Publication Number B06-217R01

MODEL 1100 TERMINAL TEST PROGRAM (16 AND 32 BIT)

Consists of:

Program Description A15	06-217M95R01
Bootstrap Object Tape (16 Bit)	06-217F01M17R01
Program Listing (16 Bit)	06-217F01M96R01
Bootstrap Object Tape (32 Bit)	06-217F02M17R01
Program Listing (32 Bit)	06-217F02M91R01

INTERDATA®
A DIVISION OF
THE PERKIN-ELMER CORPORATION
Oceanport, New Jersey 07757, U.S.A.

Printed in U.S.A.
October 1977

MODEL-1100 TEST PROGRAM DESCRIPTION

MODEL-1100 TEST PROGRAM DESCRIPTION

1. MODEL-1100 TEST PROGRAM 06-217R01

1.1 Related Documents:

Test Program Listing (16 Bit)	06-217F01M96R0
Test Program Listing (32 Bit)	06-217F02M91R0
Test Program Paper Tape (16 Bit)	06-217F01M17R0
Test Program Paper Tape (32 Bit)	06-217F02M17R0
Model-1100 Installation & Programming Manual	29-606
Model-1100 User's/Maintenance Manual	29-605
PASLA Programming Manual	29-446
PASLA User's Manual	29-301
TTY Controller Programming Spec	29-288

1.2 Test Programs to be run Prior to Loading this Test.

1.2.1 For 16-Bit Processors

Memory Test	06-003
35-600 MOS Memory Test	06-202 (or) 06-204
Processor Test	06-106
Model 50 Processor Test	06-128
Model 5/16 Part 1	06-215 (and)
Part 2	06-216
Model 8/16 Part 1	06-209 (and)
Part 2	06-210

1.2.2 For 32-Bit Processors

Series 32 Memory Test	06-156
32-Bit Series 6A Memory Test	06-157

Series 32 Processor Tests:

Part 1	06-154
Part 2	06-155
Part 3	06-178
Part 4	06-195

1.2.3 Other Test Programs

Common Teletype Basic Confidence Test	06-004 (or)
Common PALS Off-Line Test	06-127

2. PURPOSE OF TEST

The Model-1100 Test Program is designed to test, as a local terminal, the TTY Replaceable Model-1100 interfaced through a PASLA or CLI interface. The Model-1100 is tested as a console output device and keyboard input device.

When the test is started, the title is output to the Model-1100 followed by four lines, containing the ninety-six displayable characters for operator inspection.

The remainder of the test program comprises six individual test modules labeled Test 0 through Test 6.

TEST Ø. The Model-1100 keyboard is tested as follows. For each key depressed, the Processor echoes the character received , outputs the hex value of the character byte received, and performs a parity check on the received byte. To exit depress BREAK and CR.

TEST 1. The Model-1100 screen is filled with the characters * and U. Depressing carriage-return causes the pattern to be inverted (U and *). Depressing line feed selects the next test module.

TEST 2. The first line of the screen is tested with U's & *'s. The Model-1100 screen is cleared and two lines of non-displayable characters are output. Nothing should be displayed. Depressing carriage return causes Test 2 to be repeated. Depressing line feed selects the next test module.

TEST 3. Messages are output and input under interrupt control.

TEST 4. The cursor is program positioned and the appropriate character is displayed if the resulting cursor address is correct.

TEST 5. The multicode sequences are tested for proper operation.

TEST 6. (Optional) The "HERE-IS" ROM is tested to see that the correct characters are transmitted as per customer's own specifications.

3. MINIMUM HARDWARE REQUIRED

3.1 Processor - Model 6/16 or equivalent,
Model 7/32 or equivalent

3.2 Minimum Memory - 8K Bytes for F01 (16-Bit Version)
16K Bytes for F02 (32-Bit Version)

3.3 Paper Tape Reader (or)
Teletype (or)
High Speed Papar Tape Reader/Punch

3.4 CLI: M46-055 (Interface only) with:
RS-232: M46-030/031 (Standard)
Optional: M46-035/036 (W/Optional Key Pad)

3.5 PASLA Interface (M47-102 or)
CLI Interface (M46-107 or)
Model 70, 80, or 8/32 Built-in TTY Interface (or)
MOD 5/16 with Micro I/O Bus Interface (CLI)

NOTE
Display Panel is optional.

4. REQUIREMENTS OF MACHINE UNDER TEST

4.1 This program assumes that the programs indicated in Section 1.2 have been run without detecting an error.

4.2 Device Addresses

Prior to starting the test, the user must use the console device to set up two halfwords, labeled RECADR and SNDADR at ORG+4 and ORG+6, respectively. The contents of these halfwords are interpreted as X'IDDD' where I stands for interrupt level and DDD is the 10-bit physical device address.

When the Model-1100 is interfaced through a PASLA (FDX) only, receive side address and transmit side address are to be loaded into RECADR and SNDADR respectively. For example:

```
RECADR = X'0010'
SNDADR = X'0011'
PASFLG = X'0000'
```

The PASLA interface is normally strapped for X'10' and X'11'. Above example assumes zero interrupt level.

When the Model-1100 is interfaced through a CLI controller, the controller's device address must be loaded into both halfwords. For example:

```
RECADR = X'0002'
SNDADR = X'0002'
PASFLG = X'0000'
```

Again an interrupt level of ZERO is assumed in the above example.

When the Model-1100 is interfaced through a PASLA (HDX), receive side address must be loaded into both halfwords. PASFLG must be set to X'000F'.

```
RECADR = X'0010'
SNDADR = X'0010'
PASFLG = X'000F'
```

When the Model-1100 is interfaced to the Micro I/O Bus, receive side address must be loaded into both halfwords. PASFLG must be set to a negative value.

```
RECADR = X'00C0'
SNDADR = X'00C0'
PASFLG = X'F000'
```

4.3 Interface Connections

The Model-1100 may be interfaced to an INTERDATA Processor through the PASLA or any of the CLI interfaces (Model 70, 80, or 8/32 built-in or the 7" CLI interface).

4.3.1 PASLA Interrupt

When connecting the PASLA to a Model-1100 it is necessary to disable (force to ZERO) the RS-232 status bits which are not equipped on the terminal. The PASLA has wire-wrap stakes equipped for this purpose. The following is a summary of straps required for operation with any CRT.

For Full-Duplex operation, strap the PASLA interface as follows:

STRAP	FUNCTION
7-8	FDX Option
CF (REMOVE)	CARR Status
CB (REMOVE)	CL2S Status
HD-G4 (REMOVE)	FDX Option
G5-7 (REMOVE)	FDX Option

For Half-duplex operation, strap the PASLA interface as follows:

STRAP	FUNCTION
G5-7	HDX Option
HD-G4	HDX Option
CF (REMOVE)	CARR OFF Status
CB (REMOVE)	CL2S Active
7-8 (REMOVE)	

In addition, two straps A1-K1 must be added to select the two desired baud rates. This may be in the range of 75-9600 baud and is described in the PASLA Instruction Manual, Publication Number 29-301, which is included with the PASLA. This program is designed to select the highest strapped baud rate in the PASLA. Therefore, the baud rate select switch in the Model-1100 must select a baud rate which agrees with the highest baud rate in the PASLA. Figure 1 shows the hardware components of the CRT-PASLA system.

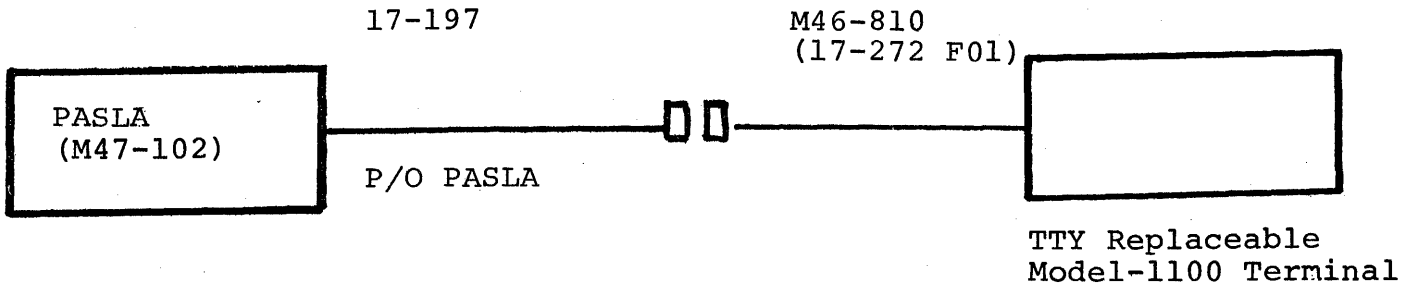

Figure 1. PASLA-FOX-1100

4.3.2 CLI Interface Connect (HDX only)

The Model-1100 can contain the current Loop interface required to connect to any of the INTERDATA CLI Interfaces. In this mode, the switch inside of the Model-1100 should be in one of the 110 to 2400 baud positions. The ASCII code with 10 bits (1 stop bit) and 2400 baud should be selected as standard baud rate. Note that only 110 baud can be accomodated with 2 stop bits. The Model-1100 can operate at other character formats or baud rates up to 2400 baud with the Current Loop interface. This is accomplished by adjusting the

Model-1100 terminal switches to select the required stop bit(s) and baud rate. However, the standard INTERDATA TTY Interface can be adjusted only for 110 baud and 11 bits (2 stop bits) Figure 2 shows the hardware components for the TTY/Model-1100 system.

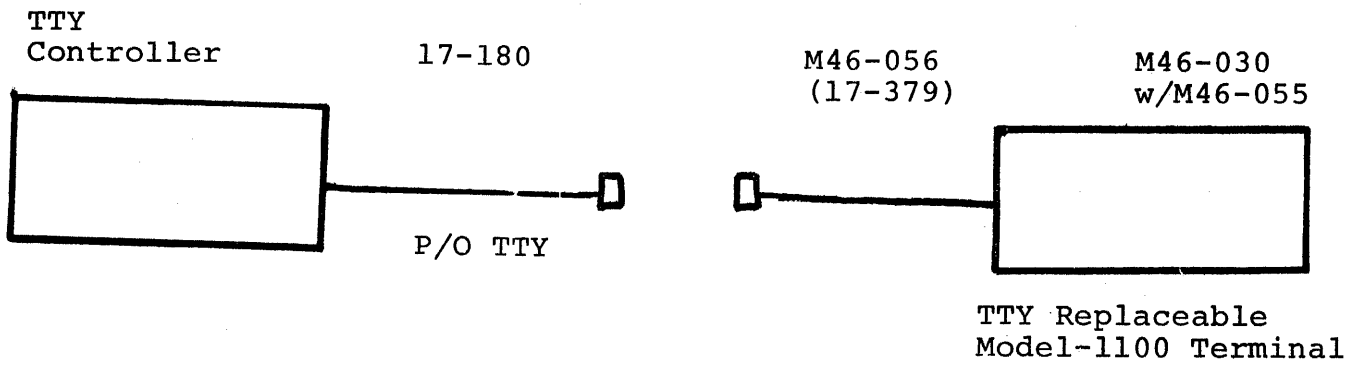

Figure 2. TTY CRT

4.4 Model-1100 Display Terminal Switch positions

The front left hand key-switches must be in the up position at the start of this test, except for the "LINE" key which must be depressed. The baud rate, stop-bits, and HDX-FDX switches must be in the normal position for the interface being used (HDX position for a half-duplex controller and FDX for a full-duplex controller).

The parity switch must be initially in the always space (bit 0 always = 0) position until the desired parity option has been entered. After the new parity option has been chosen, the parity select switch must be moved to the desired position and Clear-All depressed twice to establish the correct parity transmission. If this is not done correctly, a parity error will be displayed for each character entered with the incorrect parity (see Appendix 5).

5. LOADING PROCEDURE

5.1 Test Tape Format: Absolute, non-zoned object tape (M17) with front end boot loader. The test program starts at X'2D0' in the 16-Bit version (F01) and X'A00' in the 32-Bit version (F02). Either version occupies approximately 7K bytes.

5.2 Normal Loading Procedure

5.2.1 Manually enter the X'50' sequence shown below into memory

	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'

5.2.2 Place the program tape in the Paper Tape Reader

5.2.3 Execute at address X'30'

5.2.4 The display (if equipped) shows the address being loaded.

5.2.5 When the Processor halts, observe the CHKSUM byte, displayed (if equipped) on the console display register D1. If it is ZERO loading is complete; otherwise, repeat the loading procedure.

5.3 Refer to Section 4 and set up the four halfwords labeled RECADR, SNDADR, PALSPD, and PASFLG. (Modify PALSPD only if necessary.)

5.4 Address memory location X'A00' in the case of a 32-Bit Processor. Address memory location X'2D0' in the case of a 16-Bit Processor.

5.5 Start program execution. Observe that the following title is output on the CRT screen.

Model-1100 TEST PROGRAM 06-217 R01 F01 (F02)

6. OPERATING PROCEDURES

6.1 Normal Testing

When the test is started, the test program title is output to the Model-1100 followed by four lines of the 96 displayable characters. At this time, the Model-1100 screen should look like this:

```
MODEL-1100 TEST PROGRAM 06-217R01F01
 !"#$%&'()*+,-./0123456789:; = ?@ABCEDFGHIJKLMNO (BELL sounds)
PQRSTUVWXYZ[\]^_ `abcdefghijklmnopqrstuvwxyz{|}~ (BELL sounds)
 !"#$%&'()*+,-./0123456789:; = ?@ABCDEFGHIJKLMNO (BELL sounds)
PQRSTUVWXYZ[\]^_ `abcdefghijklmnopqrstuvwxyz{|}~ (BELL sounds)
*
```

6.2 Test Descriptions

At this time, if the "HERE-IS" ROM is not being tested, the operator need only type 'TEST' and 'RUN' followed by carriage returns to cause tests 0, 1, 2, 3, 4, and 5 to be exeucted. In order to select all tests, type 'TEST 0,1,2,3,4,5,6' followed by a carriage return.

TEST 0 - The program is now waiting for the operator to depress the Keyboard Keys. As each Key is depressed, the character associated with that Key is immediately displayed since the interface is being operated in the un-blocked or echoplex mode. The program then transmits the received character back to the Model-1100 to be displayed a second time. A space character is then output and the two hex digit value of the received character is output. The parity of the input character is then examined (chosen parity). If the parity is incorrect (wrong number of ones in the received character), the message "PARITY ERROR" is output following the hex value. A carriage return and line feed are then output and the program waits for the next Key.

The operator should exercise every Key on the Keyboard and observe that the characters displayed are correct. See Table 1 for the proper display for every combination of the control and shift keys.

