(LINK)              NO, RETURN                        M6A28560
001156   07AA                  857          XR    R10,R10                                                M6A28570
001158   9ABA                  858          WDR   R11,R10              YES, WRITE A NULL CHAR.           M6A28580
00115A   9DBA                  859          SSR   R11,R10                                                M6A28590
00115C   2081                  860          BTBS  8,1                  WAIT FOR BUSY TO DROP             M6A28600
00115E   27B1                  861          SIS   R11,1                RESTORE CONSOLE DEVICE ADDRESS    M6A28610
001160   430F 0004             862          B     4(LINK)              RETURN                            M6A28620
                               863  *                                                                    M6A28630
                               864  * * * * * * * * * * * * * * * * * * * * * * * * * * *              M6A28640
                               865  *                                                   *              M6A28650
                               866  *                          R E A D                  *              M6A28660
                               867  *                                                   *              M6A28670
                               868  * THIS ROUTINE READS ASCII CHARACTERS FROM THE TTY   *              M6A28680
                               869  * OR THE CONSOLE. IT ALSO STRIPS OFF THE PARITY BIT. *              M6A28690
                               870  * IT THEN RETURNS  ON LINK.                         *              M6A28700
                               871  * R11 = THE TTY ADDRESS.                            *              M6A28710
                               872  * R7 = THE HEX VALUE OF THE CHARACTER READ.         *              M6A28720
                               873  *                                                   *              M6A28730
                               874  * * * * * * * * * * * * * * * * * * * * * * * * * * *              M6A28740
                               875  *                                                                    M6A28750
001164   DEB0 153C             876  READ    OC    R11,READ1            READ=DISABLE UNBLOCK READ=X'A4'   M6A28760
001168   9DB7                  877  SENSER  SSR   R11,R7               SENSE CONSOLE STATUS              M6A28770
00116A   2081                  878          BCS   SENSER               BUSY SO SENSE AGAIN               M6A28780
00116C   9BB7                  879          RDR   R11,R7               READ A CHARACTER FROM CONSOLE     M6A28790
00116E   C470 007F             880          NHI   R7,X'7F'             MASK OFF PARITY BIT               M6A28800
001172   030F                  881          BR    LINK                 AND RETURN                        M6A28810
                               882  ********************************************                        M6A28820
                               883  *                                          *                        M6A28830
                               884  *       T E S T   B R E A K                *                        M6A28840
                               885  *                                          *                        M6A28850
                               886  *         CHECKS THE CONSOLE FOR A         *                        M6A28860
                               887  *         BREAK CONDITION..(PASLA OR       *                        M6A28870
                               888  *         CLI). IF NO BREAK KEY IS         *                        M6A28880
                               889  *         PRESSED IT RETURNS ON            *                        M6A28890
                               890  *         "RETRN"...IF BREAK EXISTS        *                        M6A28900
                               891  *         IT GOES TO COMMAND MODE.         *                        M6A28910
                               892  *                                          *                        M6A28920
                               893  ********************************************                        M6A28930
001174   D3B0 153A             894  TESTBRK LB    R11,ADDRESS          GET ADDRESS                       M6A28940
001178   9DBA                  895          SSR   R11,R10              WHAT'S UP CONSOLE?                M6A28950
00117A   C3A0 0020             896          THI   R10,X'20'            IS IT BREAK?                      M6A28960
00117E   033E                  897          BZR   RETRN                NO--RETURN                        M6A28970
001180   4820 176E             898          LH    R2,CRTFLG            IS IT A PASLA?                    M6A28980
001184   4330 119A             899          BZ    CHECKR               NO,TEST IT AGAIN ANYWAY           M6A28990
001188   C3A0 0008             900          THI   R10,8                ALREADY ACKNOWLEDGED?             M6A29000
00118C   023E                  901          BNZR  RETRN                YES RETURN                        M6A29010
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00118E   9BB2                    RDR    R11,R2             READ A CHARACTER FROM PASLA          M6A29020
001190   9DBA          PASSENS   SSR    R11,R10            WHAT'S UP PAL(SA)?                   M6A29030
001192   2281                    BFBS   8,PASSENS          OH--YOU'RE BUSY ASK AGAIN?           M6A29040
001194   0822                    LR     R2,R2              NOT BUSY ANYMORE                     M6A29050
001196   023E                    BNZR   RETRN              AND GOT A FRAMING ERROR SO RETURN    M6A29060
001198   2305                    BS     TRUEBRK            GOT A NULL CHAR..VALID PASLA BREAK   M6A29070
00119A   9DBA          CHECKR    SSR    R11,R10            WHAT'S UP CONSOLE?                   M6A29080
00119C   C3A0 0020               THI    R10,X'20'          IS IT BREAK?                         M6A29090
0011A0   2033                    BNZS   CHECKR             YES - WAIT FOR RELEASE OF KEY        M6A29100
0011A2   4300 0BFC     TRUEBRK   B      PRTMSG             VALID BREAK- GOTO COMMAND MODE       M6A29110
                       *                                                                        M6A29120
                       * * * * * * * * * * * * * * * * * * * * * * * * * * *                    M6A29130
                       *                                                   *                    M6A29140
                       *                     C O N V E R T                 *                    M6A29150
                       *                                                   *                    M6A29160
                       * THE ROUTINE CONVERTS HEX CHARACTERS TO ASCII AND   *                    M6A29170
                       * STORES THE IN MEMORY.                             *                    M6A29180
                       * R7 = THE SHIFT INDEX (THE NUM OF  BITS IN THE HEX *                    M6A29190
                       *      CHARACTER MINUS 4).                          *                    M6A29200
                       * R9 = THE HEX VALUE TO BE CONVERTED.               *                    M6A29210
                       * R12 = THE STARTING ADDRESS WHERE THE CHARACTER IS *                    M6A29220
                       *       TO BE STORED.                               *                    M6A29230
                       * LINK = THE RETURN ADDRESS.                        *                    M6A29240
                       *                                                   *                    M6A29250
                       * * * * * * * * * * * * * * * * * * * * * * * * * * *                    M6A29260
                       *                                                                        M6A29270
0011A6   737F 0000     CONVERT   LHL    R7,0(LINK)         LOAD SHIFT INDEX                     M6A29280
0011AA   73CF 0002               LHL    R12,2(LINK)        LOAD ADRS INDEX                      M6A29290
0011AE   0869          CONVERT1  LR     R6,R9              LOAD VALUE TO BE CONVERTED           M6A29300
0011B0   EC67 0000               SRL    R6,0(R7)           SHIFT DIGIT INTO PLACE               M6A29310
0011B4   C460 000F               NHI    R6,X'F'            MASK OFF ALL BUT LEAST SIGNIF DIGIT  M6A29320
0011B8   C660 0030               OHI    R6,X'30'           CONVERT TO ASCII                     M6A29330
0011BC   C560 003A               CLHI   R6,X'3A'           IS CHARACTER A NUMBER                M6A29340
0011C0   2183                    BLS    CONT9              YES, CONTINUE ROUTINE                M6A29350
0011C2   CA60 0007               AHI    R6,7               NO, CONVERT TO ASCII LETTER          M6A29360
0011C6   D26C 0000     CONT9     STB    R6,0(R12)          STORE VALUE IN MESSAGE               M6A29370
0011CA   0877                    LR     R7,R7              IS CONVERSION COMPLETE               M6A29380
0011CC   433F 0004               BZ     4(LINK)            YES, RETURN TO SUBTEST               M6A29390
0011D0   2774                    SIS    R7,4               NO, DECREMENT SHIFT INDEX            M6A29400
0011D2   26C1                    AIS    R12,1              INCREMENT STORE INDEX                M6A29410
0011D4   4300 11AE               B      CONVERT1           CONVERT NEXT HEX DIGIT               M6A29420
                       *                                                                        M6A29430
                       * * * * * * * * * * * * * * * * * * * * * * * * * * * *                  M6A29440
                       *                                                    *                   M6A29450
                       *                         F W R 1                    *                   M6A29460
                       *                                                    *                   M6A29470
                       * THIS ROUTINE SCANS THE AVAILABLE MEMORY TABLE FROM *                   M6A29480
                       * BOTTOM TO TOP (KB0008 TO KB0968) AND RETURNS ON    *                   M6A29490
                       * LINK EACH TIME IT ENCOUNTERS AN AVAILABLE 8K BLOCK *                   M6A29500
                       * OF MEMORY. WHEN THE ENTIRE TABLE HAS BEEN CHECKED  *                   M6A29510
                       * THE ROUTINE RETURNS ON 4(LINK).                    *                   M6A29520
                       * R1 = TABLE INDEX VALUE                             *                   M6A29530
                       * R2 = THE STARTING ADDRESS OF THE AVAILABLE 8K BLOCK.*                  M6A29540
                       * LINK = THE RETURN ADDRESS.                         *                   M6A29550
                       *                                                    *                   M6A29560
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                                   957  * * * * * * * * * * * * * * * * * * * * * * * * * * *      M6A29570
                                   958  *                                                           M6A29580
0011D8   0711                      959  FWR1    XR    R1,R1           ZERO REGISTER R1              M6A29590
0011DA   0722                      960          XR    R2,R2           ZERO REGISTER R2              M6A29600
0011DC   5020 178C                 961          ST    R2,BLKADR                                     M6A29610
0011E0   D220 177A                 962          STB   R2,LIMFLG       CLEAR FLAG                    M6A29620
0011E4   D320 177F                 963  FWR     LB    R2,CONTFLG                                    M6A29630
0011E8   0822                      964          LR    R2,R2           IS CONTINUE FLAG SET ?        M6A29640
0011EA   4330 1214                 965          BZ    FW1             NO, BRANCH                    M6A29650
0011EE   D3A0 153A                 966          LB    WORK,ADDRESS    YES, LOOK FOR BREAK KEY       M6A29660
0011F2   9DA2                      967          SSR   WORK,R2                                       M6A29670
0011F4   C320 0020                 968          THI   R2,X'20'        IS BREAK KEY SET ?            M6A29680
0011F8   4330 1214                 969          BZ    FW1             NO, CONTINUE TESTING          M6A29690
0011FC   7320 176E                 970          LHL   R2,CRTFLG       YES, IS CONSOLE DEV ON PASLA ? M6A29700
001200   2336                      971          BZS   TTYSNS          NO, BRANCH                    M6A29710
001202   DEA0 153C                 972          OC    WORK,READ1                                    M6A29720
001206   9BA2                      973          RDR   WORK,R2         YES, CLEAR CHARACTER          M6A29730
001208   4300 0DC2                 974          B     TTYCHK                                        M6A29740
00120C   9DA2                      975  TTYSNS  SSR   WORK,R2                                       M6A29750
00120E   2041                      976          BTBS  4,1             WAIT FOR BREAK TO GO AWAY     M6A29760
001210   4300 0DC2                 977          B     TTYCHK                                        M6A29770
001214   D3A0 177A                 978  FW1     LB    WORK,LIMFLG                                   M6A29780
001218   08AA                      979          LR    WORK,WORK       IS LIMIT FLAG SET ?           M6A29790
00121A   423F 0004                 980          BNZ   4(LINK)         YES, RETURN ON LINK + 4 (EOT) M6A29800
00121E   5820 178C                 981          L     R2,BLKADR                                     M6A29810
001222   2611                      982  FW      AIS   R1,1            NO, INCREMENT INDEX REGISTER  M6A29820
001224   CA20 4000                 983          AHI   R2,X'4000'      INCREMENT MEMORY BLOCK ADDRS  M6A29830
001228   7410 175E                 984          TBT   R1,KB0016       IS MEMORY BLOCK IN SYSTEM ?   M6A29840
00122C   2235                      985          BZS   FW              NO, CHECK NEXT BLOCK          M6A29850
00122E   C510 0040                 986          CLHI  R1,64           YES, HAS ALL AVAIL MEM BEEN CHECKED? M6A29860
001232   438F 0004                 987          BNL   4(LINK)         YES, RETURN ON LINK + 4 (EOT) M6A29870
001236   5020 178C                 988          ST    R2,BLKADR                                     M6A29880
00123A   58A0 1784                 989  CHKLIM  L     WORK,LOVAL      LOAD LOW LIMIT                M6A29890
00123E   05A2                      990          CLR   WORK,R2         IS LOW LIMIT LESS THAN BLOCK ADRS ? M6A29900
001240   4280 1262                 991          BL    LOW2            YES, USE CURRENT BLOCK ADRS   M6A29910
001244   F4A0 000F F000            992          NI    WORK,Y'FF000'   NO,MASK FOR 16 BIT ADDRESS    M6A29920
00124A   05A2                      993          CLR   WORK,R2         IS ADRS IN CURRENT BLOCK ?    M6A29930
00124C   2337                      994          BES   LOW1            YES, USE LOW LIMIT            M6A29940
00124E   F4A0 000F E000            995          NI    WORK,Y'FE000'   NO, MASK FOR 20 BIT ADRS      M6A29950
001254   05A2                      996          CLR   WORK,R2         IS ADRS IN CURRENT BLOCK ?    M6A29960
001256   4230 1222                 997          BNE   FW              NO, CHECK NEXT BLOCK          M6A29970
00125A   08A2                      998  LOW1    LR    WORK,R2         NO, USE LOVAL                 M6A29980
00125C   5820 1784                 999          L     R2,LOVAL        LOAD LOW LIMIT                M6A29990
001260   2302                     1000          BS    ADDBLK                                        M6A30000
001262   08A2                     1001  LOW2    LR    WORK,R2         LOAD CURRENT BLOCK ADRS       M6A30010
001264   CAA0 3FFE                1002  ADDBLK  AHI   WORK,X'3FFE'    ADD BLOCK SIZE TO BLOCK ADRS  M6A30020
001268   55A0 1788                1003          CL    WORK,HIVAL      IS BLOCK END ADRS < HIGH LIMIT ? M6A30030