If for any input character, the parity is incorrect, the message "PARITY ERROR" is output after the hex value of the received character. For example:

```
WW 57 PARITY ERROR

-
```

This test may be terminated by depressing BREAK and Carriage Return. See Table 1 for correct operation.

TEST 1 - The purpose of this test is to verify that a character can be displayed in every position on the screen. First, the message TEST 1 is output. Then, twenty-four identical lines are output to the CRT. Each line alternates the characters * and U until 80 characters are output. If a CLI interface is being used, it takes just over three minutes to output the entire screen at 110 baud. If a PASLA is being used, just over two seconds are requried to fill the screen (9600 baud).

TABLE 1. CHARACTER DISPLAY

KEY			CNTRL	SHIFT		CNTRL SHIFT
A	AA	41	81	aa	61	81
B	BB	42	82 STX	bb	62	02 STX
C	CC	43	03 ETX	cc	63	03 ETX
D	DD	44	04 EOT	dd	64	04 EOT
E	EE	45	05 ENQ	ee	65	05 ENQ
F	FF	46	06 ACK	ff	66	06
G	GG	47	07 BELL	gg	67	07 BELL
H	HH	48	08 BS	hh	68	08 BS
I	II	49	09 HT	ii	69	09 HT
J	JJ	4A	0A LF	jj	6A	0A LF
K	KK	4B	0B VT	kk	6B	1B ESC
L	LL	4C	0C FF	ll	6C	1C FS
M	MM	4D	0D CR	mm	6D	1D GS
N	NN	4E	0E	nn	6E	1E RS
O	OO	4F	0F	oo	6F	1F US
P	PP	50	10	pp	70	00 NUL
Q	QQ	51	11	qq	71	11 DC1
R	RR	52	12	rr	72	12 DC2
S	SS	53	13	ss	73	13 DC3
T	TT	54	14	tt	74	14 DC4
U	UU	55	15	uu	75	15 NAK
V	VV	56	16	vv	76	16 SYN
W	WW	57	17	ww	77	17 ETB
X	XX	58	18	xx	78	18 CAN
Y	YY	59	19	yy	79	19 GM
Z	ZZ	5A	1A	zz	7A	1A SUB

TABLE 1. CHARACTER DISPLAY (Con't.)

KEY			CNTRL	SHIFT	CNTRL SHIFT
0	00	30	00 30	00 30	00 30
1	11	31	11 31	!! 21	!! 21
2	22	32	22 32	"" 22	"" 22
3	33	33	33 33	## 33	## 33
4	44	34	44 34	$$ 24	$$ 24
5	55	35	55 35	%% 25	%% 25
6	66	36	66 36	&& 26	&& 26
7	77	37	77 37	'' 27	'' 27
8	88	38	88 38	((28	((28
9	99	39	99 39	)) 29	)) 29
:	::	3A	:: 3A	** 2A	** 2A
;	;;	3B	;; 3B	++ 3B	++ 2B
/	//	2C	// 2C	<< 3C	<< 3C
-	--	2D	-- 2D	== 3D	== BD
.	..	2E	.. 2E	>> 3E	>> BE
/	//	2F	// 2F	?? 3F	?? 3F
RUB OUT	FF		FF	FF	FF
SPACE	20		20	20	20
LINE FEED	0A		0A	0A	0A
CAR.	0D		0D	0D	0D
RET.					
ESQ	1B		1B	1B	1B
+	++	2B	++ 2B	++ 2B	++ 2B

After the entire screen is filled, depress the carriage return key to cause the pattern to be inverted (U and * instead of * and U) or depress line feed to advance to the next selected test.

CAUTION

THIS TEST MODULE CANNOT BE USED TO TEST THE PRINTER PORT OPTION.

TEST 2 - After completing Test 1 for line 1 (follow printed instructions). This test exercises the character decoding logic in the CRT. First, the message 'TEST2' is output, then twenty-four carriage return and line feed characters are output to clear the screen. Two lines of the 32-non-displayable and non-functional characters are then output. The screen remains blank.

The characters output are shown in Table 2.

Depress carriage return to repeat this test. Depress line feed to advance to the next selected test.

TEST 3 - This test exercises the Model-1100 interface in the interrupt mode. After the message 'TEST 3' is output, the test proceeds as follows.

The Model-1100 is conditioned to the Write mode with interrupts enabled. The Processor then prepares to output the message 'DEPRESS KEYS 1,2,3' under interrupt control. External interrupts are then enabled and the Processor enters a timing loop. If the message fails to be output, no interrupt at all occurred. The software timer will Time-out and the message 'ERROR 06' occurs.

When an interrupt is received, the Processor tests if it should be outputting data, and, if so, it tests that the returned device number is equal to that specified in location SNDADR. If this test fails, a spurious I/O interrupt has occurred. The message 'ERROR F4' is output with other pertinent data. Refer to Appendix 5 for error explanation.

If the device status is improper, the message 'STATUS=XX' is output, where XX is hex value of the received status byte.

If all tests pass, a character is output and the Processor waits for an interrupt. This continues until the 'DEPRESS KEYS 1,2,3' message is output. After the last character has been output, device interrupts are disabled for output and the device is conditioned to the Read Mode with interrupts enabled. The Processor then prepares to input characters and enters the Wait state.

TABLE 2. NON-DISPLAYABLE CHARACTERS

HEX	MEANING TTY	MEANING MODEL-1100	HEX	TTY	MODEL-1100
00	NULL	NULL	10	DC_0	DLE
01	SUM	SOH	11	XON	DC1
02	EOA	STX	12	TAPE ON	DC2
03	EOM	ETX	13	XOFF	DC3
04	EOT	EOT	14	TAPE OFF	DC4
05	ENQ	ENQ	15	NAK	NAK
06	ACK	ACK	16	SYN	SYN
07	BELL	BELL	17	ETB	ETB
08	BS	BS	18	S0	CAN
09	HT/SK	HT	19	S1	EM
0A	LF	LF	1A	S2	SUB
0B	VT	VT	1B	S3	ESC
0C	FF	FF	1C	S4	FS
0D	CR	CR	1D	S5	GS
0E	SO	SO	1E	S6	RS
0F	SI	SI	1F	S7	US
			7F	DEL	DEL

When a Key is depressed, an interrupt is generated. The Processor tests that is should be inputting and that the interrupting device number equals that specified in location RECADR. If this test fails, a spurious I/O interrupt has occurred. The message 'ERROR F4' is output, with other pertinent data. Refer to Appendix 5 for error explanation.

If the device status is improper the message 'STATUS=XX' is output, where XX is the hex value of the received status byte.

If all tests pass, a character is input and checked. The input driver expects to see first a 1, then a comma, a 2, a comma, and a 3. If any other character is received instead, the message 'ERROR 00' is output and TEST 3 is restarted automatically.

If the input character is correct, the Processor returns to the Wait state until the next character is received. After the number 3 is entered, interrupts are disabled for input and re-enabled for output. The Processor then outputs the message 'DEPRESS BREAK' under interrupt control. After the message is output, the Processor again sets up for an interrupt from the Keyboard.

When the Break Key is depressed, an interrupt is generated. The Processor tests that is should be inputting, and that the interrupting device number equals that specified in location RECADR. If either test fails, the spurious interrupt message is output.

The status is then tested for the line break indication. If the status is improper, the bad status message is output. If the status is correct, a character is input and tested for ZERO. If Non-Zero, the message 'ERROR 03' is output and the test terminates. If the received character is proper, the message 'BREAK OK' is output and Test 3 terminates. After carriage is depressed, the next selected test is performed.

TEST 4 - This test clears the screen, prints the title on the last line, and positions the cursor to all 1920 cursor positions on the screen. If the cursor position is correct, the proper character is written and the test continues positioning the cursor, checking the cursor line and column position, and writing the appropriate character until the screen is filled. No operator intervention is required. See Appendix 4.

TEST 5 - This test checks all the remaining multicode sequences and requires operator intervention to tell the test module if the proper event has occurred. Multicode A,B,C, D,H,K,I,J,1,2, & 3 are tested. Multicodes - X,Y, & Z are checked in TEST 4.

6.3 OPTIONAL TESTING

6.3.1 TEST 6 - After the test number is output, depress the "HERE-IS" Key and the contents of the ROM is transmitted to the test program read buffer. The read buffer is then echoed back and the operator is asked to visually verify the contents of the HERE-IS ROM. Depress carriage return to repeat the test or line feed to exit the test module.

6.3.2 To test the Transparent Mode, manually put the terminal into the Transparent Mode and run tests 1 and 2. To put the terminal into Transparent Mode, put the terminal OFF-Line and simultaneously depress 'CTRL'-"P" followed by "CTRL"-"B". To put the terminal back into normal mode, depress "CLEAR ALL" or "CTRL"-"P" followed by "CTRL"-"C". The latter method will not clear the screen as "CLEAR ALL" will.

6.3.3 To test the optional Printer Port, fill the screen by running Test 4, home the cursor (off-line) by depressing "MULTI-CODE" followed by "H", and then put the terminal "ON LINE" & depress "PRINT". The contents of the screen will then be output to the printer device.

6.4 ERROR PROCEDURES

For the most part, the program recovers automatically from errors. Refer to Appendix 5 for error explanations.

The program amy be restarted at any time at X'0A00' for a 32-Bit Processor or at X'02D0' for a 16-Bit Processor.

Provision is made for continuous looping in Test 0 or Test 1. Change the halfword labeled DEBUG 0 or DEBUG 1 to X'4300' to aid troubleshooting.

When the Model-1100 terminal does not respond to the test program at all, the user should try to resolve the failure using two independent routines, TRY1 and TRY2. Refer to the test program listing for these routines and the description pertaining to them.

APPENDIX 1

Section 4 describes how to set up RECADR, SNDADR, and PASFLG.

PALSPD is the second output command when using a PASLA or PALM. This command selects the proper baud rate, number of data bits and stop bits, and parity mode. Default is for the highest baud rate, 8 data bits, 1 stop bit, and no parity. Change PALSPD as required to agree with the hook-up used in normal operation of the system. (See 29-446).

APPENDIX 2

Command Input Structure Description

An asterisk (*) is output to the CRT to indicate the system is awaiting command input. Any command option may now be typed in, followed by a space and a hexadecimal value. An exception is the test option which accepts arguments separated by commas. A carriage return must be typed to terminate each command. An invalid command or improper value will cause a question mark (?) to ge output, followed by a carriage return, line feed, and an asterisk. Command input can be restarted to correct typing mistakes by typing a pounds sign (#) or a rub-out. The valid commands are summarized in Appendix 3.

APPENDIX 3

OPTION TABLE

OPTION	DEFAULT	TESTS	DESCRIPTION
NOMSG	0	ALL	Message Handling Option 0 = Print All Messages 1 = Print Only Error Messages
TEST	0,1,2,3,4,5	ALL	Test Numbers 0,1,3,4,5,6, & 6
CONTIN	0	ALL	Testing Sequence Option 0 = No Effect on Testing Sequence 1 = Run Selected Tests Continuously
PARITY	0	ALL	Terminal Parity Option 0 = Always Space 1 = Always Mark 2 = Even Parity 3 = Odd Parity
MULCAR	1B	4 & 5	Multicode Character ESC = X'1B'
HEREIS	0	6	Echo Character Option 0 = 32 Characters (Normal) 1 = 80 Characters (For manual testing)
OPTION	-	-	When in command mode, use this option followed by a carriage return to print-out all the above options on the Model-1100 screen.

APPENDIX 4

Expected Results

```
MODEL-1100 TEST PROGRAM 06-217R01F01
 !"#$%&'()*+,-./0123456789:; = ?@ABCDEFGHIJKLMNO   (BELL)
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~    (BELL)
 !"#$%&'()*+,-./0123456789:; = ?@ABCDEFGHIJKLMNO   (BELL)
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~    (BELL)

*  TEST  CR
*  RUN   CR

TEST 00

AA  41
BB  42
CC  43
DD  44
EE  45
FF  46
GG  47
HH  48
II  49
JJ  4A
KK  4B
LL  4C
MM  4D
NN  4E
OO  4F
PP  50
QQ  51
RR  52
SS  53
TT  54
UU  55
VV  56
WW  57
XX  58
YY  59
ZZ  5A
00  30
11  31
22  32
33  33
44  34
55  35
66  36
77  37
88  38
99  39
::  3A
(see Table 1)
```

(TEST 02)

```
U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*
HIT CR TO CONTINUE
-----------------------------------------------------------------------------
*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U
HIT CR TO CONTINUE
-----------------------------------------------------------------------------
```

TEST 02

TEST 03
DEPRESS KEYS 1,2,3
1,2,3
DEPRESS BREAK BREAK OK
HIT CR TO CONTINUE

```
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100 CRT TERMINAL CURSOR POSITIONING
                              TEST 04
```

```
 TEST 05
HOME CURSOR AND CLEAR SCREEN HAVE NOW BEEN OUTPUT
HIT CR TO CONTINUE, LF ON ERROR
----------------------------------------------------------------------------------------

HOME CURSOR AND CLEAR SCREEN HAVE NOW BEEN OUTPUT
HIT CR TO CONTINUE, LF ON ERROR
'TEST 05' HAS NOW BEEN DELETED
HIT CR TO CONTINUE, LF ON ERROR
---------------------------------------------------------------------------------------

CLEAR ALL HAS NOW BEEN OUTPUT
HIT CR TO CONTINUE, LF ON ERROR
END OF TEST
```

APPENDIX 5. ERROR TABLE

	INDICATION		
	CRT	DISPLAY 2, 8:15	SUGGESTED ACTION
Test program started at ORIGIN	(No Power Light) No cursor	XXXXX11X0 or X000 0001	Check that the Model-1100 is plugged in and that power is on. Check the fuse. Adjust brightness control.
	Cursor present, but no character display	0000 0100	Check that device addresses at RECADR and SNDADR are correct.
		XXXX 1XX0	Check that the Model-1100 is in 'REMOTE'. Check that PASLA is strapped for 9600 as highest baud rate. Check that Model-1100 is set for 9600 baud. Check that the Model-1100 is set up for TTY if using a TTY controller or RS232 if using a PASLA. Check that the micro-code program ROM and board connector are securely seated.
	Characters appear with frequent character	XXX 1XX0	Check that The Model-1100 is set for no parity checking on the receive side.
	Garbage characters displayed	XXX 1XX0	Check that the Model-1100 is set for the proper number of stop bits (as required).
	Program title is output followed by the 4-48 charac-ter lines, then 'STATUS=8C'. Message occurs repeatedly.		PASLA has queued an overflow condition. Type any display-able key to remove the error condition. Restart the test after initialization of both the Model-1100 and Processor.

	INDICATION		
	CRT	DISPLAY 2, 8:15	SUGGESTED ACTION
	'PARITY ERROR' Message occurs		Examine the hex value shown for the received character to see which bit is in error.
	Message 'ERROR 03'		This indicates an illegal character was received (a non-zero character with no stop bits).
Command Mode is entered after BREAK is depressed.	'PARITY ERROR' Message occurs when option input is attempted.		Restart at ORIGIN and test all the keyboard keys. Check Parity option and switch settings.
	'?' is output		Re-type command option
TEST 01 Outputs 24 lines of alternate * and U.	'STATUS=8C' Message occurs		PASLA has queued an overflow. Type a line feed to end TEST 1 or a carriage return to repeat TEST 1. Initialize Model-1100 and Processor. Restart test at ORIGIN.
TEST 02 Outputs 24 line feeds then two lines of the non-displayable characters.	The screen is not blank.		A problem with the Model-1100 decoding logic or memory is indicated.
TEST 03			
	ERROR 03F4 DEV 000 STA 04		Check RACK0/TACK0 network on the processor back panel.

INDICATION		
CRT	DISPLAY 2, 8:15	SUGGESTED ACTION
ERROR 03F4 DEV DDD STA SS Message occurs		Another device in the system has interrupted. Initialize and restart TEST 3.
'ERROR 06' Message.		Interrupt Time-out. Check RACK0/TACK0 network on the Processor back panel.
'STATUS=XX' Message		An interrupt was received, but the status was not clear. This indicates an interface problem.
'ERROR 00' Message		In response to the 'DEPRESS KEYS 1,2,3' Message, a typing error has occurred. The program loops at this point for a proper input.
'ERROR 03' Message		An illegal character was assembled by the interface.
'ERROR 07' Message		Bad cursor line position on cursor position read. Restart test.
'ERROR 08' Message		Bad cursor column position on cursor position read. Restart test.
'ERROR 09' Message		Multicode sequence failure. Restart test.
DU DETECTED IN EXEC DU DETECTED IN TEST XX		DU status bit unexpectedly went active while running the stated section.

```
                    1          SCRAT                                          FOX00010
                    2          CROSS                                          FOX00020
                    3          WIDTH  120                                     FOX00030
0000R               4          NLSTC                                          FOX00040
0000R               5          IFZ    ADC-2                                   FOX00050
                    7  *       TARGT 16                                       FOX00070
                   12          ENDC                                           FOX00120
0000R              13          SGCHK                                          FOX00130
                   14  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  FOX00140
                   15  *                                                     *  FOX00150
                   16  * COPYRIGHT    INTERDATA, INC.          JULY, 1977   *  FOX00160
                   17  *                                                     *  FOX00170
                   18  * PROGRAM USES THE SUBSET OF BASIC MODEL 7/16 INSTRUCTION SET.  *  FOX00180
                   19  * THIS TEST RUNS ON 16-BIT (MODEL 5/16 OR EQUIVALENT) AND  *  FOX00190
                   20  * 32-BIT (7/32 OR EQUIVALENT) PROCESSORS.                 *  FOX00200
                   21  *                                                     *  FOX00210
                   22  * ASUMPTIONS :                                        *  FOX00220
                   23  *  THIS PROGRAM ASSUMES THAT THE PROCESSOR TEST, MEMORY TEST,  *  FOX00230
                   24  *  & PALS OFF-LINE TEST/CURRENT LOOP INTERFACE TEST HAVE BEEN  *  FOX00240
                   25  *  RUN WITHOUT DETECTING AN ERROR.                    *  FOX00250
                   26  *                                                     *  FOX00260
                   27  * THE TEST                                           *  FOX00270
                   28  *  THIS PROGRAM TESTS THE MODEL-1100 DISPLAY TERMINAL AS A  *  FOX00280
                   29  *  CONSOLE OUTPUT DEVICE AND KEYBOARD DEVICE. THIS LOCAL  *  FOX00290
                   30  *  TERMINAL MAY BE INTERFACED TO THE HOST PROCESSOR THROUGH THE *  FOX00300
                   31  *  PROGRAMMABLE ASYNCHRONOUS SINGLE LINE ADAPTER (PASLA) OR THE *  FOX00310
                   32  *  CURRENT LOOP INTERFACE OR THE 5/16 MICRO I/O BUS. THE TEST  *  FOX00320
                   33  *  SUPPORTS THE PASLA STRAPPED FOR EITHER HALF OR FULL DUPLEX.  *  FOX00330
                   34  *                                                     *  FOX00340
                   35  *                                                     *  FOX00350
                   36  *  TO TEST THE MODEL-1100 DISPLAY TERMINAL, RUN TESTS 0, 1, 2,  *  FOX00360
                   37  *  3, 4, & 5.  TEST 6 (ECHO/HEREIS TEST) IS OPTIONAL.  *  FOX00370
                   38  *  IF THE MODEL-1100 DISPLAY TERMINAL DOES NOT RESPOND TO THE  *  FOX00380
                   39  *  TEST AT ALL, THEN TRY THE TWO SIMPLE READ & WRITE ROUTINES  *  FOX00390
                   40  *  AT LABELS "TRY1" AND "TRY2" (DISPLAY PANEL REQUIRED).  *  FOX00400
                   41  *                                                     *  FOX00410
                   42  * PREREQUISITE :                                     *  FOX00420
                   43  *  PRIOR TO STARTING THIS TEST, USER MUST SET UP THE HALFWORDS  *  FOX00430
                   44  *  "RECADR", "SNDADR", "PALSPD", & "PASFLG" AS REQUIRED.  *  FOX00440
                   45  *                                                     *  FOX00450
                   46  * LOADING PROCEDURE                                  *  FOX00460
                   47  *    1.  MANUALLY ENTER THE '50 SEQUENCE'.            *  FOX00470
                   48  *    2.  PLACE THE TEST TAPE IN TAPE READER.          *  FOX00480
                   49  *    3.  ADDRESS X'50' & DEPRESS RUN/EXE. TAPE LOADING STARTS.  *  FOX00490
                   50  *    4.  WHEN THE PROCESSOR HALTS, OBSERVE THAT THE CHKSUM BYTE *  FOX00500
                   51  *        DISPLAYED IN DISPLAY REGISTER D1 (IF EQUIPPED) IS  *  FOX00510
                   52  *        ZERO. IF NOT, REPEAT STEPS 1, 2, & 3 ABOVE.  *  FOX00520
                   53  *    5.  SET UP THE DEVICE ADDRESSES AS EXPLAINED ABOVE.  *  FOX00530
0000R              54          IFZ    ADC-2                                   FOX00540
                   55  *    6.  START AT X'200' FOR 16-BIT PROCESSOR.        *  FOX00550
                   58          ENDC                                           FOX00580
                   59  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  FOX00590
```

REGISTER ASSIGNMENTS

```
                          61  *                                          FOX00610
                          62  * REGISTER ASSIGNMENTS:                   FOX00620
                          63  *                                          FOX00630
0000 0000                 64  R0      EQU   0                            FOX00640
0000 0000                 65  DEV0    EQU   0                            FOX00650
0000 0001                 66  R1      EQU   1                            FOX00660
0000 0001                 67  DEV1    EQU   1                            FOX00670
0000 0002                 68  R2      EQU   2                            FOX00680
0000 0002                 69  RET2    EQU   2                            FOX00690
0000 0003                 70  R3      EQU   3                            FOX00700
0000 0003                 71  FLAG    EQU   3                            FOX00710
0000 0004                 72  R4      EQU   4                            FOX00720
0000 0004                 73  ZERO    EQU   4                            FOX00730
0000 0005                 74  R5      EQU   5                            FOX00740
0000 0005                 75  ONE     EQU   5                            FOX00750
0000 0006                 76  R6      EQU   6                            FOX00760
0000 0006                 77  WORK    EQU   6                            FOX00770
0000 0007                 78  R7      EQU   7                            FOX00780
0000 0007                 79  DAT     EQU   7                            FOX00790
0000 0008                 80  R8      EQU   8                            FOX00800
0000 0008                 81  TAB     EQU   8                            FOX00810
0000 0009                 82  R9      EQU   9                            FOX00820
0000 0009                 83  STAT    EQU   9                            FOX00830
0000 000A                 84  R10     EQU   10                           FOX00840
0000 000A                 85  WORK2   EQU   10                           FOX00850
0000 000B                 86  R11     EQU   11                           FOX00860
0000 000B                 87  CHAR    EQU   11                           FOX00870
0000 000C                 88  R12     EQU   12                           FOX00880
0000 000C                 89  POINT   EQU   12                           FOX00890
0000 000D                 90  R13     EQU   13                           FOX00900
0000 000D                 91  COUNT   EQU   13                           FOX00910
0000 000E                 92  R14     EQU   14                           FOX00920
0000 000E                 93  RET     EQU   14                           FOX00930
0000 000F                 94  R15     EQU   15                           FOX00940
0000 000F                 95  LINK    EQU   15                           FOX00950
```