00126C   2186                     1004          BLS   EMOS            YES, RETURN                   M6A30040
00126E   24AF                     1005          LIS   WORK,X'F'       NO, SET LIMIT FLAG            M6A30050
001270   D2A0 177A                1006          STB   WORK,LIMFLG                                   M6A30060
001274   58A0 1788                1007          L     WORK,HIVAL      LOAD HIGH LIMIT               M6A30070
001278   5020 1794                1008  EMOS    ST    R2,LOADR        SET LOADR                     M6A30080
00127C   50A0 1798                1009          ST    WORK,HIADR      SET HIADR                     M6A30090
001280   030F                     1010          BR    LINK            RETURN                        M6A30100
                                  1011  *                                                           M6A30110
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                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * *        M6A30120
                    *                                                       *        M6A30130
                    *                      T S T N U M                      *        M6A30140
                    *                                                       *        M6A30150
                    * THIS ROUTINE STORES THE CURRENT SUBTEST NUMBER IN      *        M6A30160
                    * THE ERROR MESSAGE AND ALSO PRINTS IT ON THE TTY.      *        M6A30170
                    * RETRN = THE RETURN ADDRESS.                           *        M6A30180
                    *                                                       *        M6A30190
                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * *        M6A30200
                    *                                                                M6A30210
001282  D390 177C   TSTNUM   LB    R9,SUBTST          LOAD CURRENT SUBTEST NUMBER        M6A30220
001286  41F0 11A6            BAL   LINK,CONVERT       CONVERT TO ASCII CHARACTERS        M6A30230
00128A  0004                 DC    X'4'               SHIFT INDEX                        M6A30240
00128C  165C                 DC    Z(SUBNUM)          STORE INDEX                        M6A30250
00128E  7390 165C            LHL   R9,SUBNUM          LOAD ASCII VALUE OF SUBTEST NUMBER M6A30260
001292  4090 1640            STH   R9,TT              STORE SUBTEST NUMBER IN ERROR MSG  M6A30270
001296  D390 177F            LB    R9,CONTFLG         IS CONTINUE FLAG SET               M6A30280
00129A  0899                 LR    R9,R9                                                 M6A30290
00129C  023E                 BNZR  RETRN              YES, RETURN TO SUBTEST             M6A30300
00129E  41F0 1114            BAL   LINK,PRINT         NO, PRINT SUBTEST NUMBER           M6A30310
0012A2  165C                 DC    Z(SUBNUM)          START ADRS OF MESSAGE              M6A30320
0012A4  165F                 DC    Z(ENDMSG)          END ADRS OF MESSAGE                M6A30330
0012A6  030E                 BR    RETRN              RETURN TO SUBTEST                  M6A30340
                    *                                                                M6A30350
                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * *        M6A30360
                    *                                                       *        M6A30370
                    *                        E R R O R                      *        M6A30380
                    *                                                       *        M6A30390
                    * THIS ROUTINE PRINTS THE FOLLOWING MESSAGE:            *        M6A30400
                    *                                                       *        M6A30410
                    * W  TT  XXXXX  YYYYYYYY  ZZZZZZZZ                      *        M6A30420
                    *                                                       *        M6A30430
                    * W = THE CONDITION CODE WHEN AN INTERRUPT OCCURS       *        M6A30440
                    * TT = THE SUBTEST NUMBER THE ERROR OCCURED IN          *        M6A30450
                    * XXXXX = THE ADDRESS OF THE LOCATION UNDER TEST        *        M6A30460
                    * YYYYYYYY = THE CORRECT DATA EXPECTED                  *        M6A30470
                    * ZZZZZZZZ = THE INCORRECT DATA READ                    *        M6A30480
                    *                                                       *        M6A30490
                    * R4 = MEMORY LOCATION UNDER TEST                       *        M6A30500
                    * R7 = EXPECTED DATA                                    *        M6A30510
                    * R8 = DATA READ                                        *        M6A30520
                    * LINK = THE RETURN ADDRESS                             *        M6A30530
                    *                                                       *        M6A30540
                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * *        M6A30550
                    *                                                                M6A30560
0012A8  D000 17EC   ERROR    STM   R0,REGSAV10        SAVE TEST REGISTERS                M6A30570
0012AC  D100 17AC            LM    R0,REGSAV00        PICK UP WORK REGISTERS             M6A30580
0012B0  E6C0 1640            LA    R12,TT             LOAD START ADRS OF ERROR MESSAGE   M6A30590
0012B4  40C0 1314   ERROR1   STH   R12,RTN+4          STORE START ADRS IN DATA CONSTANT LOC M6A30600
0012B8  D3B0 153A   GWTTY1   LB    R11,ADDRESS        LOAD TTY ADDRESS                   M6A30610
0012BC  24FF        G01      LIS   LINK,X'F'                                             M6A30620
0012BE  D2F0 177D            STB   LINK,ERRFLG        SET ERROR FLAG                     M6A30630
0012C2  24F1                 LIS   LINK,1                                                M6A30640
0012C4  51F0 17A0            AM    LINK,TOTALERR      INCREMENT ERROR COUNT              M6A30650
0012C8  238D                 BNCS  CONT7              CONTINUE UNTIL COUNT = X'FFFFFFFF' M6A30660
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0012CA   9DBA                   1067           SSR    R11,R10            IS TTY DU ?                              M6A30670
0012CC   21C2                   1068           BTFS   12,QRZ                                                      M6A30680
0012CE   231A                   1069           BNMS   CONT7              NO, CONTINUE WITH ROUTINE                M6A30690
0012D0   2541                   1070  QRZ      LCS    R4,1                                                        M6A30700
0012D2   5040 17A0              1071           ST     R4,TOTALERR                                                 M6A30710
0012D6   41E0 10F0              1072           BAL    RETRN,WRITE2       YES WRITE Y'FFFFFFFF' ON DISPLAY         M6A30720
0012DA   F810 0000 A0F0         1073           LI     R1,Y'A0F0'         LOAD HALT PSW                            M6A30730
0012E0   9501                   1074           EPSR   R0,R1              HALT PROCESSOR                           M6A30740
0012E2   9DBA                   1075  CONT7    SSR    R11,R10                                                     M6A30750
0012E4   C3A0 0020              1076           THI    R10,X'20'                                                   M6A30760
0012E8   4230 1322              1077           BNZ    BRKWAIT                                                     M6A30770
0012EC   5890 17FC              1078           L      R9,REGSAV14        LOAD ADRS WHERE ERROR OCCURED            M6A30780
0012F0   41F0 11A6              1079           BAL    LINK,CONVERT       CONVERT TO ASCII CHARACTERS              M6A30790
0012F4   0010                   1080           DC     X'10'              SHIFT INDEX                              M6A30800
0012F6   1644                   1081           DC     Z(XXXXX)           STORE INDEX                              M6A30810
0012F8   5890 1810              1082           L      R9,REGSAV19        LOAD EXPECTED DATA                       M6A30820
0012FC   41F0 11A6              1083           BAL    LINK,CONVERT       CONVERT TO ASCII CHARACTERS              M6A30830
001300   001C                   1084           DC     X'1C'              SHIFT INDEX                              M6A30840
001302   164C                   1085           DC     Z(YYYYYYYY)        STORE INDEX                              M6A30850
001304   5890 1814              1086           L      R9,REGSAV1A        LOAD DATA READ                           M6A30860
001308   41F0 11A6              1087           BAL    LINK,CONVERT       CONVERT TO ASCII CHARACTERS              M6A30870
00130C   001C                   1088           DC     X'1C'              SHIFT INDEX                              M6A30880
00130E   1656                   1089           DC     Z(ZZZZZZZZ)        STORE INDEX                              M6A30890
001310   41F0 1114              1090  RTN      BAL    LINK,PRINT         PRINT ERROR MESSAGE                      M6A30900
001314   163C                   1091           DC     Z(STARMSG)         START ADRS OF MESSAGE                    M6A30910
001316   165F                   1092           DC     Z(ENDMSG)          END ADRS OF MESSAGE                      M6A30920
001318   D000 17AC              1093           STM    R0,REGSAV00        SAVE WORK REGISTERS                      M6A30930
00131C   D100 17EC              1094           LM     R0,REGSAV10        PICK UP TEST REGISTERS                   M6A30940
001320   030F                   1095           BR     LINK               RETURN TO SUBTEST                        M6A30950
001322   73E0 176E              1096  BRKWAIT  LHL    RETRN,CRTFLG                                                M6A30960
001326   2335                   1097           BZS    BRKWAIT1                                                    M6A30970
001328   DEB0 153C              1098           OC     R11,READ1                                                   M6A30980
00132C   9BBE                   1099           RDR    R11,RETRN                                                   M6A30990
00132E   2303                   1100           BS     RTN5                                                        M6A31000
001330   9DBA                   1101  BRKWAIT1 SSR    R11,R10                                                     M6A31010
001332   2041                   1102           BTBS   4,1                                                         M6A31020
001334   D000 17AC              1103  RTN5     STM    R0,REGSAV00        SAVE WORK REGISTERS                      M6A31030
001338   D100 17EC              1104           LM     R0,REGSAV10        PICK UP TESTING REGISTERS                M6A31040
00133C   4300 0D52              1105           B      SUBCHK                                                      M6A31050
                                1106  *                                                                           M6A31060
                                1107  *                                                                           M6A31070
001340   0711                   1108  FWR1A    XR     R1,R1              ZERO REGISTER ONE                        M6A31080
001342   0722                   1109           XR     R2,R2              ZERO REGISTER TWO                        M6A31090
001344   2611                   1110  FWRA     AIS    R1,1               INCREMENT INDEX REGISTER                 M6A31100
001346   CA20 4000              1111           AHI    R2,X'4000'         INCREMENT MEMORY BLOCK ADDRESS           M6A31110
00134A   7410 175E              1112           TBT    R1,KB0016          IS MEMORY BLOCK IN SYSTEM ?              M6A31120
00134E   2235                   1113           BZS    FWRA               NO, CHECK NEXT BLOCK                     M6A31130
001350   C510 0080              1114           CLHI   R1,128             YES, HAS ALL AVAIL MEM BEEN CK'D ?       M6A31140
001354   028F                   1115           BLR    LINK                                                        M6A31150
001356   430F 0002              1116           B      2(LINK)            YES, RETURN ON LINK + 2                  M6A31160
                                1117  *                                                                           M6A31170
                                1118  ******************************************************************************** M6A31180
                                1119  *                                                                           M6A31190
00135A   41F0 1114              1120  HILO     BAL    LINK,PRINT         PRINT "LO= "                             M6A31200
00135E   1688                   1121           DC     Z(LOMSG)           START ADDRESS OF MESSAGE                 M6A31210
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001360   168D                 1122              DC    Z(LOEND)          END ADDRESS OF MESSAGE                  M6A31220
001362   4190 13D6            1123              BAL   R9,HILOGET        GET DATA FROM CONSOLE                   M6A31230
001366   41F0 1340            1124  CONT12      BAL   LINK,FWR1A        IND FIRST AVAILABLE 16K BLOCK           M6A31240
00136A   0582                 1125  COMPR       CLR   R8,R2             IS BLOCK SELECTED = AVAIL BLOCK ?       M6A31250
00136C   233A                 1126              BES   LOW               YES, STORE SELECTED BLOCK IN LOVAL?     M6A31260
00136E   41F0 1344            1127              BAL   LINK,FWRA         NO, FIND NEXT AVAILABLE 16K BLOCK       M6A31270
001372   2204                 1128              BS    COMPR             COMPARE NEXT BLOCK                      M6A31280
001374   41F0 1114            1129              BAL   LINK,PRINT        PRINT "MEMORY NOT AVAILABLE"            M6A31290
001378   16AC                 1130              DC    Z(MNAMSG)         START ADDRESS OF MESSAGE                M6A31300
00137A   16C1                 1131              DC    Z(MNAEND)         END ADDRESS OF MESSAGE                  M6A31310
00137C   4300 135A            1132              B     HILO                                                      M6A31320
001380   F4A0 000F FFFE       1133  LOW         NI    R10,Y'FFFFE'                                              M6A31330
001386   50A0 1784            1134              ST    R10,LOVAL                                                 M6A31340
00138A   41F0 1114            1135  HILO1       BAL   LINK,PRINT        PRINT "HI= "                            M6A31350
00138E   168E                 1136              DC    Z(HIMSG)          START ADDRESS OF MESSAGE                M6A31360
001390   1693                 1137              DC    Z(HIEND)          END ADDRESS OF MESSAGE                  M6A31370
001392   4190 13D6            1138              BAL   R9,HILOGET        GET DATA FROM CONSOLE                   M6A31380
001396   5890 1784            1139              L     R9,LOVAL          LOAD R9 WITH THE LOW VALUE              M6A31390
00139A   05A9                 1140              CLR   R10,R9            IS HIVAL > LOVAL ?                      M6A31400
00139C   4280 13BC            1141              BC    NOTLOW            NO, PRINT MESSAGE                       M6A31410
0013A0   41F0 1340            1142  CONT10      BAL   LINK,FWR1A        YES, FIND FIRST AVAIL 16K BLOCK         M6A31420
0013A4   0582                 1143  COMPR2      CLR   R8,R2             IS BLOCK SELECTED = BLOCK AVAIL ?       M6A31430
0013A6   4330 13C8            1144              BE    HIGH              YES, STORE SELECTED BLOCK IN HIVAL      M6A31440
0013AA   41F0 1344            1145              BAL   LINK,FWRA         NO, FIND NEXT AVAIL 16K BLOCK           M6A31450
0013AE   2205                 1146              BS    COMPR2            COMPARE NEXT BLOCK                      M6A31460
0013B0   41F0 1114            1147              BAL   LINK,PRINT        PRINT "MEMORY NOT AVAILABLE"            M6A31470