BOOTSTRAP LOADER

```
                                 97  *                                                                          FOX00970
                                 98  *  BOOTLOADER WITH CHKSUM                                                 FOX00980
                                 99  *                                                                          FOX00990
0000R                           100          ORG     X'80'                                                      FOX01000
                                101  *                                                                          FOX01010
0080    2421                    102          LIS     R2,1                                                       FOX01020
0082    2303                    103          BS      BOOT                                                       FOX01030
0084    1CD8                    104          DC      Z(PSWSAVE)        CURRENT PSW SAVE POINTER(32-BIT M/C)     FOX01040
0086    1D60                    105          DC      Z(RSAVE)          REGISTER SAVE POINTER(32-BIT M/C)        FOX01050
0088    C810 02D0               106  BOOT    LHI     R1,ORIGIN         R1 = ADR( FIRST BYTE OF TEST PROG )      FOX01060
008C    C830 1C7A               107          LHI     R3,LNZB+1                                                  FOX01070
0090    4030 0022               108          STH     R3,X'22'                                                   FOX01080
0094    2731                    109          SIS     R3,1              R3 = ADR( LAST NON-ZERO BYTE )           FOX01090
0096    C860 0000               110  MN      LHI     R6,0              R6 = CHKSUM BYTE = X'MN'                 FOX01100
009A    D340 0078               111          LB      R4,X'78'          INPUT DEV ADR                            FOX01110
009E    DE40 0079               112          OC      R4,X'79'                                                   FOX01120
00A2    9D45                    113  LEADER  SSR     R4,R5                                                      FOX01130
00A4    2091                    114          BTBS    9,1               DU,BSY                                   FOX01140
00A6    9B45                    115          RDR     R4,R5                                                      FOX01150
00A8    0855                    116          LDAR    R5,R5                                                      FOX01160
00AA    2234                    117          BZS     LEADER            IGNORE LEADER                            FOX01170
00AC    D251 0000               118  LOAD    STB     R5,0(R1)          STORE 1ST NON-ZERO & SUBSEQUENT BYTE     FOX01180
00B0    D351 0000               119          LB      R5,0(R1)          FETCH BYTE AS STORRED                    FOX01190
00B4    0765                    120          XAR     R6,R5             GENERATE CHKSUM                          FOX01200
00B6    9481                    121          EXBR    R8,R1                                                      FOX01210
00B8    9828                    122          WHR     R2,R8             DISPLAY ADDRESS BEING LOADED             FOX01220
00BA    9D45                    123          SSR     R4,R5                                                      FOX01230
00BC    2091                    124          BTBS    9,1               DU,BSY                                   FOX01240
00BE    9B45                    125          RDR     R4,R5                                                      FOX01250
00C0    C110 00AC               126          BXLE    R1,LOAD           LOAD TILL LAST BYTE                      FOX01260
00C4    9466                    127          EXBR    R6,R6                                                      FOX01270
00C6    9826                    128          WHR     R2,R6             DISPLAY FINAL CHKSUM                     FOX01280
00C8    2478                    129  LDWT    LIS     R7,8                                                       FOX01290
00CA    917C                    130          SLHLS   R7,12                                                      FOX01300
00CC    9557                    131          EPSR    R5,R7             PSW = X'8000' (HALT)                     FOX01310
00CE    2203                    132          BS      LDWT              HALT !                                   FOX01320
```

```
EXEC

                                 137          ELSE                                                    FOX01370
00D0                             138          ORG     X'2D0'                                          FOX01380
02D0   4300 02E0                 139  ORIGIN  B       START2          START HERE FOR 16-BIT PROCESSOR FOX01390
02D4                             140          ENDC                                                    FOX01400
                                 141  *-----------------------------------                          FOX01410
                                 142  * MODEL-1100 INTERFACE DEVICE ADDRESSES & INTERRUPT LEVELS      FOX01420
                                 143  *                                                               FOX01430
                                 144  * USER MUST SETUP NEXT FOUR HALFWORDS PRIOR TO STARTING THE TEST. FOX01440
                                 145  *                                                               FOX01450
                                 146  * IF PASLA (FDX ONLY) CONTROLLER :                              FOX01460
                                 147  *        RECADR 0:3  = INTERRUPT LEVEL OF RECEIVE SIDE          FOX01470
                                 148  *        RECADR 4:15 = DEVICE ADDRESS OF RECEIVE SIDE (EVEN)    FOX01480
                                 149  *                                                               FOX01490
                                 150  *        SNDADR 0:3  = INTERRUPT LEVEL OF TRANSMIT SIDE         FOX01500
                                 151  *        SNDADR 4:15 = DEVICE ADDRESS OF TRANSMIT SIDE (ODD)    FOX01510
                                 152  *                                                               FOX01520
                                 153  * IF CLI, MICRO I/O BUS, OR PASLA (HDX) CONTROLLER :            FOX01530
                                 154  *        RECADR 0:3 = SNDADR 0:3 = CLI INTERRUPT LEVEL          FOX01540
                                 155  *        RECADR 4:15 = SNDADR 4:15 = CLI DEVICE ADDRESS (HDX)   FOX01550
                                 156  *                                                               FOX01560
02D4   0010                      157  RECADR  DCX     0010            RECEIVE DEVICE ADDRESS          FOX01570
                                 158  *                                                               FOX01580
02D6   0011                      159  SNDADR  DCX     0011            SEND DEVICE ADDRESS             FOX01590
                                 160  *                                                               FOX01600
                                 161  * SECOND PASLA COMMAND = HIGHEST BAUD RATE.                     FOX01610
                                 162  * 8 DATA BITS, 1 STOP BIT, NO PARITY CHECK (X'F0'),            FOX01620
                                 163  *                                                               FOX01630
02D8   00F0                      164  PALSPD  DCX     00F0            PALS SPEED OUTPUT COMMAND       FOX01640
       0000 02D9                 165  SECOND  EQU     PALSPD+1                                        FOX01650
                                 166  *                                                               FOX01660
                                 167  * FOR PASLA (HDX) CONTROLLER ONLY, CHANGE NEXT HW TO X'000F'.   FOX01670
                                 168  * FOR MICRO I/O BUS CONTROLLER CHANGE NEXT HW TO X'F000'.       FOX01680
                                 169  * OTHERWISE LET THE NEXT HALFWORD = 0.                          FOX01690
                                 170  *                                                               FOX01700
02DA   0000                      171  PASFLG  DCX     0               PASLA/MICRO-BUS FLAG            FOX01710
                                 172  *                                                               FOX01720
02DC                             173          IFZ     ADC-2                                           FOX01730
                                 174  * FOR A MODEL 50 PROCESSOR, CHANGE HALFWORD 'PSW1' TO X'6000'   FOX01740
                                 175  * AND HALFWORD 'PSW2' TO X'2000'.                               FOX01750
02DC                             176          ENDC                                                    FOX01760
                                 177  *                                                               FOX01770
02DC   70F0                      178  PSW1    DCX     70F0            ENABLE PSW USED IN PROGRAM      FOX01780
02DE   30F0                      179  PSW2    DCX     30F0            DISABLE PSW USED IN PROGRAM     FOX01790
                                 180  *-----------------------------------                          FOX01800
                                 186          ELSE                                                    FOX01860
02E0   2410                      187  START2  LIS     R1,0                                            FOX01870
02E2                             188          ENDC                                                    FOX01880
02E2   C820 1010                 189          LHI     R2,START                                        FOX01890
02E6   4010 0034                 190          STH     R1,X'34'                                        FOX01900
02EA   4020 0036                 191          STH     R2,X'36'        ESTABLISH II INT NEW PSW LOC    FOX01910
02EE   0000                      192          DCX     0               TAKE ILLEGAL INSTRUCTION INTERRUPT FOX01920
                                 193  *                                                               FOX01930
02F0   2200                      194  HALT    DCX     2200            HALT IF II INTERRUPT IS NOT TAKEN FOX01940
                                 195  *                                                               FOX01950
```

```
EXEC

                                 ***********************************                                  FOX01960
                                 *  LOW CORE SET UP ROUTINE                                           FOX01970
                                 *                                                                    FOX01980
02F2   2410                      LCORE    LIS    R1,0                                                FOX01990
02F4   2422                               LIS    R2,2                                                FOX02000
02F6   C830 004E                          LHI    R3,X'4E'                                            FOX02010
02FA   2400                               LIS    R0,0                                                FOX02020
02FC   4001 0000                 ZERO1    STH    R0,0(R1)                                            FOX02030
0300   C110 02FC                          BXLE   R1,ZERO1          ZERO CORE FROM 0 THRU X'4F'       FOX02040
0304   C810 0080                          LHI    R1,X'80'          (LEAVE X'50' - X'7F' AS IS)       FOX02050
0308   C830 00CE                          LHI    R3,X'CE'                                            FOX02060
030C   4001 0000                 ZERO2    STH    R0,0(R1)                                            FOX02070
0310   C110 030C                          BXLE   R1,ZERO2          ZERO CORE FROM X'80' THRU X'CF'   FOX02080
0314   C800 0394                          LHI    R0,XIERR          EXTERNAL INT ERROR ROUTINE START ADR FOX02090
0318                                      IFZ    ADC-2                                               FOX02100
0318   C830 02CE                          LHI    R3,X'2CE'                                           FOX02110
                                          ENDC                                                       FOX02140
031C   4001 0000                 ZERO3    STH    R0,0(R1)                                            FOX02150
0320   C110 031C                          BXLE   R1,ZERO3          SET UP INT SERVICE POINTER TABLE  FOX02160
0324   C830 0386                          LHI    R3,II                                               FOX02170
0328   4030 0036                          STH    R3,X'36'          ILL INST INT NEW PSW LOC          FOX02180
032C   C840 03E0                          LHI    R4,MM                                               FOX02190
0330   4040 003E                          STH    R4,X'3E'          M. M. INT NEW PSW LOC             FOX02200
0334   C840 1D60                          LHI    R4,RSAVE                                            FOX02210
0338                                      IFZ    ADC-2                                               FOX02220
                                 *                                                                    FOX02230
                                 *  SET UP LOW CORE FOR 16 BIT MACHINE                                FOX02240
                                 *                                                                    FOX02250
0338   4040 0022                          STH    R4,X'22'          REG SAVE POINTER                  FOX02260
033C   C850 034A                          LHI    R5,XI16                                             FOX02270
0340   4050 0046                          STH    R5,X'46'          EXI INT NEW PSW LOC               FOX02280
                                          ENDC                                                       FOX02440
                                 *                                                                    FOX02450
0344   2440                      LCOREXIT LIS    ZERO,0            INITIALIZE "ZERO"                 FOX02460
0346   2451                               LIS    ONE,1             AND "ONE"                         FOX02470
0348   030F                               BR     LINK              RETURN                            FOX02480
                                 ***********************************************                      FOX02490
                                 *  EXTERNAL INTERRUPT HANDLER                                        FOX02500
034A                                      IFZ    ADC-2                                               FOX02510
034A   D000 1D60                 XI16     STM    R0,RSAVE          16-BIT PROCESSORS - SAVE REGISTERS FOX02520
034E   9F23                               ACKR   R2,R3             ACKNOWLEDGE INTERRUPT             FOX02530
0350                                      ENDC                                                       FOX02540
0350   95AA                       XI32     EPSR   R10,R10           32-BIT PROCESSOR INTERRUPT HANDLER FOX02550
0352   40A0 04CC                          STH    R10,INTPSW        SAVE CURRENT PSW                  FOX02560
0356   4020 04CE                          STH    R2,INTDEV         STORE INTERRUPTING DEV ADR        FOX02570
035A   D230 04D2                          STB    R3,INTSTA         AND STATUS                        FOX02580
035E                                      IFZ    ADC-2                                               FOX02590
035E   4800 0040                          LH     R0,X'40'          R0 = OLD PSW ( 16 BIT M/C )       FOX02600
0362   4810 0042                          LH     R1,X'42'          R1 = OLD PSW LOC ( 16 BIT M/C )   FOX02610
0366                                      ENDC                                                       FOX02620
0366   4000 049A                 XI32A    STH    R0,OPSW           SAVE OLD PSW                      FOX02630
036A   4010 04BE                          STH    R1,OLOC           SAVE OLD LOC                      FOX02640
036E   2450                               LIS    R5,0                                                FOX02650