0013B4   16AC                 1148              DC    Z(MNAMSG)         START ADDRESS OF MESSAGE                M6A31480
0013B6   16C1                 1149              DC    Z(MNAEND)         END ADDRESS OF MESSAGE                  M6A31490
0013B8   4300 138A            1150              B     HILO1             SELECT NEW HI VALUE                     M6A31500
0013BC   41F0 1114            1151  NOTLOW      BAL   LINK,PRINT        PRINT "LOW VALUE>HIGH VALUE"            M6A31510
0013C0   1694                 1152              DC    Z(NLMSG)          START ADDRESS OF MESSAGE                M6A31520
0013C2   16AB                 1153              DC    Z(NLEND)          END ADDRESS OF MESSAGE                  M6A31530
0013C4   4300 135A            1154              B     HILO              RENTER LIMITS                           M6A31540
0013C8   F4A0 000F FFFE       1155  HIGH        NI    R10,Y'FFFFE'                                              M6A31550
0013CE   50A0 1788            1156              ST    R10,HIVAL                                                 M6A31560
0013D2   4300 0BFC            1157              B     PRTMSG                                                    M6A31570
                              1158  *                                                                           M6A31580
                              1159  *                                                                           M6A31590
0013D6   2480                 1160  HILOGET     LIS   R8,0              CLEAR HEX ADDRESS REGISTER              M6A31600
0013D8   24A0                 1161              LIS   WORK,0            CLEAR CHARACTER COUNT REGISTER          M6A31610
0013DA   41F0 1164            1162  HILOREAD    BAL   LINK,READ         GET A CHARACTER FROM CONSOLE            M6A31620
0013DE   26A1                 1163              AIS   WORK,1            INCREMENT CHAR COUNT REG                M6A31630
0013E0   C570 000D            1164              CLHI  R7,X'0D'          FINISHED?                               M6A31640
0013E4   4330 142C            1165              BE    EXIT1             YUP                                     M6A31650
0013E8   C5A0 0006            1166              CLHI  WORK,X'6'         HAS TESTEE EXCEDED ADDRESS SPACE?       M6A31660
0013EC   4380 142C            1167              BNL   EXIT1             YUP SO ASSUME HE'S FINISHED             M6A31670
0013F0   C570 0030            1168              CLHI  R7,X'30'          IS IT A VALID CHARACTER?                M6A31680
0013F4   4280 1420            1169              BL    QIP               NO ASK AGAIN                            M6A31690
0013F8   C570 003A            1170              CLHI  R7,X'3A'          YEAH IS IT A DECIMAL NUMBER?            M6A31700
0013FC   218C                 1171              BLS   DECNUM            YUP IT'S DECIMAL ALRIGHT                M6A31710
0013FE   C570 0041            1172              CLHI  R7,X'41'          IS IT A LETTER?                         M6A31720
001402   4280 1420            1173              BL    QIP               NOPE IT'S SUMTHIN' ELSE                 M6A31730
001406   C570 0047            1174              CLHI  R7,X'47'          IS IT A HEX NUMBER?                     M6A31740
00140A   4380 1420            1175              BNL   QIP               NOPE ASK THE TESTEE AGAIN               M6A31750
00140E   CB70 0037            1176              SHI   R7,X'37'          CONVERT TO HEX NUMBER                   M6A31760
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001412  2303                1177         BS     HILOFIN         GET ANOTHER CHARACTER          M6A31770
001414  CB70 0030           1178  DECNUM  SHI    R7,X'30'        CONVERT TO HEX NUMBER          M6A31780
001418  1184                1179  HILOFIN SLLS   R8,4            SHIFT HEX ADDRESS REGISTER     M6A31790
00141A  0A87                1180         AR     R8,R7           AND ADD NEX NUMBER             M6A31800
00141C  4300 13DA           1181         B      HILOREAD        GET ONE MORE                   M6A31810
001420  41F0 1114           1182  QIP     BAL    LINK,PRINT      OOOOPS MADE AN ERROR           M6A31820
001424  1668                1183         DC     Z(QUEST)        SOO TELL TESTEE                M6A31830
001426  166B                1184         DC     Z(QIPEND)                                      M6A31840
001428  4300 13D6           1185         B      HILOGET         START ALL OVER                 M6A31850
00142C  08A8                1186  EXIT1   LR     R10,R8                                         M6A31860
00142E  F480 000F C000      1187         NI     R8,Y'FC000'     ISOLATE TWO MOST SIGNIF DIGITS M6A31870
001434  0309                1188         BR     R9                                             M6A31880
                            1189  *                                                           M6A31890
                            1190  ***************************************************************** M6A31900
                            1191  *                                                           M6A31910
001436  D000 1A46           1192  MALFTN  STM    R0,RSAVE+64     SAVE ALL REGISTERS             M6A31920
00143A  9599                1193         EPSR   R9,R9           CAPTURE CURRENT CONDITION CODE M6A31930
00143C  48C0 1778           1194         LH     R12,WRAPFLG                                    M6A31940
001440  2333                1195         BZS    MALFTNA                                        M6A31950
001442  C200 0020           1196         LPSW   X'20'                                          M6A31960
001446  C390 000F           1197  MALFTNA THI    R9,X'F'                                        M6A31970
00144A  4330 1492           1198         BZ     MMALFTN                                        M6A31980
00144E  24C1                1199         LIS    R12,1                                          M6A31990
001450  04C9                1200         NR     R12,R9                                         M6A32000
001452  2337                1201         BZS    CONT17                                         M6A32010
001454  5810 0024           1202         L      R1,X'24'                                       M6A32020
001458  F810 0000 A0F0      1203         LI     R1,Y'A0F0'      LOAD HALT PSW                  M6A32030
00145E  9501                1204         EPSR   R0,R1           HALT PROCESSOR                 M6A32040
001460  41F0 11A6           1205  CONT17  BAL    LINK,CONVERT    CONVERT TO ASCII CHARACTERS    M6A32050
001464  0000                1206         DC     X'0'            SHIFT INDEX                    M6A32060
001466  163D                1207         DC     Z(W)            STORE INDEX                    M6A32070
001468  5840 0024           1208         L      R4,X'24'        LOAD ADRS WHERE MALFTN OCCURED M6A32080
00146C  E6C0 163D           1209         LA     R12,W           LOAD START ADRS OF ERROR MESSAGE M6A32090
001470  E6F0 147C           1210         LA     LINK,CONT16     ESTABLISH RETURN ADRS          M6A32100
001474  50F0 1828           1211         ST     LINK,REGSAV1F   STORE RETURN REGISTER          M6A32110
001478  4300 12B4           1212         B      ERROR1          GO TO ERROR ROUTINE            M6A32120
00147C  9DBA                1213  CONT16  SSR    R11,R10         IS TTY DU ?                    M6A32130
00147E  2316                1214         BNMS   CONT15          NO, LOAD NEW PSW               M6A32140
001480  F840 AAAA AAAA      1215         LI     R4,Y'AAAAAAAA'                                 M6A32150
001486  41E0 10F0           1216         BAL    RETRN,WRITE2    YES, WRITE Y'AAAAAAAA' ON DISPLAY M6A32160
00148A  F810 0000 A0F0      1217  CONT15  LI     R1,Y'A0F0'      LOAD HALT PSW                  M6A32170
001490  9501                1218         EPSR   R0,R1           AND HALT PROCESSOR             M6A32180
001492  41F0 11A6           1219  MMALFTN BAL    LINK,CONVERT                                   M6A32190
001496  0000                1220         DC     X'0'                                           M6A32200
001498  171C                1221         DC     Z(CCADRS)                                      M6A32210
00149A  0891                1222         LR     R9,R1                                          M6A32220
00149C  41F0 11A6           1223         BAL    LINK,CONVERT                                   M6A32230
0014A0  0010                1224         DC     X'10'                                          M6A32240
0014A2  1720                1225         DC     Z(MMADRS)                                      M6A32250
0014A4  41F0 1114           1226         BAL    LINK,PRINT                                     M6A32260
0014A8  1704                1227         DC     Z(MACHMAL)                                     M6A32270
0014AA  1727                1228         DC     Z(MMEND)                                       M6A32280
0014AC  D100 1A48           1229         LM     R0,RSAVE+64                                    M6A32290
0014B0  4300 147C           1230         B      CONT16                                         M6A32300
                            1231  *                                                           M6A32310
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                                                                                                    M6A32320
                                1232  *
0014B4   089F                   1233  ILGINT   LR     R9,LINK              LOAD OLD PSW                 M6A32330
0014B6   41F0 11A6              1234           BAL    LINK,CONVERT         CONVERT TO ASCII CHARACTERS  M6A32340
0014BA   001C                   1235           DC     X'1C'                SHIFT INDEX                  M6A32350
0014BC   16FA                   1236           DC     Z(ADRS)              STORE INDEX                  M6A32360
0014BE   089E                   1237           LR     R9,RETRN             LOAD LOC WHERE ILG INST OCCURED M6A32370
0014C0   41F0 11A6              1238           BAL    LINK,CONVERT         CONVERT TO ASCII CHARACTERS  M6A32380
0014C4   001C                   1239           DC     X'1C'                SHIFT INDEX                  M6A32390
0014C6   16F0                   1240           DC     Z(ADRS1)             STORE INDEX                  M6A32400
0014C8   41F0 1114              1241           BAL    LINK,PRINT           PRINT ILLEGAL INSTRUCTION MESSAGE M6A32410
0014CC   16DA                   1242           DC     Z(ILGMSG)            START ADRS OF MESSAGE        M6A32420
0014CE   1703                   1243           DC     Z(ILGEND)            END ADRS OF MESSAGE          M6A32430
0014D0   9DBA                   1244           SSR    R11,R10              IS TTY OFF ?                 M6A32440
0014D2   2316                   1245           BNMS   CONT14               NO. LOAD NEW PSW             M6A32450
0014D4   F840 5555 5555         1246           LI     R4,Y'55555555'                                    M6A32460
0014DA   41E0 10F0              1247           BAL    RETRN,WRITE2         YES, WRITE Y'55555555' ON DISPLAY M6A32470
0014DE   F810 0000 A0F0         1248  CONT14   LI     R1,Y'A0F0'           LOAD HALT PSW                M6A32480
0014E4   9501                   1249           EPSR   R0,R1                AND HALT PROCESSOR           M6A32490
                                1250  *                                                                 M6A32500
                                1251  *                                                                 M6A32510
0014E6   082E                   1252  MACINT   LR     R2,RETRN             SAVE OLD PSW                 M6A32520
0014E8   083F                   1253           LR     R3,LINK              SAVE OLD LOCATION COUNTER    M6A32530
0014EA   41F0 1114              1254           BAL    LINK,PRINT           PRINT 'MACINT'               M6A32540
0014EE   172A                   1255           DC     Z(MAC)               START ADRS OF MESSAGE        M6A32550
0014F0   1731                   1256           DC     Z(MACEND)            END ADRS OF MESSAGE          M6A32560
0014F2   1802                   1257           LPSWR  R2                   LOAD OLD PSW & LOC COUNTER   M6A32570
                                1258  *                                                                 M6A32580
                                1259  *                                                                 M6A32590
0014F4   082E                   1260  SVCERR   LR     R2,RETRN             SAVE OLD PSW                 M6A32600
0014F6   083F                   1261           LR     R3,LINK              SAVE OLD LOCATION COUNTER    M6A32610
0014F8   41F0 1114              1262           BAL    LINK,PRINT           PRINT 'SVCINT'               M6A32620
0014FC   1732                   1263           DC     Z(SVC)               START ADRS OF MESSAGE        M6A32630
0014FE   1739                   1264           DC     Z(SVCEND)            END ADRS OF MESSAGE          M6A32640
001500   1802                   1265           LPSWR  R2                   LOAD OLD PSW & LOC COUNTER   M6A32650
                                1266  *                                                                 M6A32660
                                1267  *                                                                 M6A32670
001502   082E                   1268  ARTFLT   LR     R2,RETRN             SAVE OLD PSW                 M6A32680
001504   083F                   1269           LR     R3,LINK              SAVE OLD LOCATION COUNTER    M6A32690
001506   41F0 1114              1270           BAL    LINK,PRINT           PRINT 'ARTFLT'               M6A32700
00150A   173A                   1271           DC     Z(ART)               START ADRS OF MESSAGE        M6A32710
00150C   1741                   1272           DC     Z(ARTEND)            END ADRS OF MESSAGE          M6A32720
00150E   1802                   1273           LPSWR  R2                   LOAD OLD PSW & LOC COUNTER   M6A32730
                                1274  *                                                                 M6A32740
                                1275  *                                                                 M6A32750
001510   082E                   1276  SYSQ     LR     R2,RETRN             SAVE OLD PSW                 M6A32760
001512   083F                   1277           LR     R3,LINK              SAVE OLD LOCATION COUNTER    M6A32770
001514   41F0 1114              1278           BAL    LINK,PRINT           PRINT 'SYSQUE'               M6A32780
001518   1742                   1279           DC     Z(SYS)               START ADRS OF MESSAGE        M6A32790
00151A   1749                   1280           DC     Z(SYSEND)            END ADRS OF MESSAGE          M6A32800
00151C   1802                   1281           LPSWR  R2                   LOAD OLD PSW & LOC COUNTER   M6A32810
                                1282  *                                                                 M6A32820
                                1283  *                                                                 M6A32830
00151E   0692                   1284  EXTINT   LR     R9,R2                LOAD INT DEVICE ADRS         M6A32840
001520   41F0 11A6              1285           BAL    LINK,CONVERT         CONVERT TO ASCII CHARACTERS  M6A32850
001524   0008                   1286           DC     X'8'                 SHIFT INDEX                  M6A32860
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001526   1752                    1287           DC     Z(DEVADRS)            STORE INDEX                         M6A32870
001528   41F0 1114               1288           BAL    LINK,PRINT            PRINT 'EXTINT XXX'                  M6A32880
00152C   174A                    1289           DC     Z(EXT)                START ADRS OF MESSAGE               M6A32890
00152E   1757                    1290           DC     Z(EXTEND)             END ADRS OF MESSAGE                 M6A32900
001530   1800                    1291           LPSWR R0                     LOAD OLD PSW & LOC COUNTER          M6A32910
                                 1292     *                                                                      M6A32920
                                 1293     ***********************************************************************M6A32930
                                 1294     *                                                                      M6A32940
001532   0200                    1295     PAT1      DC     X'200'                                                M6A32950
001534   0010                    1296     PAT2      DC     X'10'                                                 M6A32960
001536   0220                    1297     PAT3      DC     X'220'                                                M6A32970
001538   0014                    1298     PAT4      DC     X'14'                                                 M6A32980
00153A   00                      1299     ADDRESS   DB     X'0'                  CONSOLE DEVICE ADDRESS          M6A32990
00153B   F8                      1300     PADSET    DB     X'F8'                 PASLA SETUP COMMAND             M6A33000
00153C   A498                    1301     READ1     DC     X'A498'               CONSOLE DEVICE COMMANDS         M6A33010
         0000 153D               1302     WRITE1    EQU    *-1                                                   M6A33020
                                 1303     *                                                                      M6A33030
                                 1304     ***********************************************************************M6A33040
                                 1305     *                                                                      M6A33050
                                 1306     *                                                                      M6A33060
                                 1307     * * * * * * * * * * * * * * * * * * * * * * * * * * * *                M6A33070
                                 1308     *                                                     *                M6A33080
                                 1309     *                 M E S S A G E S                     *                M6A33090
                                 1310     *                                                     *                M6A33100
                                 1311     * * * * * * * * * * * * * * * * * * * * * * * * * * * *                M6A33110
                                 1312     *                                                                      M6A33120
00153E   0D0A                    1313     TITLE     DC     X'0D0A',C'32 BIT S6A MEMORY TEST 06-157F02R01',X'0D0A'  M6A33130
001540   3332 2042 4954 2053
001548   3641 204D 454D 4F52
001550   5920 5445 5354 2030
001558   362D 3135 3746 3032
001560   5230 3120
001564   0D0A
         0000 1565               1314     ENDOF     EQU    *-1                                                   M6A33140
                                 1315     *                                                                      M6A33150
                                 1316     *                                                                      M6A33160
001566   4156 4149 4C41 424C     1317     MEMSG     DC     C'AVAILABLE MEMORY',X'0D0A'                           M6A33170
00156E   4520 4D45 4D4F 5259
001576   0D0A
         0000 1577               1318     END       EQU    *-1                                                   M6A33180
001578   0000 0000               1319     MEMSG1    DC     0                                                     M6A33190
00157C   0000                    1320               DC     X'0'                                                  M6A33200
00157E   2D20                    1321               DC     X'2D20'                                               M6A33210
001580   0000 0000               1322     ENDVAL    DC     0                                                     M6A33220
001584   0000                    1323               DC     X'0'                                                  M6A33230
001586   0D0A                    1324               DC     X'0D0A'                                               M6A33240
         0000 1587               1325     END1      EQU    *-1                                                   M6A33250
001588   0D0A                    1326     PARNOMSG DC      X'0D0A'                                               M6A33260
00158A   5641 4C49 4420 5459     1327               DC     C'VALID TYPE NUMBERS ARE: ',X'0D0A'                   M6A33270
001592   5045 204E 554D 4245
00159A   5253 2041 5245 3A20
0015A2   0D0A
0015A4   2D54 5950 453D 3020     1328               DC     C'-TYPE=0 FOR 35-491 16KB ',X'0D0A'                   M6A33280
0015AC   464F 5220 3335 2D34
0015B4   3931 2031 364B 4220
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0015BC    0D0A
0015BE    2D54 5950 453D 3120  1329          DC    C'-TYPE=1 FOR 32-198 32KB ',X'0D0A'                    M6A33290
0015C6    464F 5220 3332 2D31
0015CE    3938 2033 324B 4220
0015D6    0D0A
0015D8    2D54 5950 453D 3220  1330          DC    C'-TYPE=2 FOR 32-206 32KB ',X'0D0A'                    M6A33300
0015E0    464F 5220 3332 2D32
0015E8    3036 2033 324B 4220
0015F0    0D0A
0015F2    2D54 5950 453D 3320  1331          DC    C'-TYPE=3 FOR 32-200 64KB(1000 NS)',X'0D0A'            M6A33310
0015FA    464F 5220 3332 2D32
001602    3030 2036 344B 4228
00160A    3130 3030 204E 5329
001612    0D0A
001614    2D54 5950 453D 3420  1332          DC    C'-TYPE=4 FOR 32-209 64KB(750 NS) ',X'0D0A'            M6A33320
00161C    464F 5220 3332 2D32
001624    3039 2036 344B 4228
00162C    3735 3020 4E53 2920
001634    0D0A                                                                                          M6A33330
001636    5459 5045 3D20       1333          DC    C'TYPE= '                                              M6A33340
          0000 163B            1334   PARNOEND EQU  *-1                                                 M6A33350
                               1335   *                                                                 M6A33360
                               1336   *                                                                 M6A33370
                               1337   * ERROR MESSAGE W  TT  XXXXX  YYYYYYYY  ZZZZZZZZ                  M6A33380
00163C    00                   1338   STARMSG  DB    0                                                  M6A33390
00163D    00                   1339   W        DB    0                                                  M6A33400
00163E    2020                 1340            DC    X'2020'                                            M6A33410
001640    0000 2020            1341   TT       DC    Y'2020'                                            M6A33420
001644    0000 0000            1342   XXXXX    DC    Y'0'                                               M6A33430
001648    0000                 1343            DC    X'0'                                               M6A33440
00164A    2020                 1344            DC    X'2020'                                            M6A33450
00164C    0000 0000            1345   YYYYYYYY DC    Y'0'                                               M6A33460
001650    0000 0000            1346            DC    Y'0'                                               M6A33470
001654    2020                 1347            DC    X'2020'                                            M6A33480
001656    0000 0000            1348   ZZZZZZZZ DC    Y'0'                                               M6A33490
00165A    0000                 1349            DC    X'0'                                               M6A33500
00165C    0000                 1350   SUBNUM   DC    X'0'                                               M6A33510
00165E    0D0A                 1351            DC    X'0D0A'                                            M6A33520
          0000 165F            1352   ENDMSG   EQU   *-1                                                M6A33530
001660    0D0A                 1353   TYPEMSG  DC    X'0D0A',C'TYPE= '
001662    5459 5045 3D20                                                                                M6A33540
          0000 1667            1354   TYPEND   EQU   *-1                                                M6A33550
          0000 1667            1355   TYPNO    EQU   TYPEND                                             M6A33560
                               1356   *                                                                 M6A33570
                               1357   *                                                                 M6A33580
001668    0D0A                 1358   GUEST    DC    X'0D0A',C'? '        CR,LF,?
00166A    3F20                                                                                          M6A33590
          0000 166B            1359   QIPEND   EQU   *-1                  ????                          M6A33600
00166C    0D0A                 1360            DC    X'0D0A',C'* '        CR,LF,*
00166E    2A20                                                                                          M6A33610
          0000 166F            1361   QUEND    EQU   *-1                                                M6A33620
                               1362   *                                                                 M6A33630
                               1363   *                                                                 M6A33640
001670    0000 0000            1364   TOTALMSG DC    0                                                  M6A33650
001674    0000 0000            1365            DC    0
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001678  2054 4F54 414C 2020  1366            DC     C' TOTAL '                                  M6A33660
        0000 167F            1367  TOTALEND EQU    *-1                                         M6A33670
001680  4552 524F 5253       1368            DC     C'ERRORS',X'0D0A'                           M6A33680
001686  0D0A
        0000 1687            1369  ERROREND EQU    *-1                                         M6A33690
                             1370  *                                                           M6A33700
                             1371  *                                                           M6A33710
001688  0D0A                 1372  LOMSG    DC     X'0D0A'                                     M6A33720
00168A  4C4F 3D20            1373           DC     C'LO= '                                     M6A33730
        0000 168D            1374  LOEND    EQU    *-1                                         M6A33740
                             1375  *                                                           M6A33750
                             1376  *                                                           M6A33760
00168E  0D0A                 1377  HIMSG    DC     X'0D0A'                                     M6A33770
001690  4849 3D20            1378           DC     C'HI= '                                     M6A33780
        0000 1693            1379  HIEND    EQU    *-1                                         M6A33790
                             1380  *                                                           M6A33800
                             1381  *                                                           M6A33810
001694  0D0A                 1382  NLMSG    DC     X'0D0A'                                     M6A33820
001696  4C4F 5720 5641 4C55  1383           DC     C'LOW VALUE > HIGH VALUE'                   M6A33830
00169E  4520 3E20 4849 4748
0016A6  2056 414C 5545
        0000 16AB            1384  NLEND    EQU    *-1                                         M6A33840
                             1385  *                                                           M6A33850
                             1386  *                                                           M6A33860
0016AC  0D0A                 1387  MNAMSG   DC     X'0D0A'                                     M6A33870
0016AE  4D45 4D4F 5259 204E  1388           DC     C'MEMORY NOT AVAILABLE'                     M6A33880
0016B6  4F54 2041 5641 494C
0016BE  4142 4C45
        0000 16C1            1389  MNAEND   EQU    *-1                                         M6A33890
                             1390  *                                                           M6A33900
                             1391  *                                                           M6A33910
0016C2  0D0A                 1392  TSTMSG   DC     X'0D0A',C'SUBTEST',X'0D0A',C'*'             M6A33920
0016C4  5355 4254 4553 5420
0016CC  0D0A
0016CE  2A20
        0000 16CF            1393  TSTEND   EQU    *-1                                         M6A33930
                             1394  *                                                           M6A33940
                             1395  *                                                           M6A33950
0016D0  4E4F 2045 5252 4F52  1396  NOERR    DC     C'NO ERROR',X'0D0A'                         M6A33960
0016D8  0D0A
        0000 16D9            1397  ERREND   EQU    *-1                                         M6A33970
                             1398  *                                                           M6A33980
                             1399  *                                                           M6A33990
0016DA  494C 4C45 4741 4C20  1400  ILGMSG   DC     C'ILLEGAL INSTRUCTION'                      M6A34000
0016E2  494E 5354 5255 4354
0016EA  494F 4E20
0016EE  0D0A                 1401           DC     X'0D0A'                                     M6A34010
0016F0  0000 0000            1402  ADRS1    DC     0                                           M6A34020
0016F4  0000 0000            1403           DC     0                                           M6A34030
0016F8  2000                 1404           DC     X'2000'                                     M6A34040
0016FA  0000 0000            1405  ADRS     DC     0                                           M6A34050
0016FE  0000 0000            1406           DC     0                                           M6A34060
001702  0D0A                 1407           DC     X'0D0A'                                     M6A34070
        0000 1703            1408  ILGEND   EQU    *-1                                         M6A34080
                             1409  *                                                           M6A34090
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                                                                                              M6A34100
                                     1410  *                                                  M6A34110
001704   0D0A                        1411  MACHMAL  DC    X'0D0A',C'MACHINE MALFUNCTION'
001706   4D41 4348 494E 4520
00170E   4D41 4C46 554E 4354
001716   494F 4E20                                                                            M6A34120
00171A   0D0A                        1412           DC    X'0D0A'                             M6A34130
00171C   00                          1413  CCADRS   DB    0                                   M6A34140
00171D   00                          1414           DB    0                                   M6A34150
00171E   2020                        1415           DC    X'2020'                             M6A34160
001720   0000 0000                   1416  MMADRS   DC    0                                   M6A34170
001724   00                          1417           DB    0                                   M6A34180
001725   00                          1418           DB    0                                   M6A34190
001726   0D0A                        1419           DC    X'0D0A'                             M6A34200
         0000 1727                   1420  MMEND    EQU   *-1                                 M6A34210
                                     1421  *                                                  M6A34220