0370   4665 04C0                 XI1      LH     R6,DEVSADR(R5)    GET DEV ADR FROM TABLE            FOX02660
```

```
EXEC

0374  4210 0394   267          BM     XIERR              IF DEV NOT IN TABLE, BRANCH          FOX02670
0378  0562        268          CLAR   R6,R2              COMPARE IT WITH INTERRUPTING DEV ADR FOX02680
037A  2333        269          BES    XI2                BRANCH IF EQUAL                      FOX02690
037C  2652        270          AIS    R5,2                                                    FOX02700
037E  2207        271          BS     XI1                                                     FOX02710
0380  4865 04C8   272  XI2     LH     R6,DEVINT(R5)      GET DEV INTERRUPT HANDLER ADDRESS    FOX02720
0384  4330 0394   273          BZ     XIERR              IF INTERRUPT NOT EXPECTED, BRANCH    FOX02730
0388  4060 0392   274          STH    R6,XIEXIT                                               FOX02740
                  285          ENDC                                                           FOX02850
038C  0100 1D60   286  XI3     LM     R0,RSAVE           RESTORE REG (16-BIT PROCESSOR)       FOX02860
0390  4300 0390   287  XI4     B      *                  RETURN TO TEST OR INTERRUPT HANDLER  FOX02870
      0000 0392   288  XIEXIT  EQU    XI4+2                                                   FOX02880
                  289  *--------------------------------                                      FOX02890
                  290  *     EXTERNAL INTERRUPT ERROR ROUTINE                                  FOX02900
0394  C860 4634   291  XIERR   LHI    R6,C'F4'                                                FOX02910
0398  4060 04DC   292          STH    R6,ERRNO           ESTABLISH ERROR MESSAGE              FOX02920
039C  4020 04D0   293          STH    R2,ERRDEV          PARAMETERS                           FOX02930
03A0  D230 04D3   294          STB    R3,ERRSTA                                               FOX02940
03A4  D100 1D60   295          LM     R0,RSAVE           RESTORE REGISTERS                    FOX02950
03A8  C830 00F0   296          LHI    R3,X'F0'                                                FOX02960
03AC  9523        297          EPSR   R2,R3              REG SET 15                           FOX02970
03AE  41F0 0426   298          BAL    LINK,ERRALL        OUTPUT MESSAGES:  "ERROR XXF4"       FOX02980
                  299  *                                  "DEV DDD STA SS","PSW PPPP LOC LLLL" FOX02990
03B2  4300 054C   300          B      CMDIN              GO TO BEGINING                       FOX03000
                  301  *--------------------------------                                      FOX03010
                  302  *  SPURIOUS INTERRUPT HANDLERS                                          FOX03020
                  303  *--------------------------------                                      FOX03030
                  304  *  ILLEGAL INSTRUCTION INTERRUPT TRAP                                   FOX03040
03B6  C820 4632   305  II      LHI    R2,C'F2'                                                FOX03050
03BA  4020 04DC   306          STH    R2,ERRNO           SET ERROR # F2                       FOX03060
03BE              307          IFZ    ADC-2                                                   FOX03070
03BE  48E0 0030   308          LH     R14,X'30'          GET OLD PSW                          FOX03080
03C2  48F0 0032   309          LH     R15,X'32'          GET OLD LOC                          FOX03090
03C6              310          ENDC                                                           FOX03100
03C6  40E0 04BA   311  COMM    STH    R14,OPSW           SAVE OLD PSW                         FOX03110
03CA  40F0 04BE   312          STH    R15,OLOC           SAVE OLD LOC                         FOX03120
03CE  C800 00F0   313  COMM1   LHI    R0,X'F0'                                                FOX03130
03D2  9520        314          EPSR   R2,R0              NO INT., REG SET 15                  FOX03140
03D4  41F0 0410   315          BAL    LINK,ERR           PRINT "ERROR XXFN"                   FOX03150
03D8  41E0 0468   316          BAL    RET,ERRPL1         PRINT "PSW PPPP  LOC LLLL"           FOX03160
03DC  4300 054C   317          B      CMDIN              GO TO BEGINING                       FOX03170
                  318  *                                                                        FOX03180
                  319  *  MACHINE MALFUNCTION INTERRUPT TRAP                                   FOX03190
                  320  *                                                                        FOX03200
03E0  C820 4633   321  MM      LHI    R2,C'F3'                                                FOX03210
03E4  4020 04DC   322          STH    R2,ERRNO           SET ERROR # F3                       FOX03220
                  326          ELSE                                                           FOX03260
03E8  48E0 0038   327          LH     R14,X'38'          GET OLD PSW (16-BIT PROCESSOR)       FOX03270
03EC  48F0 003A   328          LH     R15,X'3A'          GET OLD LOC                          FOX03280
03F0              329          ENDC                                                           FOX03290
03F0  40E0 04BA   330  MM32    STH    R14,OPSW           STORE OLD PSW                        FOX03300
03F4  40F0 04BE   331          STH    R15,OLOC           STORE OLD LOC                        FOX03310
03F8  C850 7FFF   332          LHI    R5,X'7FFF'                                              FOX03320
03FC  2751        333  ABOVE   SIS    R5,1                                                    FOX03330
```

```
EXEC
03FE  2031                 334          BNZS   ABOVE              WAIT (PROCESSOR SETTELING TIME)      FOX03340
0400  C800 080F            335          LHI    R0,X'080F'                                              FOX03350
0404  9104                 336          SLHLS  R0,4               R0 = X'80F0' = PSW                   FOX03360
0406  9520                 337          EPSR   R2,R0              HALT PROCESSOR                       FOX03370
                           338  *   WHEN EXE/RUN IS DEPRESSED, ERROR MSG IS PRINTED,                   FOX03380
0408  4300 03CE            339          B      COMM1                                                   FOX03390
                           340  *                                                                      FOX03400
040C                       341          IFZ    ADC-2                                                   FOX03410
040C  C200 0040            342  PSWRTN  LPSW   X'40'              RETURN ON INTERRUPT TO LOC           FOX03420
                           345          ENDC                      WHERE INTERRUPT OCCURRED             FOX03450
                           346  *                                                                      FOX03460
                           347  *  ERROR ROUTINES                                                     FOX03470
                           348  *                                                                      FOX03480
0410  D000 1CE0            349  ERR    STM    R0,ERRSAVE         STORE REGISTERS                      FOX03490
0414  C810 00F0            350          LHI    R1,X'F0'                                                FOX03500
0418  9501                 351          EPSR   R0,R1              DISABLE INT. @ PROCESSOR LEVEL       FOX03510
041A  41F0 0922            352          BAL    LINK,OUTPUT        OUTPUT MESSAGE                       FOX03520
041E  04D4                 353          DC     Z(ERRNOMSG)        "ERROR XX"                           FOX03530
0420  D100 1CE0            354          LM     R0,ERRSAVE         RESTORE REGISTERS                    FOX03540
0424  030F                 355          BR     LINK               RETURN TO TEST                       FOX03550
                           356  *                                                                      FOX03560
0426  D000 1CE0            357  ERRALL  STM    R0,ERRSAVE         STORE REGISTERS                      FOX03570
042A  C810 00F0            358          LHI    R1,X'F0'                                                FOX03580
042E  9501                 359          EPSR   R0,R1              DISABLE INT @ PROCESSOR LEVEL        FOX03590
0430  41F0 0922            360          BAL    LINK,OUTPUT        OUTPUT MESSAGE                       FOX03600
0434  04D4                 361          DC     Z(ERRNOMSG)        "ERROR XX"                           FOX03610
0436  41E0 0444            362          BAL    RET,ERRDS1         PRINT 'DEV DDD STA SS'               FOX03620
043A  41E0 0468            363          BAL    RET,ERRPL1         PRINT 'PSW PPPP  LOC LLLL'           FOX03630
043E  D100 1CE0            364          LM     R0,ERRSAVE         RESTORE REGISTERS                    FOX03640
0442  030F                 365          BR     LINK               RETURN                               FOX03650
                           366  *                                                                      FOX03660
                           367  *  TO PRINT 'DEV DDD STA SS'                                           FOX03670
                           368  *                                                                      FOX03680
0444  2403                 369  ERRDS1 LIS    R0,3               SET UP DIGITS = 3                    FOX03690
0446  4810 04D0            370          LH     R1,ERRDEV          R1 = ERROR DEV #                     FOX03700
044A  C820 04E6            371          LHI    R2,ASCIDEV                                              FOX03710
044E  41F0 048A            372          BAL    LINK,HEXASC        CONVERT IT TO ASCII                  FOX03720
0452  2402                 373          LIS    R0,2               SET UP DIGITS = 2                    FOX03730
0454  D310 04D3            374          LB     R1,ERRSTA          R1 = ERROR STATUS                    FOX03740
0458  C820 04EE            375          LHI    R2,ASCISTA                                              FOX03750
045C  41F0 048A            376          BAL    LINK,HEXASC        CONVERT IT TO ASCII                  FOX03760
0460  41F0 0922            377          BAL    LINK,OUTPUT        OUTPUT MESSAGE                       FOX03770
0464  04E0                 378          DC     Z(DEVMSG)          "DEV DDD STA SS"                     FOX03780
0466  030E                 379          BR     RET                RETURN                               FOX03790
                           380  *                                                                      FOX03800
                           381  *  TO PRINT 'PSW PPPP  LOC LLLL'                                      FOX03810
                           382  *                                                                      FOX03820
0468  2404                 383  ERRPL1 LIS    R0,4               SET UP DIGITS = 4                    FOX03830
046A  4810 04BA            384          LH     R1,OPSW            R1 = OLD PSW                         FOX03840
046E  C820 04F8            385          LHI    R2,ASCIPSW                                              FOX03850
0472  41F0 048A            386          BAL    LINK,HEXASC        CONVERT IT TO ASCII                  FOX03860
0476  4810 04BE            387          LH     R1,OLOC            R1= OLD LOC                          FOX03870
047A  C820 0502            388          LHI    R2,ASCILOC                                              FOX03880
047E  41F0 048A            389          BAL    LINK,HEXASC        CONVERT IT TO ASCII                  FOX03890
```

```
EXEC

0482  41F0 0922          BAL    LINK,OUTPUT        OUTPUT MESSAGE                      FOX03900
0486  04F2               DC     Z(PSWMSG)          "PSW PPPP LOC LLLL"                 FOX03910
0488  030E               BR     RET                RETURN                              FOX03920
                         *-----------------------------------                           FOX03930
                         *  TO CONVERT THE NUMBER OF DIGITS IN R0, FROM THE BINARY DATA IN R1  FOX03940
                         *  INTO ASCII CHARACTERS AND STORE AT 0(R2).                   FOX03950
048A  D000 1D60          HEXASC STM    R0,RSAVE           STORE REGISTERS                     FOX03960
048E  0830               LDAR   R3,R0              R3 = DIGITS                         FOX03970
0490  9132               SLHLS  R3,2                                                   FOX03980
0492  2734               SIS    R3,4               R3 = 4(DIGITS)-4                    FOX03990
0494  0841               HEXASC1 LDAR  R4,R1       R4 = HEX DATA                       FOX04000
0496  CC43 0000          SRHL   R4,0(R3)                                               FOX04010
049A  C440 000F          NHI    R4,15              R4 = HEX DIGIT TO BE CONVERTED      FOX04020
049E  D344 0C76          LB     R4,HEXTAB(R4)      GET ASCII FOR HEX DIGIT             FOX04030
04A2  D242 0000          STB    R4,0(R2)           STORE ASCII CHAR AT (R2)            FOX04040
04A6  2621               AIS    R2,1                                                  FOX04050
04A8  2734               SIS    R3,4                                                  FOX04060
04AA  2218               BNMS   HEXASC1            LOOP TILL ALL DIGITS ARE CONVERTED  FOX04070
04AC  D100 1D60          LM     R0,RSAVE           RESTORE REGISTERS                   FOX04080
04B0  030F               BR     LINK               RETURN                              FOX04090
                         *-----------------------------------                           FOX04100
                         * ETPE CONSTANTS & MESSAGES                                   FOX04110
                         *-----------------------------------                           FOX04120
                         * TEST SEQUENCEING PAREMETERS                                 FOX04130
     0000 FC00           DFAULT EQU    X'FC00'            0, 1, 2, 3, 4, & 5          FOX04140
     0000 FE00           MASK   EQU    X'FE00'            0, 1, 2, 3, 4, 5, & 6       FOX04150
04B8                     ALIGN  8                                                      FOX04160
                         *-----------------------------------                           FOX04170
04B8  0000               OPSW32 DCX    0                  OLD PSW & LOC STORAGE AREA          FOX04180
04BA  0000               OPSW   DCX    0                                                   FOX04190
04BC  0000               DCX    0                                                      FOX04200
04BE  0000               OLOC   DCX    0                                                   FOX04210
                         *-----------------------------------                           FOX04220
04C0  0000               DEVSADR DCX   0                  RECEIVE ADDRESS  (FDX)      FOX04230
04C2  0000               DCX    0                  TRANSMIT ADDRESS (FDX)              FOX04240
04C4  FFFF               DC     -1                 END OF TABLE                        FOX04250
                         *                                                             FOX04260
04C6  0000               INTLVL DCX    0                  REC & SEND INTERRUPT LEVELS         FOX04270
04C8  0000               DEVINT DCX    0                  INTERRUPT RETURN ADDRESSES - RECEIVE FOX04280
04CA  0000               DCX    0                  INTERRUPT RETURN ADDRESSES -TRANSMIT FOX04290
04CC  0000               INTPSW DCX    0                  INTERRUPTING PSW                    FOX04300
04CE  0000               INTDEV DCX    0                  INTERRUPTING DEV ADR                FOX04310
04D0  0000               ERRDEV DCX    0                  ERROR DEVICE #                      FOX04320
04D2  00                 INTSTA DB     0                  INTERRUPTING DEV STATUS             FOX04330
04D3  00                 ERRSTA DB     0                  ERRONEOUS STATUS                    FOX04340
```