                                     1422  *                                                  M6A34230
001728   00                          1423           DB    0                                   M6A34240
001729   00                          1424           DB    0                                   M6A34250
00172A   4D41 4349 4E54              1425  MAC      DC    C'MACINT'                           M6A34260
001730   0D0A                        1426           DC    X'0D0A'                             M6A34270
         0000 1731                   1427  MACEND   EQU   *-1                                 M6A34280
                                     1428  *                                                  M6A34290
                                     1429  *                                                  M6A34300
001732   5356 4349 4E54              1430  SVC      DC    C'SVCINT'                           M6A34310
001738   0D0A                        1431           DC    X'0D0A'                             M6A34320
         0000 1739                   1432  SVCEND   EQU   *-1                                 M6A34330
                                     1433  *                                                  M6A34340
                                     1434  *                                                  M6A34350
00173A   4152 5446 4C54              1435  ART      DC    C'ARTFLT'                           M6A34360
001740   0D0A                        1436           DC    X'0D0A'                             M6A34370
         0000 1741                   1437  ARTEND   EQU   *-1                                 M6A34380
                                     1438  *                                                  M6A34390
                                     1439  *                                                  M6A34400
001742   5359 5351 5545              1440  SYS      DC    C'SYSQUE'                           M6A34410
001748   0D0A                        1441           DC    X'0D0A'                             M6A34420
         0000 1749                   1442  SYSEND   EQU   *-1                                 M6A34430
                                     1443  *                                                  M6A34440
                                     1444  *                                                  M6A34450
00174A   4558 5449 4E54 2020         1445  EXT      DC    C'EXTINT  '                         M6A34460
001752   0000 0000                   1446  DEVADRS  DC    0                                   M6A34470
001756   0D0A                        1447           DC    X'0D0A'                             M6A34480
         0000 1757                   1448  EXTEND   EQU   *-1                                 M6A34490
001758   0000                        1449           DC    X'0'                                M6A34500
                                     1450  *                                                  M6A34510
                                     1451  * * * * * * * * * * * * * * * * * * * * * * * * * * * * *    M6A34520
                                     1452  *                                                       *    M6A34530
                                     1453  *                M E M O R Y   T A B L E                *    M6A34540
                                     1454  *                                                       *    M6A34550
                                     1455  * * * * * * * * * * * * * * * * * * * * * * * * * * * * *    M6A34560
                                     1456  *                                                  M6A34570
00175C                               1457           ALIGN 4                                   M6A34580
00175C   0000                        1458           DC    X'0'         16- 32- 48- 64- 80- 96- 112- 128-     M6A34590
00175E   80                          1459  KB0016   DB    X'80'        144-160-176-192-208-224-240-256       M6A34600
00175F   00                          1460  KB0144   DB    0            272-288-304-320-336-352-368-384       M6A34610
001760   00                          1461  KB0272   DB    0
```

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001761    00                      1462  KB0400    DB     0                        400-416-432-448-464-480-496-512       M6A34620
001762    00                      1463  KB0528    DB     0                        528-544-560-576-592-608-624-640       M6A34630
001763    00                      1464  KB0656    DB     0                        656-672-688-704-720-736-752-768-      M6A34640
001764    00                      1465  KB0784    DB     0                        784-800-816-832-848-864-880-896       M6A34650
001765    00                      1466  KB0912    DB     0                        912-928-944-960-976-992-1008-1024     M6A34660
001766    FF                      1467  KBEND     DB     X'FF'                                                          M6A34670
                                  1468  *                                                                               M6A34680
                                  1469  * * * * * * * * * * * * * * * * * * * * * * * * * * * * *                     M6A34690
                                  1470  *                                                       *                     M6A34700
                                  1471  *                   D A T A   C O N S T A N T S         *                     M6A34710
                                  1472  *                                                       *                     M6A34720
                                  1473  * * * * * * * * * * * * * * * * * * * * * * * * * * * * *                     M6A34730
                                  1474  *                                                                               M6A34740
                                  1475  *          NOTE: CONSTANTS USED FOR I/O CONTROL                                 M6A34750
                                  1476  *                                                                               M6A34760
001767    80                      1477  NORM      DB     X'80'                                                          M6A34770
001768    40                      1478  INCRMT    DB     X'40'                                                          M6A34780
001769    00                      1479            DB     *                                                              M6A34790
00176A    A498                    1480  READ2     DC     X'A498'                                                        M6A34800
00176C    B9AB                    1481  READ3     DC     X'B9AB'                                                        M6A34810
00176E    0000                    1482  CRTFLG    DC     X'0'                                                           M6A34820
001770    0000 0000               1483            DC     Y'0'                                                           M6A34830
                                  1484  *                                                                               M6A34840
                                  1485  *                                                                               M6A34850
                                  1486  *          NOTE: FLAGS USED IN THIS TEST AND I/O                                M6A34860
                                  1487  *                                                                               M6A34870
001774    00F0                    1488  FTNWRT    DC     X'F0'                                                          M6A34880
001776    0000                    1489  FLAG      DC     X'0'                                                           M6A34890
001778    0000                    1490  WRAPFLG   DC     X'0'                                                           M6A34900
00177A    00                      1491  LIMFLG    DB     0                                                              M6A34910
00177B    00                      1492  TSTFLG    DB     0                                                              M6A34920
00177C    00                      1493  SUBTST    DB     0                                                              M6A34930
00177D    00                      1494  ERRFLG    DB     0                                                              M6A34940
00177E    00                      1495  TTYFLG    DB     0                                                              M6A34950
00177F    00                      1496  CONTFLG   DB     0                                                              M6A34960
001780    00                      1497  TYPEFLG   DB     0                                                              M6A34970
001781    00                      1498            DB     0                                                              M6A34980
                                  1499  *                                                                               M6A34990
                                  1500  *          NOTE: ADDRESS SAVE LOCATIONS USED IN THIS TEST                       M6A35000
                                  1501  *                                                                               M6A35010
001784                            1502            ALIGN 4                                                               M6A35020
001784    0000 0000               1503  LOVAL     DC     0                                                              M6A35030
001788    0000 0000               1504  HIVAL     DC     0                                                              M6A35040
00178C    0000 0000               1505  BLKADR    DC     0                                                              M6A35050
001790    0000 0000               1506  LAST      DC     0                                                              M6A35060
001794    0000 0000               1507  LOADR     DC     0                                                              M6A35070
001798    0000 0000               1508  HIADR     DC     0                                                              M6A35080
00179C    0000 0000               1509  TOTAL     DC     0                                                              M6A35090
0017A0    0000 0000               1510  TOTALERR  DC     0                                                              M6A35100
0017A4    0000                    1511  TYPSTRT   DC     X'0'                 STARTING ADDRESS OF WC TEST               M6A35110
0017A6    0000                    1512  NXTST     DC     X'0'                                                           M6A35120
0017A8    0000                    1513  RXTURN    DC     X'0'                                                           M6A35130
          0000 17AA               1514  LNZB      EQU    *                                                              M6A35140
                                  1515  *                                                                               M6A35150
                                  1516  *          NOTE: EIGHT SIMULATED REGISTER SETS                                  M6A35160
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                               1517  *                                                          M6A35170
0017AC                         1518            ALIGN 4                                          M6A35180
0017AC   0000 0000             1519  REGSAV00 DC     0                                          M6A35190
0017B0   0000 0000             1520  REGSAV01 DC     0                                          M6A35200
0017B4   0000 0000             1521  REGSAV02 DC     0                                          M6A35210
0017B8   0000 0000             1522  REGSAV03 DC     0                                          M6A35220
0017BC   0000 0000             1523  REGSAV04 DC     0                                          M6A35230
0017C0   0000 0000             1524  REGSAV05 DC     0                                          M6A35240
0017C4   0000 0000             1525  REGSAV06 DC     0                                          M6A35250
0017C8   0000 0000             1526  REGSAV07 DC     0                                          M6A35260
0017CC   0000 0000             1527  REGSAV08 DC     0                                          M6A35270
0017D0   0000 0000             1528  REGSAV09 DC     0                                          M6A35280
0017D4   0000 0000             1529  REGSAV0A DC     0                                          M6A35290
0017D8   0000 0000             1530  REGSAV0B DC     0                                          M6A35300
0017DC   0000 0000             1531  REGSAV0C DC     0                                          M6A35310
0017E0   0000 0000             1532  REGSAV0D DC     0                                          M6A35320
0017E4   0000 0000             1533  REGSAV0E DC     0                                          M6A35330
0017E8   0000 0000             1534  REGSAV0F DC     0                                          M6A35340
0017EC   0000 0000             1535  REGSAV10 DC     0                                          M6A35350
0017F0   0000 0000             1536  REGSAV11 DC     0                                          M6A35360
0017F4   0000 0000             1537  REGSAV12 DC     0                                          M6A35370
0017F8   0000 0000             1538  REGSAV13 DC     0                                          M6A35380
0017FC   0000 0000             1539  REGSAV14 DC     0                                          M6A35390
001800   0000 0000             1540  REGSAV15 DC     0                                          M6A35400
001804   0000 0000             1541  REGSAV16 DC     0                                          M6A35410
001808   0000 0000             1542  REGSAV17 DC     0                                          M6A35420
00180C   0000 0000             1543  REGSAV18 DC     0                                          M6A35430
001810   0000 0000             1544  REGSAV19 DC     0                                          M6A35440
001814   0000 0000             1545  REGSAV1A DC     0                                          M6A35450
001818   0000 0000             1546  REGSAV1B DC     0                                          M6A35460
00181C   0000 0000             1547  REGSAV1C DC     0                                          M6A35470
001820   0000 0000             1548  REGSAV1D DC     0                                          M6A35480
001824   0000 0000             1549  REGSAV1E DC     0                                          M6A35490
001828   0000 0000             1550  REGSAV1F DC     0                                          M6A35500
00182C   0000 0000             1551  REGSAV20 DC     0                                          M6A35510
001830   0000 0000             1552  REGSAV21 DC     0                                          M6A35520
001834   0000 0000             1553  REGSAV22 DC     0                                          M6A35530
001838   0000 0000             1554  REGSAV23 DC     0                                          M6A35540
00183C   0000 0000             1555  REGSAV24 DC     0                                          M6A35550
001840   0000 0000             1556  REGSAV25 DC     0                                          M6A35560
001844   0000 0000             1557  REGSAV26 DC     0                                          M6A35570
001848   0000 0000             1558  REGSAV27 DC     0                                          M6A35580
00184C   0000 0000             1559  REGSAV28 DC     0                                          M6A35590
001850   0000 0000             1560  REGSAV29 DC     0                                          M6A35600
001854   0000 0000             1561  REGSAV2A DC     0                                          M6A35610