EXEC - ERROR MESSAGES

```
04D4   0A0D                 436  ERRNOMSG DC     X'0A0D',C'ERROR 00',X'A0A0'                          FOX04360
04D6   4552524F
       52203030
04DE   A0A0
       0000 04DC            437  ERRNO    EQU    ERRNOMSG+8          STORE ERRNO AS CHAR CONSTANT     FOX04370
04E0   0A0D                 438  DEVMSG   DC     X'0A0D',C'DEV 000 STA 00',X'A0A0'                    FOX04380
04E2   44455620
       30303020
       53544120
       3030
04F0   A0A0
       0000 04E6            439  ASCIDEV  EQU    DEVMSG+6                                             FOX04390
       0000 04EE            440  ASCISTA  EQU    DEVMSG+14                                            FOX04400
04F2   0A0D                 441  PSWMSG   DC     X'0A0D',C'PSW 0000  LOC 0000',X'A0A0'                FOX04410
04F4   50535720
       30303030
       20204C4F
       43203030
       3030
0506   A0A0
       0000 04F8            442  ASCIPSW  EQU    PSWMSG+6                                             FOX04420
       0000 0502            443  ASCILOC  EQU    PSWMSG+16                                            FOX04430
```

```
                                 445  *--------------------------------                                    FOX04450
                                 446  * OPTIONS TABLE                                                      FOX04460
                                 447  *                                                                    FOX04470
0508  0000                       448  NOMSG    DC     X'0',C'NOMSG '     0 = PRINT; 1 = NO PRINT; DEFAULT = 0   FOX04480
050A  4E4F4D53
      4720
0510  FC00                       449  TEST     DC     Z(DFAULT),C'TEST  'TEST NUMBER(S); DFALT=0,1,2,3,4,5,&6  FOX04490
0512  54455354
      2020
0518  0000                       450  CONTIN   DC     X'0',C'CONTIN'     0=SINGLE PASS; 1=CONTINUOUS; DFALT=0   FOX04500
051A  434F4E54
      494E
0520  0000                       451  PARITY   DC     X'0',C'PARITY'     0-SPACE;1-MARK;2-EVEN;3-ODD; DFALT=0   FOX04510
0522  50415249
      5459
0528  001B                       452  MULCAR   DC     X'1B',C'MULCAR'    MULTICODE CHARACTER (ESC = X'1B')      FOX04520
052A  4D554C43
      4152
0530  0000                       453  HEREIS   DC     X'0',C'HEREIS'     0=32 CHARS; 1=80 CHARS; DEFAULT = 0    FOX04530
0532  48455245
      4953
0538  0000                       454  OPTION   DC     X'0',C'OPTION'     OPTION PRINTOUT COMMAND                FOX04540
053A  4F505449
      4F4E
0540  0000                       455  RUN      DC     X'0',C'RUN   '     RUN COMMAND                            FOX04550
0542  52554E20
      2020
0548  0000                       456           DC     X'0',-1            END OF OPTIONS TABLE                   FOX04560
054A  FFFF
```

```
EXEC

                                 *-----------------------------------                                  FOX04580
                                 * START COMMAND INPUT                                                 FOX04590
                                 *                                                                     FOX04600
054C   41F0 0AD8                 CMDIN    BAL    LINK,SETUP          SET UP DEVSADR & INTLVL TABLES    FOX04610
0550   41F0 02F2                          BAL    LINK,LCORE          SET UP LOW CORE                   FOX04620
0554   41F0 0B0A                          BAL    LINK,INITAL         INITIALIZE                        FOX04630
0558   2471                               LIS    DAT,1                                                 FOX04640
055A   917F                               SLHLS  DAT,15              DAT = X'8000'                     FOX04650
055C   4070 0C36                          STH    DAT,CURSOR          FORCE TEST 0                      FOX04660
0560   4040 0C34                          STH    ZERO,TESTNO         (PART OF MESSAGE)                 FOX04670
                                 *-----------------------------------                                  FOX04680
                                 * MAIN COMMAND INPUT                                                  FOX04690
                                 *                                                                     FOX04700
0564   C860 00F0                 OPTIN    LHI    WORK,X'F0'          NO INTERRUPTS,                    FOX04710
0568   95A6                               EPSR   WORK2,WORK          REGISTER SET 15                   FOX04720
056A   2440                               LIS    ZERO,0                                                FOX04730
056C   2451                               LIS    ONE,1                                                 FOX04740
056E   4870 0540                          LH     DAT,RUN             TEST RUN FLAG                     FOX04750
0572   4230 082C                          BNZ    TSTSEL              START TESTING                     FOX04760
0576   DE10 0C46                          OC     DEV1,TWRT           WRITE MODE                        FOX04770
057A   41F0 0922                          BAL    LINK,OUTPUT         MESSAGE                           FOX04780
057E   0DA2                               DC     Z(MSG6)             "*"                               FOX04790
0580   C870 2020                          LHI    DAT,X'2020'         BLANK OUT CMD BUFFER              FOX04800
0584   4070 1CCA                          STH    DAT,CMDBUF          WHICH WILL                        FOX04810
0588   4070 1CCC                          STH    DAT,CMDBUF+2        CONTAIN                           FOX04820
058C   4070 1CCE                          STH    DAT,CMDBUF+4        OPTION NAME                       FOX04830
0590   2430                               LIS    FLAG,0              CHARACTER COUNT                   FOX04840
0592   9D19                     CMD1      SSR    DEV1,STAT           WAIT FOR LAST                     FOX04850
0594   9A59                               WDR    ONE,STAT            CHAR TO COMPLETE                  FOX04860
0596   C390 0001                          THI    STAT,1              DEVICE DU ?                       FOX04870
059A   2337                               BZS    CMD2                NO, BRANCH                        FOX04880
059C   40F0 0C70                          STH    LINK,DURTN                                            FOX04890
05A0   41F0 1BB4                          BAL    LINK,DUPASS         YES, GO TO DU STATUS HANDLER      FOX04900
05A4   48F0 0C70                          LH     LINK,DURTN                                            FOX04910
05A8   C390 0008                 CMD2     THI    STAT,8                                                FOX04920
05AC   203D                               BNZS   CMD1                WAIT FOR BUSY TO DROP             FOX04930
05AE   DE00 0C47                          OC     DEV0,TREAD          DISABLE INTERRUPTS, READ MODE     FOX04940
05B2   9B0B                               RDR    DEV0,CHAR           DUMMY READ TO SET BSY             FOX04950
05B4   41F0 0A2E                 RDCHAR   BAL    LINK,READ           READ CHARACTER                    FOX04960
05B8   C5B0 0060                          CLHI   CHAR,X'60'          LOWER CASE ?                      FOX04970
05BC   2183                               BLS    RDCHAR1             NO, BRANCH                        FOX04980
05BE   C8B0 0020                          SHI    CHAR,X'20'          YES, CONVERT TO UPPER CASE        FOX04990
05C2   C5B0 005F                 RDCHAR1  CLHI   CHAR,X'5F'          DELETE ?                          FOX05000
05C6   213A                               BNES   GOTCHAR             NO, BRANCH                        FOX05010
05C8   2731                               SIS    FLAG,1              YES                               FOX05020
05CA   4210 074A                          BM     CMDERR                                                FOX05030
05CE   C8B0 0020                          LHI    CHAR,X'20'                                            FOX05040
05D2   D2B3 1CCB                          STB    CHAR,CMDBUF+1(FLAG)* DELETE LAST CHARACTER FROM BUFFER FOX05050
05D6   4300 05B4                          B      RDCHAR              BRANCH (CONTINUE CMD INPUT)       FOX05060
                                 *                                                                     FOX05070
05DA   C5B0 000D                 GOTCHAR  CLHI   CHAR,X'0D'          CARRIAGE RETURN ?                 FOX05080
05DE   4330 0602                          BE     OKIN                YES, TRY A MATCH                  FOX05090
05E2   C5B0 0020                          CLHI   CHAR,X'20'          SPACE ?                           FOX05100
05E6   233E                               BES    OKIN                YES, TRY A MATCH                  FOX05110
```

```
EXEC

05E8   C5B0 0023          512          CLHI   CHAR,X'23'          # ?                                FOX05120
05EC   4330 0564          513          BE     OPTIN                                                  FOX05130
05F0   D2B3 1CCA          514          STB    CHAR,CMDBUF(FLAG)   STORE THE CHARACTER                FOX05140
05F4   2631               515          AIS    FLAG,1              BUMP BUFFER INDEX                  FOX05150
05F6   C530 0006          516          CLHI   FLAG,6              6 CHARACTERS INPUT ?               FOX05160
05FA   4280 05B4          517          BL     RDCHAR              NO, READ ANOTHER                   FOX05170
05FE   41F0 0A2E          518          BAL    LINK,READ           GET NEXT CHARACTER                 FOX05180
                          519  *                                                                      FOX05190
0602   24C0               520  OKIN    LIS    POINT,0                                                FOX05200
0604   40B0 1CD0          521          STH    CHAR,CSAVE          SAVE LAST CHARACTER                FOX05210
0608   C3C0 0007          522  OKIN1   THI    POINT,7                                                FOX05220
060C   2333               523          BZS    OKIN2                                                  FOX05230
060E   26C2               524          AIS    POINT,2             SKIP OVER                          FOX05240
0610   2204               525          BS     OKIN1               THIS OPTION                        FOX05250
0612   2430               526  OKIN2   LIS    FLAG,0              CLEAR CMDBUF INDEX                 FOX05260
                          527  *                                                                      FOX05270
0614   487C 050A          528  LOOKUP  LH     DAT,NOMSG+2(POINT)                                     FOX05280
0618   4210 074A          529          BM     CMDERR              NO MATCH                           FOX05290
061C   26C2               530          AIS    POINT,2                                                FOX05300
061E   4573 1CCA          531          CLH    DAT,CMDBUF(FLAG)                                       FOX05310
0622   203D               532          BNES   OKIN1                                                  FOX05320
0624   2632               533          AIS    FLAG,2              EQUAL, TRY NEXT HW                 FOX05330
0626   C530 0006          534          CLHI   FLAG,6                                                 FOX05340
062A   203B               535          BNES   LOOKUP              NO, LOOP                           FOX05350
062C   C4C0 0038          536          NHI    POINT,X'38'                                            FOX05360
0630   087C               537          LDAR   DAT,POINT           POINTS TO OPTION WORD              FOX05370
0632   9072               538          SRHLS  DAT,2                                                  FOX05380
0634   4877 063A          539          LH     DAT,TYPTAB(DAT)                                        FOX05390
0638   0307               540          BR     DAT                                                    FOX05400
                          541  *                                                                      FOX05410
063A   064A               542  TYPTAB  DC     Z(TYPE1),Z(TYPE3),Z(TYPE1),Z(TYPE1)                    FOX05420
063C   060A
063E   064A
0640   064A
0642   068A               543          DC     Z(TYPE2),Z(TYPE1),Z(TYPE5),Z(TYPE4)                    FOX05430
0644   064A
0646   077A
0648   0754
                          544  *-----------------------------------                                 FOX05440
                          545  * OPTION TYPE 1 IS ERRMSG, CONTIN, PARITY, & HEREIS.                  FOX05450
                          546  * ACCEPTABLE INPUTS ARE 0 AND 1 FOR ERRMSG, CONTIN, & HEREIS.         FOX05460
                          547  * ACCEPTABLE INPUTS FOR PARITY ARE 0, 1, 2, & 3.                      FOX05470
064A   C5B0 0020          548  TYPE1   CLHI   CHAR,X'20'          SPACE ?                            FOX05480
064E   4230 074A          549          BNE    CMDERR              NO, BRANCH TO ERROR                FOX05490
0652   41F0 0A2E          550          BAL    LINK,READ           READ A CHARACTER                   FOX05500
0656   CBB0 0030          551          SHI    CHAR,X'30'          IS IT = ZERO ?                     FOX05510
065A   233E               552          BZS    TYPE11              YES, BRANCH                        FOX05520
065C   4210 074A          553          BM     CMDERR              NOT NUMERIC, BRANCH TO ERROR       FOX05530
0660   C5B0 0001          554          CLHI   CHAR,1              IS IT = ONE ?                      FOX05540
0664   2339               555          BES    TYPE11              YES, BRANCH                        FOX05550
0666   C5C0 0018          556          CLHI   POINT,PARITY-NOMSG *  'PARITY' OPTION ?                FOX05560
066A   4230 074A          557          BNE    CMDERR              NO, BRANCH TO ERROR                FOX05570
066E   C5B0 0003          558          CLHI   CHAR,3              YES, IS IT = 2 OR 3 ?              FOX05580
0672   4220 074A          559          BP     CMDERR              NO, BRANCH TO ERROR                FOX05590
```

```
EXEC

0676   40EC 0508   560  TYPE11   STH    CHAR,NOMSG(POINT)  SET OPTION AS SELECTED          FOX05600
067A   41F0 0A2E   561           BAL    LINK,READ          GET NEXT CHARACTER              FOX05610
067E   C5B0 000D   562           CLHI   CHAR,X'0D'         CARRIAGE RETURN ?               FOX05620
0682   4230 074A   563           BNE    CMDERR             NO, BRANCH TO ERROR             FOX05630
0686   4300 0564   564           B      OPTIN              YES, RETURN                     FOX05640
                   565  *-----------------------------------                                FOX05650
                   566  * OPTION TYPE 2 IS MULCAR, ACCEPTS ANY                              FOX05660
                   567  * LAST 2 HEX CHARACTERS INPUT.                                       FOX05670
068A   24C0        568  TYPE2    LIS    POINT,0            WAS LAST CHARACTER READ         FOX05680
068C   C5B0 0020   569           CLHI   CHAR,X'20'         A SPACE ?                       FOX05690
0690   4230 074A   570           BNE    CMDERR             NO, BRANCH TO ERROR             FOX05700
                   571  *                                                                    FOX05710
0694   41F0 0A2E   572  TYPE2A   BAL    LINK,READ          READ A CHARACTER                FOX05720
0698   C5B0 000D   573           CLHI   CHAR,X'0D'         CR ?                            FOX05730
069C   4330 06CE   574           BE     TYPE2C             YES, USE LAST 2 CHARACTERS      FOX05740
06A0   CBB0 0030   575           SHI    CHAR,X'30'         NO, CONVERT FROM ASCII          FOX05750
06A4   C5B0 000A   576           CLHI   CHAR,10            TO HEX                          FOX05760
06A8   21BF        577           BLS    TYPE2B                                             FOX05770
06AA   27B7        578           SIS    CHAR,7                                             FOX05780
06AC   4210 074A   579           BM     CMDERR                                             FOX05790
06B0   C5B0 0010   580           CLHI   CHAR,16            FINISHED CONVERSION ?           FOX05800
06B4   2189        581           BLS    TYPE2B             YES, HOLD THE CHARACTER         FOX05810
06B6   CBB0 0020   582           SHI    CHAR,X'20'         NO, CONTINUE THE CONVERSION (L.C.) FOX05820
06BA   4210 074A   583           BM     CMDERR                                             FOX05830
06BE   C5B0 0010   584           CLHI   CHAR,16            CONVERSION CORRECT ?            FOX05840
06C2   4380 074A   585           BNL    CMDERR             NO, BRANCH TO ERROR             FOX05850
06C6   91C4        586  TYPE2B   SLHLS  POINT,4             YES, HOLD THE LAST              FOX05860
06C8   06CB        587           OAR    POINT,CHAR         CHARACTER READ (IN HEX)         FOX05870
06CA   4300 0694   588           B      TYPE2A             BRANCH & READ NEXT CHARACTER    FOX05880
                   589  *                                                                    FOX05890
06CE   C4C0 00FF   590  TYPE2C   NHI    POINT,X'FF'        SAVE ONLY THE LAST 2            FOX05900
06D2   40C0 0528   591           STH    POINT,MULCAR       CHARACTERS IN MEMORY            FOX05910
06D6   4300 0564   592           B      OPTIN              RETURN TO COMMAND MODE          FOX05920
                   593  *-----------------------------------                                FOX05930