001858   0000 0000             1562  REGSAV2B DC     0                                          M6A35620
00185C   0000 0000             1563  REGSAV2C DC     0                                          M6A35630
001860   0000 0000             1564  REGSAV2D DC     0                                          M6A35640
001864   0000 0000             1565  REGSAV2E DC     0                                          M6A35650
001868   0000 0000             1566  REGSAV2F DC     0                                          M6A35660
00186C   0000 0000             1567  REGSAV30 DC     0                                          M6A35670
001870   0000 0000             1568  REGSAV31 DC     0                                          M6A35680
001874   0000 0000             1569  REGSAV32 DC     0                                          M6A35690
001878   0000 0000             1570  REGSAV33 DC     0                                          M6A35700
00187C   0000 0000             1571  REGSAV34 DC     0                                          M6A35710
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001880    0000 0000          1572  REGSAV35 DC     0                                   M6A35720
001884    0000 0000          1573  REGSAV36 DC     0                                   M6A35730
001888    0000 0000          1574  REGSAV37 DC     0                                   M6A35740
00188C    0000 0000          1575  REGSAV38 DC     0                                   M6A35750
001890    0000 0000          1576  REGSAV39 DC     0                                   M6A35760
001894    0000 0000          1577  REGSAV3A DC     0                                   M6A35770
001898    0000 0000          1578  REGSAV3B DC     0                                   M6A35780
00189C    0000 0000          1579  REGSAV3C DC     0                                   M6A35790
0018A0    0000 0000          1580  REGSAV3D DC     0                                   M6A35800
0018A4    0000 0000          1581  REGSAV3E DC     0                                   M6A35810
0018A8    0000 0000          1582  REGSAV3F DC     0                                   M6A35820
0018AC    0000 0000          1583  REGSAV40 DC     0                                   M6A35830
0018B0    0000 0000          1584  REGSAV41 DC     0                                   M6A35840
0018B4    0000 0000          1585  REGSAV42 DC     0                                   M6A35850
0018B8    0000 0000          1586  REGSAV43 DC     0                                   M6A35860
0018BC    0000 0000          1587  REGSAV44 DC     0                                   M6A35870
0018C0    0000 0000          1588  REGSAV45 DC     0                                   M6A35880
0018C4    0000 0000          1589  REGSAV46 DC     0                                   M6A35890
0018C8    0000 0000          1590  REGSAV47 DC     0                                   M6A35900
0018CC    0000 0000          1591  REGSAV48 DC     0                                   M6A35910
0018D0    0000 0000          1592  REGSAV49 DC     0                                   M6A35920
0018D4    0000 0000          1593  REGSAV4A DC     0                                   M6A35930
0018D8    0000 0000          1594  REGSAV4B DC     0                                   M6A35940
0018DC    0000 0000          1595  REGSAV4C DC     0                                   M6A35950
0018E0    0000 0000          1596  REGSAV4D DC     0                                   M6A35960
0018E4    0000 0000          1597  REGSAV4E DC     0                                   M6A35970
0018E8    0000 0000          1598  REGSAV4F DC     0                                   M6A35980
0018EC    0000 0000          1599  REGSAV50 DC     0                                   M6A35990
0018F0    0000 0000          1600  REGSAV51 DC     0                                   M6A36000
0018F4    0000 0000          1601  REGSAV52 DC     0                                   M6A36010
0018F8    0000 0000          1602  REGSAV53 DC     0                                   M6A36020
0018FC    0000 0000          1603  REGSAV54 DC     0                                   M6A36030
001900    0000 0000          1604  REGSAV55 DC     0                                   M6A36040
001904    0000 0000          1605  REGSAV56 DC     0                                   M6A36050
001908    0000 0000          1606  REGSAV57 DC     0                                   M6A36060
00190C    0000 0000          1607  REGSAV58 DC     0                                   M6A36070
001910    0000 0000          1608  REGSAV59 DC     0                                   M6A36080
001914    0000 0000          1609  REGSAV5A DC     0                                   M6A36090
001918    0000 0000          1610  REGSAV5B DC     0                                   M6A36100
00191C    0000 0000          1611  REGSAV5C DC     0                                   M6A36110
001920    0000 0000          1612  REGSAV5D DC     0                                   M6A36120
001924    0000 0000          1613  REGSAV5E DC     0                                   M6A36130
001928    0000 0000          1614  REGSAV5F DC     0                                   M6A36140
00192C    0000 0000          1615  REGSAV60 DC     0                                   M6A36150
001930    0000 0000          1616  REGSAV61 DC     0                                   M6A36160
001934    0000 0000          1617  REGSAV62 DC     0                                   M6A36170
001938    0000 0000          1618  REGSAV63 DC     0                                   M6A36180
00193C    0000 0000          1619  REGSAV64 DC     0                                   M6A36190
001940    0000 0000          1620  REGSAV65 DC     0                                   M6A36200
001944    0000 0000          1621  REGSAV66 DC     0                                   M6A36210
001948    0000 0000          1622  REGSAV67 DC     0                                   M6A36220
00194C    0000 0000          1623  REGSAV68 DC     0                                   M6A36230
001950    0000 0000          1624  REGSAV69 DC     0                                   M6A36240
001954    0000 0000          1625  REGSAV6A DC     0                                   M6A36250
001958    0000 0000          1626  REGSAV6B DC     0                                   M6A36260
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00195C    0000 0000              1627  REGSAV6C DC     0                                                       M6A36270
001960    0000 0000              1628  REGSAV6D DC     0                                                       M6A36280
001964    0000 0000              1629  REGSAV6E DC     0                                                       M6A36290
001968    0000 0000              1630  REGSAV6F DC     0                                                       M6A36300
00196C    0000 0000              1631  REGSAV70 DC     0                                                       M6A36310
001970    0000 0000              1632  REGSAV71 DC     0                                                       M6A36320
001974    0000 0000              1633  REGSAV72 DC     0                                                       M6A36330
001978    0000 0000              1634  REGSAV73 DC     0                                                       M6A36340
00197C    0000 0000              1635  REGSAV74 DC     0                                                       M6A36350
001980    0000 0000              1636  REGSAV75 DC     0                                                       M6A36360
001984    0000 0000              1637  REGSAV76 DC     0                                                       M6A36370
001988    0000 0000              1638  REGSAV77 DC     0                                                       M6A36380
00198C    0000 0000              1639  REGSAV78 DC     0                                                       M6A36390
001990    0000 0000              1640  REGSAV79 DC     0                                                       M6A36400
001994    0000 0000              1641  REGSAV7A DC     0                                                       M6A36410
001998    0000 0000              1642  REGSAV7B DC     0                                                       M6A36420
00199C    0000 0000              1643  REGSAV7C DC     0                                                       M6A36430
0019A0    0000 0000              1644  REGSAV7D DC     0                                                       M6A36440
0019A4    0000 0000              1645  REGSAV7E DC     0                                                       M6A36450
0019A8    0000 0000              1646  REGSAV7F DC     0                                                       M6A36460
0019AC    0000 0000              1647  REGSAVF0 DC     0                                                       M6A36470
0019B0    0000 0000              1648  REGSAVF1 DC     0                                                       M6A36480
0019B4    0000 0000              1649  REGSAVF2 DC     0                                                       M6A36490
0019B8    0000 0000              1650  REGSAVF3 DC     0                                                       M6A36500
0019BC    0000 0000              1651  REGSAVF4 DC     0                                                       M6A36510
0019C0    0000 0000              1652  REGSAVF5 DC     0                                                       M6A36520
0019C4    0000 0000              1653  REGSAVF6 DC     0                                                       M6A36530
0019C8    0000 0000              1654  REGSAVF7 DC     0                                                       M6A36540
0019CC    0000 0000              1655  REGSAVF8 DC     0                                                       M6A36550
0019D0    0000 0000              1656  REGSAVF9 DC     0                                                       M6A36560
0019D4    0000 0000              1657  REGSAVFA DC     0                                                       M6A36570
0019D8    0000 0000              1658  REGSAVFB DC     0                                                       M6A36580
0019DC    0000 0000              1659  REGSAVFC DC     0                                                       M6A36590
0019E0    0000 0000              1660  REGSAVFD DC     0                                                       M6A36600
0019E4    0000 0000              1661  REGSAVFE DC     0                                                       M6A36610
0019E8    0000 0000              1662  REGSAVFF DC     0                                                       M6A36620
                                 1663  *                                                                       M6A36630
                                 1664  ********************************************************************** M6A36640
                                 1665  *                                                                       M6A36650
0019EC                           1666  PSWSAVE  DS     16                                                      M6A36660
0019FC                           1667  TABLE    DS     12                                                      M6A36670
001A08                           1668  RSAVE    DS     128                                                     M6A36680
                                 1669  *                                                                       M6A36690
                                 1670  *                                                                       M6A36700
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001A88    2400                 1672  $CHKSUM  LIS    R0,0              PUNCH M17 TAPE WITH CHECKSUM              M6A36720
001A8A    9510                 1673           EPSR   R1,R0             SELECT REG. SET 0 & CLEAR PSW      ***    M6A36730
                               1674  *                                                                            M6A36740
001A8C    E610 0A00            1675           LDAI   R1,ORIGIN1        LOAD START ADDRESS                         M6A36750
001A90    2421                 1676           LIS    R2,1              LOAD INCREMENT VALUE                       M6A36760
001A92    E630 17AA            1677           LDAI   R3,LNZB           LOAD FINAL ADDRESS                         M6A36770
001A96    2440                 1678           LIS    R4,0              INITIALIZE CHKSUM BYTE                     M6A36780
                               1679  *                                                                            M6A36790
001A98    D351 0000            1680  $GEN     LB     R5,0(R1)                                                     M6A36800
001A9C    0745                 1681           XAR    R4,R5             CALCULATE CHKSUM BYTE                      M6A36810
001A9E    C110 1A98            1682           BXLE   R1,$GEN                                                      M6A36820
001AA2    D240 0099            1683           STB    R4,MN+3           CHECKSUM BYTE TO BOOT LOADER               M6A36830
                               1684  *                                                                            M6A36840
001AA6    C810 0080            1685  $TAPE    LHI    R1,X'0080'                                                   M6A36850
001AAA    9E21                 1686           OCR    R2,R1             DISPLAY IN NORMAL MODE                     M6A36860
001AAC    9444                 1687           EXBR   R4,R4                                                        M6A36870
001AAE    9824                 1688           WHR    R2,R4             DISPLAY CHKSUM BYTE (TO D1)                M6A36880
001AB0    9411                 1689           EXBR   R1,R1                                                        M6A36890
001AB2    9501                 1690           EPSR   R0,R1             HALT PROCESSOR.                            M6A36900
                               1691  *                                                                            M6A36910
                               1692  *****************************************************************************M6A36920
                               1693  *                                                                            M6A36930
001AB4    D360 007A            1694  $PUNCH   LB     R6,X'7A'          GET BOUTDV (PUNCH) ADDRESS.                M6A36940
001AB8    DE60 007B            1695           OC     R6,X'7B'          START TAPE PUNCH                           M6A36950
001ABC    9D60                 1696           SSR    R6,R0                                                        M6A36960
001ABE    2081                 1697           BTBS   8,1                                                          M6A36970
001AC0    41F0 1B02            1698           BAL    LINK,$TAPL        PUNCH LEADER (256 CHARACTERS)              M6A36980
001AC4    9411                 1699           EXBR   R1,R1             (R1) = X'0080'                             M6A36990
001AC6    C830 00CF            1700           LHI    R3,X'CF'                                                     M6A37000
                               1701  *                                                                            M6A37010
001ACA    DA61 0000            1702  $PNCH1   WD     R6,0(R1)          PUNCH BOOT LOADER                          M6A37020
001ACE    9D60                 1703           SSR    R6,R0                                                        M6A37030
001AD0    2081                 1704           BTBS   8,1                                                          M6A37040
001AD2    C110 1ACA            1705           BXLE   R1,$PNCH1                                                    M6A37050
001AD6    41F0 1B08            1706           BAL    LINK,$TAPL1       PUNCH ONE-FOLD GAP.                        M6A37060
                               1707  *                                                                            M6A37070