                   594  * OPTION TYPE 3 IS TEST.  ACCEPTS NUMBERS                            FOX05940
                   595  * 0 THRU 6, SEPARATED BY COMMAS.                                     FOX05950
06DA   46B0 1CD0   596  TYPE3    LH     CHAR,CSAVE         TEST LAST CHARACTER             FOX05960
06DE   C5B0 000D   597           CLHI   CHAR,X'0D'         CR ?                            FOX05970
06E2   2137        598           BNES   TYPE3A             NO, BRANCH                      FOX05980
06E4   C870 FC00   599           LHI    DAT,DFAULT         YES,                            FOX05990
06E8   4070 0510   600           STH    DAT,TEST           ESTABLISH DEFAULT TESTS         FOX06000
06EC   4300 0564   601           B      OPTIN              RETURN                          FOX06010
                   602  *                                                                    FOX06020
06F0   C5B0 0020   603  TYPE3A   CLHI   CHAR,X'20'         SPACE ?                         FOX06030
06F4   4230 074A   604           BNE    CMDERR             NO, BRANCH TO ERROR             FOX06040
06F8   48E0 0510   605           LH     RET,TEST           YES,                            FOX06050
06FC   4040 0510   606           STH    ZERO,TEST          CLEAR OPTION CELL               FOX06060
0700   41F0 0A2E   607  TYPE3L   BAL    LINK,READ          READ A CHARACTER                FOX06070
0704   CBB0 0030   608           SHI    CHAR,X'30'                                         FOX06080
0708   4210 0746   609           BM     TCMDERR            NOT NUMERIC, BRANCH TO ERROR    FOX06090
070C   C5B0 0007   610           CLHI   CHAR,BYTETAB-TSTTAB/2                              FOX06100
0710   4380 0746   611           BNL    TCMDERR            NOT NUMERIC, BRANCH TO ERROR    FOX06110
0714   C870 4000   612           LHI    DAT,X'4000'                                        FOX06120
0718   9171        613           SLHLS  DAT,1              DAT = X'8000'                   FOX06130
```

```
EXEC

071A  CC7B 0000          SRHL   DAT,0(CHAR)                                  FOX06140
071E  4670 0510          OH     DAT,TEST          OR IN TEST BIT             FOX06150
0722  4070 0510          STH    DAT,TEST                                     FOX06160
0726  41F0 0A2E          BAL    LINK,READ         READ NEXT CHARACTER        FOX06170
072A  C5B0 000D          CLHI   CHAR,X'0D'        CARRIAGE RETURN            FOX06180
072E  2336               BES    TYPE31            YES                        FOX06190
0730  C5B0 002C          CLHI   CHAR,X'2C'        COMMA ?                    FOX06200
0734  2139               BNES   TCMDERR           NO, BRANCH TO COMMAND ERROR FOX06210
0736  4300 0700          B      TYPE3L            YES, LOOP                  FOX06220
                         *                                                   FOX06230
073A  4870 0510          TYPE31 LH     DAT,TEST                              FOX06240
073E  C470 FE00          NHI    DAT,MASK          ARE SELECTED TESTS VALID ? FOX06250
0742  4230 0564          BNZ    OPTIN             YES, RETURN                FOX06260
0746  40E0 0510          TCMDERR STH   RET,TEST   NO, RESTORE ORIGINAL TESTS FOX06270
                         *                                                   FOX06280
074A  41F0 0922          CMDERR BAL    LINK,OUTPUT       OUTPUT MESSAGE     FOX06290
074E  0DA6               DC     Z(MSG7)           "?"                        FOX06300
0750  4300 0564          B      OPTIN             RETURN                     FOX06310
                         *-----------------------------------                FOX06320
                         * OPTION TYPE 4 IS RUN, FOLLOWED BY A               FOX06330
                         * CARRIAGE RETURN                                   FOX06340
0754  48B0 1CD0          TYPE4  LH     CHAR,CSAVE        TEST LAST CHARACTER FOX06350
0758  C5B0 000D          CLHI   CHAR,X'0D'        CARRIAGE RETURN ?          FOX06360
075C  2039               BNES   CMDERR            NO, BRANCH                 FOX06370
075E  C850 8000          LHI    ONE,X'8000'       YES                        FOX06380
0762  4050 0C36          STH    ONE,CURSOR        RESET TO START AT TEST 0   FOX06390
0766  2440               LIS    ZERO,0                                       FOX06400
0768  4040 0C34          STH    ZERO,TESTNO                                  FOX06410
076C  41F0 0BA4          BAL    LINK,INIT2        ZERO OUT INCURRED ERROR TOTALS FOX06420
0770  2451               LIS    ONE,1                                        FOX06430
0772  4050 0540          STH    ONE,RUN           SET RUN FLAG               FOX06440
0776  4300 0564          B      OPTIN             LOOK AT SWITCHES           FOX06450
                         *-----------------------------------                FOX06460
                         * OPTION TYPE 5 IS (PRINTOUT) "OPTION", FOLLOWED BY A CARRIAGE RETURN. FOX06470
077A  48B0 1CD0          TYPE5  LH     CHAR,CSAVE                            FOX06480
077E  C5B0 000D          CLHI   CHAR,X'0D'        WAS LAST CHARACTER CR ?    FOX06490
0782  4230 074A          BNE    CMDERR            NO, BRANCH TO COMMAND ERROR FOX06500
0786  DE10 0C46          OC     DEV1,TWRT         YES, PUT CONSOLE DEV IN WRITE MODE FOX06510
078A  C8C0 0508          LHI    POINT,NOMSG       INITIALIZE OPTION INDEX REGISTER FOX06520
078E  C5C0 0538          TYPE5B CLHI   POINT,OPTION       FINISHED PRINTING OPTIONS ? FOX06530
0792  4380 0564          BNL    OPTIN             YES, RETURN                FOX06540
0796  41F0 0922          BAL    LINK,OUTPUT       NO, PRINT                  FOX06550
079A  0CA4               DC     Z(MSG0)           CR & LF                    FOX06560
079C  2476               LIS    DAT,6             LOAD MAX NO. LETTERS IN OPTION NAME FOX06570
079E  D3BC 0002          TYPE5A LB     CHAR,2(POINT)     GET CHARACTER OF OPTION NAME FOX06580
07A2  4120 095A          BAL    RET2,OUTCHR       OUTPUT CHARACTER           FOX06590
07A6  26C1               AIS    POINT,1           INDEX CHARACTER POINTER    FOX06600
07A8  2771               SIS    DAT,1             DECREMENT LETTER COUNTER   FOX06610
07AA  2036               BNZS   TYPE5A            BRANCH IF NOT DONE & CONTINUE PRINT FOX06620
07AC  26C2               AIS    POINT,2           INCREM POINTER TO NEXT OPTION NAME FOX06630
07AE  C8B0 0020          LHI    CHAR,C' '                                    FOX06640
07B2  4120 095A          BAL    RET2,OUTCHR       OUTPUT A SPACE CHARACTER (X'20') FOX06650
07B6  487C FFF8          LH     DAT,-8(POINT)     GET OPTION VALUE           FOX06660
07BA  C5C0 0518          CLHI   POINT,TEST+8      IS THIS THE "TEST" OPTION ? FOX06670
```

```
EXEC

07BE   4330 07DE          BE      TESTOUT            YES, BRANCH TO HANDLER                FOX06680
07C2   243C               LIS     FLAG,12            NO, LOAD SHIFTER VALUE                FOX06690
07C4   08B7       TYPE5C  LDAR    CHAR,DAT           LOAD OPTION VALUE                     FOX06700
07C6   CCB3 0000          SRHL    CHAR,0(FLAG)       SHIFT TO DIGIT WINDOW                 FOX06710
07CA   C4B0 000F          NHI     CHAR,X'F'          ISOLATE ONE DIGIT                     FOX06720
07CE   D3BB 0C76          LB      CHAR,HEXTAB(CHAR)  GET ASCII FOR HEX DIGIT               FOX06730
07D2   4120 095A          BAL     RET2,OUTCHR        OUTPUT THE CHARACTER                  FOX06740
07D6   2734               SIS     FLAG,4             DECREMENT SHIFTER VALUE               FOX06750
07D8   221A               BNMS    TYPE5C             BRANCH IF VALID VALUE TO CONTINUE     FOX06760
07DA   4300 078E          B       TYPE5B             OTHERWISE GO TO NEXT OPTION           FOX06770
                  *                                                                        FOX06780
07DE   2430       TESTOUT LIS     FLAG,0             INITIALIZE BINARY TEST NUMBER         FOX06790
07E0   C850 4000          LHI     ONE,X'4000'                                              FOX06800
07E4   9151               SLHLS   ONE,1              INITIALIZE MASK "TEST NUMBER"         FOX06810
07E6   C375 0000  TESTOUT1 THI    DAT,0(ONE)         IS PRESENT BINARY TEST NO. SELECTED?  FOX06820
07EA   233C               BZS     TESTOUT2           NO, BRANCH TO CONTINUE                FOX06830
07EC   D3B3 0C76          LB      CHAR,HEXTAB(FLAG)  YES, GET ASCII FOR BINARY TEST NO.    FOX06840
07F0   4120 095A          BAL     RET2,OUTCHR        OUTPUT TEST NUMBER                    FOX06850
07F4   0775               XAR     DAT,ONE            RESET PRINTED (MASKED) "TEST NUMBER"  FOX06860
07F6   0877               LDAR    DAT,DAT            ANY MORE TESTS ?                      FOX06870
07F8   233A               BZS     TESTOUT3           NO, RETURN TO PRINT NEXT OPTION       FOX06880
07FA   C8B0 002C          LHI     CHAR,C','                                                FOX06890
07FE   4120 095A          BAL     RET2,OUTCHR        YES, OUTPUT A COMMA                   FOX06900
0802   2631       TESTOUT2 AIS     FLAG,1             INCREMENT BINARY TEST NUMBER          FOX06910
0804   9051               SRHLS   ONE,1              SHIFT MASK "TEST NUMBER"              FOX06920
0806   0855               LDAR    ONE,ONE            ANY MORE TESTS TO BE CHECKED ?        FOX06930
0808   4230 07E6          BNZ     TESTOUT1           YES, GO & PRINT REMAINING TEST NOS.   FOX06940
080C   2451       TESTOUT3 LIS     ONE,1              NO, RESTORE ONE                       FOX06950
080E   4300 078E          B       TYPE5B             RETURN TO PRINT NEXT OPTION           FOX06960
                  *-----------------------------------                                     FOX06970
                  * ROUTINE IS COMMON EXIT FOR EACH TEST MODULE                            FOX06980
                  * ADVANCE TO NEXT TEST MODULE                                            FOX06990
                  *                                                                        FOX07000
0812   48F0 02DE  TSTEXT  LH      LINK,PSW2          DISABLE INTERRUPTS                    FOX07010
0816   959F               EPSR    STAT,LINK                                                FOX07020
0818   4870 0C36          LH      DAT,CURSOR         SHIFT CURSOR                          FOX07030
081C   9071               SRHLS   DAT,1              TO TEST FOR                           FOX07040
081E   4070 0C36          STH     DAT,CURSOR         NEXT TEST MODULE                      FOX07050
0822   2451               LIS     ONE,1                                                    FOX07060
0824   6150 0C34          AHM     ONE,TESTNO         INCREMENT TEST NUMBER                 FOX07070
0828   4300 0564          B       OPTIN                                                    FOX07080
                  *-----------------------------------                                     FOX07090
                  *  ROUTINE SELECTS NEXT TEST MODULE TO EXECUTE                           FOX07100
                  *                                                                        FOX07110
082C   48B0 0510  TSTSEL  LH      CHAR,TEST          PICK UP TEST WORD                     FOX07120
0830   4870 0C36          LH      DAT,CURSOR         AND MASK                              FOX07130
0834   C3B7 0000  SELOOP  THI     CHAR,0(DAT)        SEE IF SELECTED                       FOX07140
0838   213D               BNZS    GO                 YES                                   FOX07150
                  *                                                                        FOX07160
                  *TEST NOT SELECTED, CONTINUE SCAN                                        FOX07170
                  *                                                                        FOX07180
083A   48C0 0C34          LH      POINT,TESTNO       PICK UP TEST NUMBER                   FOX07190
083E   26C1               AIS     POINT,1            INCREMENT TEST                        FOX07200
0840   40C0 0C34          STH     POINT,TESTNO                                             FOX07210
```

```
EXEC

0844  9071                 SRHLS  DAT,1                MOVE CURSOR                          FOX07220
0846  4070 0C36            STH    DAT,CURSOR                                              FOX07230
084A  C370 FE00            THI    DAT,MASK             LAST TEST ?                         FOX07240
084E  233D                 BZS    LAST                 YES, BRANCH                         FOX07250
0850  220E                 BS     SELOOP               NO, BRANCH                          FOX07260
                           *                                                                FOX07270
0852  4860 02DE            GO     LH     WORK,PSW2                                         FOX07280
0856  95A6                 EPSR   WORK2,WORK           DISABLE INT AT PROCESSOR LEVEL      FOX07290
0858  48C0 0C34            LH     POINT,TESTNO         PICK UP TEST NUMBER                 FOX07300
085C  0ACC                 AAR    POINT,POINT          2X TESTNO                           FOX07310
085E  C4C0 000E            NHI    POINT,X'E'           MASK INDEX INTO TEST TABLE      ***  FOX07320
0862  48CC 0C86            LH     POINT,TSTTAB(POINT)GET TEST ADDRESS                      FOX07330
0866  030C                 BR     POINT                GO TO TEST MODULE                   FOX07340
                           *--------------------------------                                FOX07350
                           * SELECTED TESTS ARE RUN                                         FOX07360
                           *                                                                FOX07370
0868  C870 8000            LAST   LHI    DAT,X'8000'          RE-CYCLE TO TEST 0            FOX07380
086C  4070 0C36            STH    DAT,CURSOR                                              FOX07390
0870  2440                 LIS    ZERO,0                                                  FOX07400
0872  4040 0C34            STH    ZERO,TESTNO          CLEAR TEST NUMBER                   FOX07410
0876  4870 0518            LH     DAT,CONTIN           CONTIN SET ?                        FOX07420
087A  4230 082C            BNZ    TSTSEL               YES, BRANCH. NO, CONTINUE.          FOX07430
087E  24F0                 LAST1  LIS    LINK,0                                            FOX07440
0880  40F0 0540            STH    LINK,RUN             RESET RUN FLAG                      FOX07450
0884  41F0 0922            BAL    LINK,OUTPUT          OUTPUT MESSAGE                      FOX07460
0888  0C0E                 DC     Z(MSG12)             "END OF TEST"                       FOX07470
                           *--------------------------------                                FOX07480
                           * OUTPUT ACCUMULATED ERROR TALLYS IF ANY                         FOX07490
                           *                                                                FOX07500
088A  C8C0 0FFC            LHI    POINT,ERROR0         INITIALIZE ERROR POINTER            FOX07510
088E  487C 0000            ERRORL LH     DAT,0(POINT)                                      FOX07520
0892  4330 08D6            BZ     NXTERR               NO ERROR, BRANCH                    FOX07530
0896  2402                 LIS    R0,2                                                    FOX07540
0898  081C                 LDAR   R1,POINT             CALCULATE ERROR NUMBER              FOX07550
089A  CB10 0FFC            SHI    R1,ERROR0                                               FOX07560
089E  9011                 SRHLS  R1,1                                                    FOX07570
08A0  C820 04DC            LHI    R2,ERRNO                                                FOX07580
08A4  41F0 048A            BAL    LINK,HEXASC          YES, PUT ERROR NUMBER IN MESSAGE    FOX07590
08A8  41F0 0922            BAL    LINK,OUTPUT          OUTPUT MESSAGE                      FOX07600
08AC  04D4                 DC     Z(ERRNOMSG)          "ERROR XX"                          FOX07610
08AE  487C 0000            LH     DAT,0(POINT)         GET ERROR COUNT                     FOX07620
08B2  C8B0 002D            LHI    CHAR,C'-'                                               FOX07630
08B6  4120 095A            BAL    RET2,OUTCHR          OUTPUT "-"                          FOX07640
08BA  C8B0 0020            LHI    CHAR,C' '                                               FOX07650
08BE  4120 095A            BAL    RET2,OUTCHR          OUTPUT " "                          FOX07660
08C2  24A4                 LIS    WORK2,4                                                 FOX07670
08C4  08B7                 TALLY  LDAR   CHAR,DAT              GET NEXT DIGIT              FOX07680
08C6  9174                 SLHLS  DAT,4                                                   FOX07690
08C8  90BC                 SRHLS  CHAR,12              ISOLATE ONE HEX DIGIT               FOX07700
08CA  D3BB 0C76            LB     CHAR,HEXTAB(CHAR)                                       FOX07710
08CE  4120 095A            BAL    RET2,OUTCHR          OUTPUT HEX ERROR TALLY              FOX07720
08D2  27A1                 SIS    WORK2,1              ONE DIGIT AT A TIME                 FOX07730
08D4  2038                 BNZS   TALLY                (4 HEX DIGITS TOTAL)                FOX07740
08D6  C5C0 100E            NXTERR CLHI   POINT,ERROR9         DONE ?                      FOX07750
```