001ADA    D340 0099            1708           LB     R4,MN+3           GET CHECKSUM BYTE                          M6A37080
001ADE    E610 0A00            1709           LDAI   R1,ORIGIN1        (NORMALLY X'A00')                          M6A37090
001AE2    E630 17AA            1710           LDAI   R3,LNZB                                                      M6A37100
                               1711  *                                                                            M6A37110
001AE6    D351 0000            1712  $PNCH2   LB     R5,0(R1)          PUNCH PROGRAM                              M6A37120
001AEA    0745                 1713           XAR    R4,R5             (ORIGIN1 TO LNZB)                          M6A37130
001AEC    9A65                 1714           WDR    R6,R5                                                        M6A37140
001AEE    9401                 1715           EXBR   R0,R1                                                        M6A37150
001AF0    9820                 1716           WHR    R2,R0             DISPLAY ADDRESS PUNCHED                    M6A37160
001AF2    9D60                 1717           SSR    R6,R0                                                        M6A37170
001AF4    2081                 1718           BTBS   8,1                                                          M6A37180
001AF6    C110 1AE6            1719           BXLE   R1,$PNCH2                                                    M6A37190
001AFA    41F0 1B02            1720           BAL    LINK,$TAPL        PUNCH TRAILER.                             M6A37200
001AFE    4300 1AA6            1721           B      $TAPE             DISPLAY CHECKSUM, HALT PROCESSOR.          M6A37210
                               1722  *                                                                            M6A37220
001B02    C800 0100            1723  $TAPL    LHI    R0,256            TO PUNCH BLANK LEADER                      M6A37230
001B06    2303                 1724           BS     $TAPLP                                                       M6A37240
```

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                                                                                         M6A37250
                                1725  *                                              *** M6A37260
001B08   C800 0080              1726  $TAPL1   LHI   R0,128     TO PUNCH 1-FOLD GAP      M6A37270
                                1727  *                                                  M6A37280
001B0C   2701                   1728  $TAPLP   SIS   R0,1                                M6A37290
001B0E   032F                   1729           BNPR  LINK       RETURN                   M6A37300
001B10   2430                   1730           LIS   R3,0                                M6A37310
001B12   9A63                   1731           WDR   R6,R3      PUNCH BLANK FRAME        M6A37320
001B14   9D68                   1732           SSR   R6,R8                               M6A37330
001B16   2081                   1733           BTBS  8,1                                 M6A37340
001B18   2206                   1734           BS    $TAPLP     CONTINUE.                M6A37350
                                1735  *                                                  M6A37360
001B1A                          1736           END
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ASSEMBLED BY CAL 03-066R05-00    (32-BIT)

START OPTIONS:  SCR,CRO,T=32

   NO CAL ERRORS
   NO CAL WARNINGS
    2 PASSES

 $CHKSUM    0000 1A88        1672*
 $GEN       0000 1A98        1680*  1682
 $PNCH1     0000 1ACA        1702*  1705
 $PNCH2     0000 1AE6        1712*  1719
 $PUNCH     0000 1AB4        1694*
 $TAPE      0000 1AA6        1685*  1721
 $TAPL      0000 1B02        1698   1720   1723*
 $TAPL1     0000 1B08        1706   1726*
 $TAPLP     0000 1B0C        1724   1728*  1734
 ABSTOP     0000 1B1A
 ADC        0000 0004
 ADDBLK     0000 1264        1000   1002*
 ADDRESS    0000 153A         177    186    835    894    966   1061   1299*
 ADRS       0000 16FA        1236   1405*
 ADRS1      0000 16F0        1240   1402*
 ALGRM1     0000 0F5E         637*
 ALGRM2     0000 1030         726*
 ART        0000 173A        1271   1435*
 ARTEND     0000 1741        1272   1437*
 ARTFLT     0000 1502         206   1268*
 BLKADR     0000 178C         961    981    988   1505*
 BOOT       0000 0088         115    118*
 BRKWAIT    0000 1322        1077   1096*
 BRKWAIT1   0000 1330        1097   1101*
 BT00       0000 0F82         650*   653
 BT001      0000 1050         737*
 BT01       0000 0F8C         654*
 BT011      0000 1056         736    739*
 BT0CH2     0000 0F88         649    652*
 BT10       0000 0F98         659*   662
 BT101      0000 1062         744*
 BT11       0000 0FA2         663*
 BT111      0000 1068         743    746*
 BT1CH2     0000 0F9E         658    661*
 BT1ONE     0000 0F92         646    656*
 BT1ZR1     0000 104A         734*
 BT1ZRO     0000 0F7C         644    647*
 CCADRS     0000 171C        1221   1413*
 CHECKR     0000 119A         899    908*   910
 CHKA2      0000 0FCE         680    682    684*
 CHKBT3     0000 105C         733    741*
 CHKDB1     0000 108C         760    762*
 CHKDT1     0000 0FB6         672*   716
 CHKDT2     0000 1078         753*
 CHKDT3     0000 107C         754*   791
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```
CHKDT4      0000 108E       757     763*
CHKDT5      0000 1098       765     768*
CHKDT6      0000 109A       762     767     769*
CHKDT7      0000 10D2       780     785     787*
CHKDTA      0000 0FB2       670*
CHKDTE      0000 0FDE       684     688     690     693*
CHKDTG      0000 101C       697     705     710     712*
CHKEND      0000 10E2       717     794*
CHKLIM      0000 123A       989*
CMD         0000 112C       841     843*
COMP1       0000 0FEE       695     698*
COMP11      0000 10A6       771     773*
COMP2       0000 100A       703     706*
COMP21      0000 10C0       778     781*
COMPR       0000 136A      1125*   1128
COMPR2      0000 13A4      1143*   1146
CONT02      0000 1140       847     850*
CONT10      0000 13A0      1142*
CONT12      0000 1366      1124*
CONT14      0000 14DE      1245    1248*
CONT15      0000 148A      1214    1217*
CONT16      0000 147C      1210    1213*   1230
CONT17      0000 1460      1201    1205*
CONT7       0000 12E2      1066    1069    1075*
CONT9       0000 11C6       935     937*
CONTFLG     0000 177F       349     449     472     963    1028    1496*
CONVERT     0000 11A6       278     283     485     492     928*   1023    1079    1083    1087    1205    1219    1223    1234
                           1238    1285
CONVERT1    0000 11AE       930*    942
CRCHK       0000 0C5C       347     351*
CRT         0000 0A44       173     181*
CRTADR      0000 0A12       161*    185
CRTFLG      0000 176E       179     184     840     855     898     970    1096    1482*
DECNUM      0000 1414      1171    1178*
DEVADRS     0000 1752      1287    1446*
DEVCHK      0000 0A1E       171*
DT1ONE      0000 0FD0       677     685*
DT1ZRO      0000 0FC2       675     678*
EMOS        0000 1278      1004    1008*
ENABLE1     0000 0BD0       299     311*
END         0000 1577       249     358     359    1318*
END1        0000 1587       288    1325*
ENDMSG      0000 165F      1033    1092    1352*
ENDOF       0000 1565       244    1314*
ENDVAL      0000 1580       285    1322*
ERREND      0000 16D9       454    1397*
ERRFLG      0000 177D       324     446     456    1063    1494*
ERROR       0000 12A8       696     704     711     772     779     786    1057*
ERROR1      0000 12B4      1060*   1212
ERROREND    0000 1687       497    1369*
EXECUTE     0000 0A5E       180     190*
EXIT1       0000 142C      1165    1167    1186*
EXT         0000 174A      1289    1445*
```

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EXTEND    0000 1757      1290      1448*
EXTINT    0000 151E       231      1284*
FLAG      0000 1776       252       272       293       297      1489*
FTNWRT    0000 1774      1488*
FW        0000 1222       982*      985       997
FW1       0000 1214       965       969       978*
FWR       0000 11E4       794       963*
FWR1      0000 1108       638       727       959*
FWR1A     0000 1340      1108*     1124      1142
FWRA      0000 1344      1110*     1113      1127      1145
G01       0000 12BC      1062*
GWTTY1    0000 1288      1061*
HIADR     0000 1798       665       714       748       789      1009      1508*
HIEND     0000 1693      1137      1379*
HIGH      0000 13C8      1144      1155*
HILO      0000 135A       339      1120*     1132      1154
HILO1     0000 138A      1135*     1150
HILOFIN   0000 1418      1177      1179*
HILOGET   0000 13D6      1123      1138      1160*     1185
HILOREAD  0000 13DA      1162*     1181
HIMSG     0000 168E      1136      1377*
HIVAL     0000 1788       316      1003      1007      1156      1504*
ILGEND    0000 1703      1243      1408*
ILGINT    0000 14B4       197      1233*
ILGMSG    0000 16DA      1242      1400*
IMPTOP    0000 0000I
INCRMT    0000 1768       812      1478*
IO        0000 0A10       160*      171
KB0016    0000 175E       275       292       301       984      1112      1459*
KB0144    0000 175F       254      1460*
KB0272    0000 1760       255      1461*
KB0400    0000 1761      1462*
KB0528    0000 1762       256      1463*
KB0656    0000 1763      1464*
KB0784    0000 1764       257      1465*
KB0912    0000 1765      1466*
KBEND     0000 1766      1467*
LADC      0000 0002
LAST      0000 1790       290       315      1506*
LCHK      0000 0C4A       345*
LDTA2     0000 0F90       651       655*
LDTA3     0000 0F9C       655       660*
LDWT      0000 00C8       141*      144
LEADER    0000 00A2       125*      129
LIMFLG    0000 177A       962       978      1006      1491*
LINK      0000 000F       104*      242       247       278       283       286       319       322       327       337       345       353       357
                          394       395       406       440       441       452       485       488       492       495       513       519       528
                          534       543       549       558       564       573       579       588       594       603       609       618       624
                          637       638       696       704       711       726       727       772       779       786       794       813       814
                          814       815       816       816       817       817       818       821       822       849       850       851       856
                          862       881       928       929       939       980       987      1010      1023      1031      1062      1063      1064
                         1065      1079      1083      1087      1090      1095      1115      1116      1120      1124      1127      1129      1135
                         1142      1145      1147      1151      1162      1182      1205      1210      1211      1219      1223      1226      1233
                         1234    1238    1241    1253    1254    1261    1262    1269    1270    1277    1278    1285    1288
                         1698    1706    1720    1729
LNZB       0000 17AA      119    1514*   1677    1710
LOAD       0000 00AC      130*    138
LOADE1     0000 106C      740     745     747*
LOADED     0000 0FA6      660     664*
LOADR      0000 1794      641     670     730     753    1008    1507*
LODTA0     0000 0F72      642*    667
LODTA1     0000 1038      728*
LODTA3     0000 1044      731*    750
LODTA4     0000 105A      738     740*
LODTAQ     0000 0F66      639*
LOEND      0000 168D     1122    1374*
LOMSG      0000 1688     1121    1372*
LOVAL      0000 1784      314     989     999    1134    1139    1503*
LOW        0000 1380     1126    1133*
LOW1       0000 125A      994     998*
LOW2       0000 1262      991    1001*
MAC        0000 172A     1255    1425*
MACEND     0000 1731     1256    1427*
MACHMAL    0000 1704     1227    1411*
MACINT     0000 14E6      218    1252*
MALFTN     0000 1436      201    1192*
MALFTNA    0000 1446     1195    1197*
MEMLIST    0000 0B6C      268     272*
MEMSG      0000 1566      248    1317*
MEMSG1     0000 1578      280     287    1319*
MMADRS     0000 1720     1225    1416*
MMALFTN    0000 1492     1198    1219*
MMEND      0000 1727     1228    1420*
MN         0000 0096      122*   1683    1708
MNAEND     0000 16C1     1131    1149    1389*
MNAMSG     0000 16AC     1130    1148    1387*
NEXT       0000 0BB4      276     291     294     298*
NLEND      0000 16AB     1153    1384*
NLMSG      0000 1694     1152    1382*
NOERR      0000 16D0      453    1396*
NORM       0000 1767      820    1477*
NOTLOW     0000 13BC     1141    1151*
NXTST      0000 17A6      637     726     796    1512*
OKIN       0000 0C6E      350     352     357*
ORIGIN1    0000 0A00      118     151*   1675    1709
PADSET     0000 153B      187    1300*
PARNOEND   0000 163B      408    1334*
PARNOMSG   0000 1588      407    1326*
PASSENS    0000 1190      903*    904
PAT1       0000 1532      728    1295*
PAT2       0000 1534      729    1296*
PAT3       0000 1536      426     434     639    1297*
PAT4       0000 1538      428     436     640    1298*
PRDU       0000 1138      839     846     848*
PRINT      0000 1114      242     247     286     319     327     353     357     406     452     488     495     835*   1031
                         1090    1120    1129    1135    1147    1151    1182    1226    1241    1254    1262    1270    1278
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                                   1288
PRTMSG        0000 0BFC             323*   483    498    911   1157
PRTMSG1       0000 0C22             332    335*
PRTTITLE      0000 0B0E             242*
PRTTOT        0000 0DCC             484*
PSWSAVE       0000 19EC             116    210   1666*
PURETOP       0000 0000P
QIP           0000 1420            1169   1173   1175   1182*
QIPEND        0000 166B            1184   1359*
QRZ           0000 12D0            1066   1070*
QUEND         0000 166F             355   1361*
QUEST         0000 1668             354   1183   1358*
R0            0000 0000              89*   168    171    172    174    175    176    177    178    178    179    181    182
                                    183    184    185    186    187    190    190    191    192    193    194    195    196
                                    203    204    205    214    217    220    229    250    250    251    252    253    254
                                    255    256    257    258    302    312    334    366    367    642    643    645    647
                                    648    652    656    657    661    673    674    676    678    679    681    686    687
                                    689    698    706    731    732    734    735    741    742    755    756    758    759
                                   1218   1229   1249   1291   1672   1673   1690   1696   1703   1715   1716   1717   1723
                                   1726   1728
R1            0000 0001              90*   118    130    131    133    138    167    168    197    198    199    200    201
                                    202    206    207    208    209    210    211    212    213    215    216    218    219
                                    222    225    226    229    230    234    235    259    260    264    264    265    267
                                    281    295    303    311    312    313    314    315    316    323    323    324    325
                                    326    333    334    335    336    360    361    362    363    446    447    447    449
                                    450    450    455    455    456    458    459    459    467    468    502    503    504
                                    959    959    982    984    986   1073   1074   1108   1108   1110   1112   1114   1202
                                   1203   1204   1217   1218   1222   1248   1249   1673   1675   1680   1682   1685   1686
                                   1689   1689   1690   1699   1699   1702   1705   1709   1712   1715   1719
R10           0000 000A              99*   476    478    479    481    482    482    693    694    701    702    708    709
                                    769    770    776    777    783    784    836    837    838    840    844    853    855
                                    857    857    858    859    895    896    900    903    908    909   1067   1075   1076
                                   1101   1133   1134   1140   1155   1156   1186   1213   1244
R11           0000 000B             100*   476    639    643    645    674    676    728    732    756    835    836    842
                                    843    844    848    852    853    858    859    861    876    877    879    894    895
                                    902    903    908   1061   1067   1075   1098   1099   1101   1213   1244
R12           0000 000C             101*   640    648    652    657    661    679    681    687    689    729    735    742
                                    759    764    850    852    929    937    941   1059   1060   1194   1199   1200   1209
R13           0000 000D             102*   512    513    518    519    527    528    533    534    542    543    548    549
                                    557    558    563    564    572    573    578    579    587    588    593    594    602
                                    603    608    609    617    618    623    624    851
R2            0000 0002              91*   114    134    140    223    227    232    260    472    473    473    898    902
                                    905    905    960    960    961    962    963    964    964    967    968    970    973
                                    975    981    983    988    990    993    996    998    999   1001   1008   1109   1109
                                   1111   1125   1143   1252   1257   1260   1265   1268   1273   1276   1281   1284   1676
                                   1686   1688   1716
R3            0000 0003              92*   119    120    121    224    228    233    261    457    461    462    464    466
                                   1253   1261   1269   1277   1677   1700   1710   1730   1731
R4            0000 0004              93*   123    124    125    127    135    137    221    225    231    234    262    273
                                    292    300    301    365    469    641    642    647    650    654    656    659    663
                                    664    666    670    673    678    686    693    700    701    707    708    713    715
                                    730    731    734    737    739    741    744    746    747    749    753    755    758
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                                763   769   775   776   782   783   788   790   813  1070  1071  1208  1215
                               1246  1678  1681  1683  1687  1687  1688  1708  1713
R5          0000 0005            94*  125   127   128   128   130   131   132   135   137   143   263   263
                                277   295   508   509   510   511   514   515   516   526   531   532   541
                                546   547   555   556   562   568   575   584   591   599   605   613   614
                                615   619   620   621   622   650   672   737   754  1680  1681  1712  1713
                               1714
R6          0000 0006            95*  122   132   139   139   140   509   515   525   532   538   545   554
                                560   569   570   571   576   577   585   586   592   598   599   606   615
                                620   654   683   739   761   930   931   932   933   934   936   937  1694
                               1695  1696  1702  1703  1714  1717  1731  1732
R7          0000 0007            96*  141   142   143   265   267   269   317   318   330   331   331   338
                                340   342   344   346   348   349   351   396   398   400   402   404   410
                                411   412   414   415   416   418   419   420   422   423   424   430   431
                                432   510   516   523   530   539   540   541   547   553   554   561   570
                                577   583   584   590   600   601   607   614   621   659   685   744   766
                                877   879   880   928   931   938   938   940  1164  1168  1170  1172  1174
                               1176  1178  1180
R8          0000 0008            97*  133   134   511   517   524   525   526   529   530   540   544   545
                                556   559   560   561   571   574   575   586   589   590   591   601   604
                                605   606   616   622   663   691   746   768  1125  1143  1160  1179  1180
                               1186  1187  1732
R9          0000 0009            98*  266   271   272   273   274   275   277   281   282   289   290   293
                                296   296   297   298   304   484   491   672   683   685   691   694   698
                                699   700   702   706   707   709   754   761   766   768   770   773   774
                                775   777   781   782   784   930  1022  1026  1027  1028  1029  1029  1078
                               1082  1086  1123  1138  1139  1140  1188  1193  1193  1197  1200  1222  1233
                               1237  1284
READ        0000 1164           337   345   395   876* 1162
READ1       0000 153C           175   182   876   972  1098  1301*
READ2       0000 176A           174  1480*
READ3       0000 176C           181  1481*
READERR     0000 0C62           341   343   353*
REGSAV00    0000 17AC           366  1058  1093  1103  1519*
REGSAV01    0000 17B0          1520*
REGSAV02    0000 17B4          1521*
REGSAV03    0000 17B8          1522*
REGSAV04    0000 17BC          1523*
REGSAV05    0000 17C0          1524*
REGSAV06    0000 17C4          1525*
REGSAV07    0000 17C8          1526*
REGSAV08    0000 17CC          1527*
REGSAV09    0000 17D0          1528*
REGSAV0A    0000 17D4          1529*
REGSAV0B    0000 17D8          1530*
REGSAV0C    0000 17DC          1531*
REGSAV0D    0000 17E0          1532*
REGSAV0E    0000 17E4          1533*
REGSAV0F    0000 17E8          1534*
REGSAV10    0000 17EC           367  1057  1094  1104  1535*
REGSAV11    0000 17F0          1536*
REGSAV12    0000 17F4          1537*
REGSAV13    0000 17F8          1538*
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REGSAV14  0000 17FC        365   1078    1539*
REGSAV15  0000 1800       1540*
REGSAV16  0000 1804       1541*
REGSAV17  0000 1808       1542*
REGSAV18  0000 180C       1543*
REGSAV19  0000 1810       1082   1544*
REGSAV1A  0000 1814       1086   1545*
REGSAV1B  0000 1818       1546*
REGSAV1C  0000 181C       1547*
REGSAV1D  0000 1820       1548*
REGSAV1E  0000 1824        364   1549*
REGSAV1F  0000 1828       1211   1550*
REGSAV20  0000 182C       1551*
REGSAV21  0000 1830       1552*
REGSAV22  0000 1834       1553*
REGSAV23  0000 1838       1554*
REGSAV24  0000 183C       1555*
REGSAV25  0000 1840       1556*
REGSAV26  0000 1844       1557*
REGSAV27  0000 1848       1558*
REGSAV28  0000 184C       1559*
REGSAV29  0000 1850       1560*
REGSAV2A  0000 1854       1561*
REGSAV2B  0000 1858       1562*
REGSAV2C  0000 185C       1563*
REGSAV2D  0000 1860       1564*
REGSAV2E  0000 1864       1565*
REGSAV2F  0000 1868       1566*
REGSAV30  0000 186C       1567*
REGSAV31  0000 1870       1568*
REGSAV32  0000 1874       1569*
REGSAV33  0000 1878       1570*
REGSAV34  0000 187C       1571*
REGSAV35  0000 1880       1572*
REGSAV36  0000 1884       1573*
REGSAV37  0000 1888       1574*
REGSAV38  0000 188C       1575*
REGSAV39  0000 1890       1576*
REGSAV3A  0000 1894       1577*
REGSAV3B  0000 1898       1578*
REGSAV3C  0000 189C       1579*
REGSAV3D  0000 18A0       1580*
REGSAV3E  0000 18A4       1581*
REGSAV3F  0000 18A8       1582*
REGSAV40  0000 18AC       1583*
REGSAV41  0000 18B0       1584*
REGSAV42  0000 18B4       1585*
REGSAV43  0000 18B8       1586*
REGSAV44  0000 18BC       1587*
REGSAV45  0000 18C0       1588*
REGSAV46  0000 18C4       1589*
REGSAV47  0000 18C8       1590*
REGSAV48  0000 18CC       1591*
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```
REGSAV49  0000 18D0        1592*
REGSAV4A  0000 18D4        1593*
REGSAV4B  0000 18D8        1594*
REGSAV4C  0000 18DC        1595*
REGSAV4D  0000 18E0        1596*
REGSAV4E  0000 18E4        1597*
REGSAV4F  0000 18E8        1598*
REGSAV50  0000 18EC        1599*
REGSAV51  0000 18F0        1600*
REGSAV52  0000 18F4        1601*
REGSAV53  0000 18F8        1602*
REGSAV54  0000 18FC        1603*
REGSAV55  0000 1900        1604*
REGSAV56  0000 1904        1605*
REGSAV57  0000 1908        1606*
REGSAV58  0000 190C        1607*
REGSAV59  0000 1910        1608*
REGSAV5A  0000 1914        1609*
REGSAV5B  0000 1918        1610*
REGSAV5C  0000 191C        1611*
REGSAV5D  0000 1920        1612*
REGSAV5E  0000 1924        1613*
REGSAV5F  0000 1928        1614*
REGSAV60  0000 192C        1615*
REGSAV61  0000 1930        1616*
REGSAV62  0000 1934        1617*
REGSAV63  0000 1938        1618*
REGSAV64  0000 193C        1619*
REGSAV65  0000 1940        1620*
REGSAV66  0000 1944        1621*
REGSAV67  0000 1948        1622*
REGSAV68  0000 194C        1623*
REGSAV69  0000 1950        1624*
REGSAV6A  0000 1954        1625*
REGSAV6B  0000 1958        1626*
REGSAV6C  0000 195C        1627*
REGSAV6D  0000 1960        1628*
REGSAV6E  0000 1964        1629*
REGSAV6F  0000 1968        1630*
REGSAV70  0000 196C        1631*
REGSAV71  0000 1970        1632*
REGSAV72  0000 1974        1633*
REGSAV73  0000 1978        1634*
REGSAV74  0000 197C        1635*
REGSAV75  0000 1980        1636*
REGSAV76  0000 1984        1637*
REGSAV77  0000 1988        1638*
REGSAV78  0000 198C        1639*
REGSAV79  0000 1990        1640*
REGSAV7A  0000 1994        1641*
REGSAV7B  0000 1998        1642*
REGSAV7C  0000 199C        1643*
REGSAV7D  0000 19A0        1644*
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REGSAV7E   0000 19A4      1645*
REGSAV7F   0000 19A8      1646*
REGSAVF0   0000 19AC      1647*
REGSAVF1   0000 19B0      1648*
REGSAVF2   0000 19B4      1649*
REGSAVF3   0000 19B8      1650*
REGSAVF4   0000 19BC      1651*
REGSAVF5   0000 19C0      1652*
REGSAVF6   0000 19C4      1653*
REGSAVF7   0000 19C8      1654*
REGSAVF8   0000 19CC      1655*
REGSAVF9   0000 19D0      1656*
REGSAVFA   0000 19D4      1657*
REGSAVFB   0000 19D8      1658*
REGSAVFC   0000 19DC      1659*
REGSAVFD   0000 19E0      1660*
REGSAVFE   0000 19E4      1661*
REGSAVFF   0000 19E8      1662*
REP        0000 0B52       264*    303
RESTART1   0000 0B0E       156     238*
RESTART2   0000 0BD0       153     308*
RETRN      0000 000E       103*    363     364     368     394     413     417     421     429     437     445     470     471
                           507     522     537     552     567     582     597     612     665     666     712     714     715
                           748     749     787     789     790     796     797     810     811     812     815     818     819
                           820     897     901     906    1030    1034    1072    1096    1099    1216    1237    1247    1252
                          1260    1268    1276
RSAVE      0000 1A08       117     212    1192    1229    1668*
RTN        0000 1310      1060    1090*
RTN5       0000 1334      1100    1103*
RXTURN     0000 17A8       810     821    1513*
SELTST     0000 0C76       360*
SENSE      0000 1130       844*    845
SENSE4     0000 0DB0       474     476*
SENSER     0000 1168       877*    878
SETBIT     0000 0BA2       270     292*
SETVAL     0000 0BD8       313*
STARMSG    0000 163C      1091    1338*
START      0000 0A16       151     158     167*
START0     0000 1030       411     725*
START1     0000 0F5E       415     633*
START2     0000 0F5E       419     634*
START3     0000 0F5E       423     635*
START4     0000 0F5E       431     636*
STFLG      0000 0B68       271*    305
STOP       0000 0D90       463     466*
STRBYT     0000 0D88       464*    475     477     480
SUB        0000 0C96       363     369*
SUB0       0000 0DF8       369     502*
SUB1       0000 0E02       370     507*
SUB2       0000 0E2A       371     522*
SUB3       0000 0E56       372     537*
SUB4       0000 0E82       373     552*
SUB5       0000 0EAE       374     567*
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  CHKSUM/M17 PUNCHER

SUB6        0000 0EDA       375     582*
SUB7        0000 0F06       376     597*
SUB8        0000 0F32       377     612*
SUBCHK      0000 0D52       445*    520     535     550     565     580     595     610     625    1105
SUBGET      0000 0C2A       337*    356
SUBNUM      0000 165C      1025    1026    1032    1350*
SUBSEL      0000 0C7A       361*    465
SUBTST      0000 177C       344     361     457     464     504     819    1022    1493*
SVC         0000 1732      1263    1430*
SVCEND      0000 1739      1264    1432*
SVCERR      0000 14F4       221    1260*
SWTST       0000 0D92       460     467*
SYS         0000 1742      1279    1440*
SYSEND      0000 1749      1280    1442*
SYSQ        0000 1510       215    1276*
TABLE       0000 19FC       208    1667*
TESTBRK     0000 1174       445     471     894*
TITLE       0000 153E       243    1313*
TOCS        0000 0B16       247*
TOTAL       0000 179C       335     468     469     484    1509*
TOTALEND    0000 167F       490    1367*
TOTALERR    0000 17A0       336     491    1065    1071    1510*
TOTALMSG    0000 1670       487     489     494     496    1364*
TRESTRT     0000 0D4A       440*    795
TRUEBRK     0000 11A2       907     911*
TSTEND      0000 16CF       329    1393*
TSTFLG      0000 177B       360     458     503    1492*
TSTMSG      0000 16C2       328    1392*
TSTNUM      0000 1282       507     522     537     552     567     582     597     612    1022*
TSTSEL      0000 0D6E       448     451     455*
TT          0000 1640      1027    1059    1341*
TTY         0000 0A2A       174*
TTYADR      0000 0A14       162*    176
TTYCHK      0000 0DC2       481*    974     977
TTYFLG      0000 177E       325     330     481     848    1495*
TTYSNS      0000 120C       971     975*
TYPEFLG     0000 1780      1497*
TYPEGET     0000 0CAA       395*    409
TYPEMSG     0000 1660       320    1353*
TYPEND      0000 1667       321    1354*   1355
TYPESENS    0000 0BF8       322*
TYPNO       0000 1667       318     410     414     418     422     430    1355*
TYPSENS     0000 0CA8       322     394*
TYPSET0     0000 0CE2       397     410*
TYPSET1     0000 0CF0       399     414*
TYPSET2     0000 0CFE       401     418*
TYPSET3     0000 0D0C       403     422*
TYPSET4     0000 0D2C       405     430*
TYPSTRT     0000 17A4       412     416     420     424     432     440     512     518     527     533     542     548     557
                            563     572     578     587     593     602     608     617     623    1511*

W           0000 163D      1207    1209    1339*
WORK        0000 000A       105*    425     426     427     428     433     434     435     436     966     967     972     973
                            975     978     979     979     989     990     992     993     995     996     998    1001    1002
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   CHKSUM/M17 PUNCHER

                              1003    1005    1006    1007    1009    1161    1163    1166
WRAPFLG    0000 1778           253     271     298     326    1194    1490*
WRITE1     0000 153D           843    1302*
WRITE2     0000 10F0           470     712     787     810*   1072    1216    1247
X9C        0000 0AE6           225*    226
XBC        0000 0AF4           229*    230
XCC        0000 0B06           234*    235
XXXXX      0000 1644          1081    1342*
YYYYYYYY   0000 164C          1085    1345*
ZZZZZZZZ   0000 1656          1089    1348*
```