EXEC

```
08DA   4330 0564          BE      OPTIN              YES, RETURN                          FOX07760
08DE   26C2               AIS     POINT,2                                                 FOX07770
08E0   4300 088E          B       ERRORL             NO, CHECK NEXT ERROR NUMBER          FOX07780
                  * * * * * * * * * * * * * * * * * * * * * * * * *                        FOX07790
                  *                                                *                        FOX07800
                  * SUBROUTINE PRINTS OR TALLYS ERROR MESSAGES     *                        FOX07810
                  * CALLING SEQUENCE IS :                          *                        FOX07820
                  *        BAL     LINK,ERROR                      *                        FOX07830
                  *        DC      Z(ERROR NUMBER TALLY LOCATION)  *                        FOX07840
                  *                                                *                        FOX07850
                  * * * * * * * * * * * * * * * * * * * * * * * * *                        FOX07860
08E4   D000 1C20  ERROR   STM     R0,IORSAVE         SAVE REGISTERS 0-F                   FOX07870
08E8   487F 0000          LH      DAT,0(LINK)        MESSAGE ADDRESS                      FOX07880
08EC   2451               LIS     ONE,1                                                   FOX07890
08EE   6157 0000          AHM     ONE,0(DAT)         INCREMENT APPROPRIATE ERROR COUNTER  FOX07900
08F2   4880 0508          LH      CHAR,NOMSG         TEST NOMSG  OPTION                   FOX07910
08F6   423F 0002          BNZ     2(LINK)            OPTION SET - RETURN                  FOX07920
                  *                                                                        FOX07930
                  * NOMSG NOT SET, SO PRINT-OUT ERRORS !                                   FOX07940
                  *                                                                        FOX07950
08FA   CB70 0FFC          SHI     DAT,ERROR0         CONVERT ERROR NO. TO ASCII           FOX07960
08FE   9071               SRHLS   DAT,1                                                   FOX07970
0900   2402               LIS     R0,2                                                    FOX07980
0902   0817               LDAR    R1,DAT                                                  FOX07990
0904   C820 04DC          LHI     R2,ERRNO                                                FOX08000
0908   41F0 048A          BAL     LINK,HEXASC        PUT ASCII IN ERRNO                   FOX08010
090C   D100 1D20          LM      R0,IORSAVE         RESTORE REGISTERS                    FOX08020
0910   40F0 0C68          STH     LINK,RETURN                                             FOX08030
0914   41F0 0922          BAL     LINK,OUTPUT        PRINT MESSAGE                        FOX08040
0918   04D4               DC      Z(ERRNOMSG)        "ERROR XX"                           FOX08050
091A   48F0 0C68          LH      LINK,RETURN                                             FOX08060
091E   430F 0C02          B       2(LINK)            RETURN                               FOX08070
                  * * * * * * * * * * * * * * * * * * * * * * * * *                        FOX08080
                  *                                                *                        FOX08090
                  * GENERAL MESSAGE OUTPUT ROUTINE                 *                        FOX08100
                  * CALLING SEQUENCE IS:                           *                        FOX08110
                  *        BAL     LINK,OUTPUT                     *                        FOX08120
                  *        DC      Z(START ADDRESS OF MESSAGE)     *                        FOX08130
                  *                                                *                        FOX08140
                  * * * * * * * * * * * * * * * * * * * * * * * * *                        FOX08150
0922   D000 1D20  OUTPUT  STM     R0,IORSAVE         SAVE USER'S REGISTERS                FOX08160
0926   4810 04C2          LH      DEV1,DEVSADR+2     GET TRANSMIT DEVICE ADDRESS          FOX08170
092A   4800 04C0          LH      DEV0,DEVSADR                                            FOX08180
092E   2451               LIS     ONE,1                                                   FOX08190
0930   487F 0000          LH      DAT,0(LINK)        MESSAGE START                        FOX08200
0934   DE10 0C46          OC      DEV1,TWRT                                               FOX08210
0938   25B1               LCS     CHAR,1             SEND DELETE                          FOX08220
093A   4120 095A          BAL     RET2,OUTCHR                                             FOX08230
093E   D3B7 0000  OUTP1   LB      CHAR,0(DAT)        GET CHARACTER                        FOX08240
0942   4120 095A          BAL     RET2,OUTCHR        OUTPUT IT                            FOX08250
0946   D3B7 0000          LB      CHAR,0(DAT)                                             FOX08260
094A   2671               AIS     DAT,1                                                   FOX08270
094C   C3B0 0080          THI     CHAR,X'80'         DONE?                                FOX08280
0950   2239               BZS     OUTP1              NO,LOOP                              FOX08290
```

```
EXEC

0952  D100 1D20          830          LM     R0,IORSAVE        RESTORE USER'S REGISTERS          FOX08300
0956  430F 0002          831          B      2(LINK)           RETURN                            FOX08310
                         832  *-----------------------------------                               FOX08320
                         833  * SUBROUTINE OUTPUTS (CHAR) TO MODEL-1100 DISPLAY TERMINAL.        FOX08330
                         834  * PARITY IS APPENDED IF REQUIRED.                                   FOX08340
                         835  *   CALLING SEQUENCE IS:                                            FOX08350
                         836  *        OC     DEV1,TWRT         (IF NEEDED)                       FOX08360
                         837  *        BAL    RET2,OUTCHR                                         FOX08370
                         838  *-----------------------------------                               FOX08380
095A  4800 04C0          839  OUTCHR  LH     DEV0,DEVSADR                                        FOX08390
095E  4810 04C2          840          LH     DEV1,DEVSADR+2                                      FOX08400
0962  0501               841          CLAR   DEV0,DEV1         HDX DEVICE ?                      FOX08410
0964  4330 09BA          842          BE     OUTCHR2           YES, BRANCH                       FOX08420
0968  9D09               843          SSR    DEV0,STAT                                           FOX08430
096A  C390 0001          844          THI    STAT,1            DEVICE DU ?                       FOX08440
096E  2337               845          BZS    OUTCHR4           NO, BRANCH                        FOX08450
0970  40F0 0C70          846          STH    LINK,DURTN                                          FOX08460
0974  41F0 1BB4          847          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX08470
0978  48F0 0C70          848          LH     LINK,DURTN                                          FOX08480
097C  C390 0008          849  OUTCHR4 THI    STAT,8            DEVICE BUSY ?                     FOX08490
0980  4230 09BA          850          BNZ    OUTCHR2           YES, BRANCH                       FOX08500
0984  DE50 0C6A          851          OC     ONE,INCR                                            FOX08510
0988  9A59               852          WDR    ONE,STAT          DISPLAY RECV DEVICE STATUS        FOX08520
098A  9B09               853          RDR    DEV0,STAT                                           FOX08530
098C  4090 0C6C          854          STH    STAT,RCHAR                                          FOX08540
0990  9A59               855          WDR    ONE,STAT          DISPLAY CHARACTER READ            FOX08550
0992  DE50 0C4E          856          OC     ONE,NORM                                            FOX08560
0996  9D09               857  OUTCHR1 SSR    DEV0,STAT                                           FOX08570
0998  9A59               858          WDR    ONE,STAT          DISPLAY RECV DEVICE STATUS        FOX08580
099A  C390 0001          859          THI    STAT,1            DEVICE DU ?                       FOX08590
099E  2337               860          BZS    OUTCHR5           NO, BRANCH                        FOX08600
09A0  40F0 0C70          861          STH    LINK,DURTN                                          FOX08610
09A4  41F0 1BB4          862          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX08620
09A8  48F0 0C70          863          LH     LINK,DURTN                                          FOX08630
09AC  C390 0008          864  OUTCHR5 THI    STAT,8                                              FOX08640
09B0  223D               865          BZS    OUTCHR1           WAIT FOR BUSY TO RISE        ***  FOX08650
09B2  C590 002C          866          CLHI   STAT,X'2C'        BREAK ?                           FOX08660
09B6  4330 087E          867          BE     LAST1             YES, BRANCH                       FOX08670
09BA  40B0 0C50          868  OUTCHR2 STH    CHAR,TEMP                                           FOX08680
09BE  41F0 09FA          869          BAL    LINK,PARGEN       GENERATE CORRECT PARITY           FOX08690
09C2  9D19               870  OUTCHR3 SSR    DEV1,STAT                                           FOX08700
09C4  9A59               871          WDR    ONE,STAT          DISPLAY SEND DEVICE STATUS        FOX08710
09C6  C390 0001          872          THI    STAT,1            DEVICE  DU ?                      FOX08720
09CA  2337               873          BZS    OUTCHR6           NO, BRANCH                        FOX08730
09CC  40F0 0C70          874          STH    LINK,DURTN                                          FOX08740
09D0  41F0 1BB4          875          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX08750
09D4  48F0 0C70          876          LH     LINK,DURTN                                          FOX08760
09D8  C390 0009          877  OUTCHR6 THI    STAT,9                                              FOX08770
09DC  203D               878          BNZS   OUTCHR3           LOOP ON BUSY OR DU OR RING(ON MODEM) FOX08780
09DE  9A1B               879          WDR    DEV1,CHAR         OUTPUT CHARACTER                  FOX08790
09E0  48B0 0C50          880          LH     CHAR,TEMP                                           FOX08800
09E4  C3B0 0080          881          THI    CHAR,X'80'        LAST CHARACTER IN MESSAGE ?       FOX08810
09E8  0332               882          BZR    RET2              NO, RETURN.                       FOX08820
09EA  C4B0 007F          883          NHI    CHAR,X'7F'                                          FOX08830
```

```
EXEC

09EE   C5B0 007F          CLHI   CHAR,X'7F'        YES, WAS LAST CHARACTER DELETE ?      FOX08840
09F2   0332               BER    RET2              YES, RETURN                           FOX08850
09F4   25B1               LCS    CHAR,1            NO, FOLLOW WITH                       FOX08860
09F6   4300 09BA          B      OUTCHR2           A DELETE CHARACTER                    FOX08870
                          *-----------------------------------                           FOX08880
                          * SUBROUTINE GENERATES CORRECT PARITY BASED ON PARITY OPTION.  FOX08890
                          *   CALLING SEQUENCE IS:                                       FOX08900
                          *        BAL    LINK,PARGEN                                    FOX08910
                          *                                                              FOX08920
09FA   C4B0 007F          PARGEN NHI    CHAR,X'7F'        MASK CHARACTER TO 7 BITS &    FOX08930
09FE   089B               LDAR   STAT,CHAR                                              FOX08940
0A00   9094               SRHLS  STAT,4                                                 FOX08950
0A02   079B               XAR    STAT,CHAR         CREATE AN EVEN PARITY CHARACTER       FOX08960
0A04   C490 000F          NHI    STAT,15                                                FOX08970
0A08   D399 0C94          LB     STAT,BYTETAB(STAT)                                     FOX08980
0A0C   06B9               OAR    CHAR,STAT                                              FOX08990
0A0E   4890 0520          LH     STAT,PARITY       CHECK THE PARITY OPTION               FOX09000
0A12   2338               BZS    OUTSPA            SPACE (0) ? - YES, BRANCH             FOX09010
0A14   2791               SIS    STAT,1                                                 FOX09020
0A16   2339               BZS    OUTMRK            MARK (1) ? - YES, BRANCH              FOX09030
0A18   2791               SIS    STAT,1                                                 FOX09040
0A1A   2339               BZS    OUTOK             NO,OUTPUT EVEN PARITY(2)?-YES,BRANCH  FOX09050
0A1C   C7B0 0080          OUTODD XHI    CHAR,X'80'        NO, OUTPUT ODD PARITY (3) !   FOX09060
0A20   2306               BS     OUTOK                                                  FOX09070
                          *                                                              FOX09080
0A22   C4B0 007F          OUTSPA NHI    CHAR,X'7F'        OUTPUT ALWAYS SPACE (0)       FOX09090
0A26   2303               BS     OUTOK                                                  FOX09100
                          *                                                              FOX09110
0A28   C6B0 0080          OUTMRK OHI    CHAR,X'80'        OUTPUT ALWAYS MARK (1)        FOX09120
                          *                                                              FOX09130
0A2C   030F               OUTOK  BR     LINK              RETURN                        FOX09140
                          *-----------------------------------                           FOX09150
                          * SUBROUTINE READS ONE BYTE FROM MODEL-1100 DISPLAY TERMINAL.  FOX09160
                          * CALLING ROUTINE IS:                                          FOX09170
                          *        OC     DEV0,TREAD        (IF NEEDED)                   FOX09180
                          *        BAL    LINK,READ                                       FOX09190
                          *   CHARACTER IS RETURNED IN REGISTER 'CHAR'                   FOX09200
                          *-----------------------------------                           FOX09210
0A2E   9D09               READ   SSR    DEV0,STAT                                      FOX09220
0A30   9A59               WDR    ONE,STAT          WRITE STATUS TO DISPLAY               FOX09230
0A32   C390 0001          THI    STAT,1            DEVICE DU ?                           FOX09240
0A36   2337               BZS    READ5             NO, BRANCH                            FOX09250
0A38   40F0 0C70          STH    LINK,DURTN                                              FOX09260
0A3C   41F0 1BB4          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER          FOX09270
0A40   48F0 0C70          LH     LINK,DURTN                                              FOX09280
0A44   C390 0006          READ5  THI    STAT,6            IS EXAMINE SET ?              FOX09290
0A48   4230 0A72          BNZ    BSTAT             YES, BAD STATUS                       FOX09300
0A4C   C390 0009          THI    STAT,9            IS DEVICE BUSY OR DU ?                FOX09310
0A50   4230 0A2E          BNZ    READ              YES, WAIT FOR BUSY OR DU TO DROP      FOX09320
0A54   9B0B               RDR    DEV0,CHAR         NO, READ A CHARACTER                  FOX09330
0A56   4890 02DA          LH     STAT,PASFLG       WHAT IS THE DEVICE INTERFACE ?        FOX09340
0A5A   2114               BMS    READ0             MICROBUS ? - YES, BRANCH              FOX09350
0A5C   2134               BNZS   READ1             PASLA HDX ? - YES, BRANCH             FOX09360
0A5E   0501               CLAR   DEV0,DEV1                                               FOX09370
```

```
EXEC

0A60   2332                 BES    READ1          CLI ? - YES, BRANCH                  FOX09380
0A62   9A1B        READ0    WDR    DEV1,CHAR      ECHO CHAR ON FDX OR MICROBUS ONLY!!! FOX09390
                   *                                                                    FOX09400
0A64   4120 0BB6   READ1    BAL    RET2,PARCHK    TEST PARITY                          FOX09410
0A68   C4B0 007F            NHI    CHAR,X'7F'     MASK CHARACTER TO 7 BITS             FOX09420
0A6C   4040 0C40            STH    ZERO,BRKFLG                                         FOX09430
0A70   030F                 BR     LINK           RETURN                               FOX09440
                   *-----------------------------                                       FOX09450
                   *                BAD STATUS ON READ                                  FOX09460
0A72   C390 0008   BSTAT    THI    STAT,8         BUSY STATUS ?                        FOX09470
0A76   4330 0A98            BZ     BSTAT1         NO, BRANCH                           FOX09480
0A7A   C390 0020            THI    STAT,X'20'     YES, BREAK STATUS ?                  FOX09490
0A7E   2338                 BZS    BSTAT2         NO, BRANCH                           FOX09500
0A80   48B0 0C40            LH     CHAR,BRKFLG    YES, TEST BRKFLG                     FOX09510
0A84   4230 0A2E            BNZ    READ           IF SET, LOOP ON BUSY                 FOX09520
0A88   4050 0C40            STH    ONE,BRKFLG     OTHERWISE SET BRKFLG                 FOX09530
0A8C   230D                 BS     BSTAT3         AND CONTINUE                         FOX09540
                   *                                                                    FOX09550
0A8E   C390 00F3   BSTAT2   THI    STAT,X'F3'     TEST OTHER BITS                      FOX09560
0A92   4330 0A2E            BZ     READ           BUSY & EX = DU, LOOP                 FOX09570
0A96   2305                 BS     BSTAT5         BAD STATUS !                         FOX09580
                   *                                                                    FOX09590
0A98   C390 0020   BSTAT1   THI    STAT,X'20'     LINE BREAK?                          FOX09600
0A9C   2135                 BNZS   BSTAT3         YES, BRANCH                          FOX09610
0A9E   9B0B                 RDR    DEV0,CHAR                                           FOX09620
                   *                                                                    FOX09630
0AA0   4120 0BFC   BSTAT5   BAL    RET2,STATER    NO, BAD STATUS                       FOX09640
0AA4   030F                 BR     LINK                                                FOX09650
                   *                                                                    FOX09660
                   * NOT BUSY, BUT LINE BREAK                                          FOX09670
                   *                                                                    FOX09680
0AA6   9B0B        BSTAT3   RDR    DEV0,CHAR      READ CHARACTER                       FOX09690
0AA8   9D09        BSTAT9   SSR    DEV0,STAT      DEVICE DU ?                          FOX09700
0AAA   2317                 BFFS   1,BSTAT8      NO, BRANCH                           FOX09710
0AAC   40F0 0C70            STH    LINK,DURTN                                          FOX09720
0AB0   41F0 1BB4            BAL    LINK,DUPASS    YES, GO TO DU STATUS HANDLER         FOX09730
0AB4   48F0 0C70            LH     LINK,DURTN                                          FOX09740
0AB8   C390 0008   BSTAT8   THI    STAT,8         WAIT FOR BUSY TO DROP                FOX09750
0ABC   203A                 BNZS   BSTAT9                                             FOX09760
0ABE   C390 0020            THI    STAT,X'20'     BREAK?                               FOX09770
0AC2   4330 0A64            BZ     READ1          NO, IT WENT AWAY                     FOX09780
0AC6   08BB                 LDAR   CHAR,CHAR      TEST CHARACTER                       FOX09790
0AC8   2334                 BZS    BSTAT6         IT IS LINE BREAK                     FOX09800
0ACA   41F0 08E4            BAL    LINK,ERROR     OUTPUT MESSAGE                       FOX09810
0ACE   1002                 DC     Z(ERROR3)      "ERROR 03"                           FOX09820
0AD0   4040 0540   BSTAT6   STH    ZERO,RUN       RESET THE RUN FLAG                   FOX09830
0AD4   4300 0564            B      OPTIN          RETURN TO TEST COMMAND MODE          FOX09840
                   *-----------------------------                                       FOX09850
                   * TO SET UP DEVSADR & INTLVL TABLES.                                 FOX09860
0AD8   4860 02D4   SETUP    LH     WORK,RECADR    GET REC ADDR OPERAND                 FOX09870
0ADC   08A6                 LDAR   WORK2,WORK                                          FOX09880
0ADE   C460 03FF            NHI    WORK,X'3FF'    EXTRACT INTERFACE ADDRESS (REC)      FOX09890
0AE2   4060 04C0            STH    WORK,DEVSADR   SET UP RECEIVE ADDRESS               FOX09900
0AE6   90AC                 SRHLS  WORK2,12                                            FOX09910
```

EXEC

```
0AE8   C4A0 000F          NHI    WORK2,15          ISOLATE LAST DIGIT                FOX09920
0AEC   D2A0 04C6          STB    WORK2,INTLVL                                        FOX09930
0AF0   4860 02D6          LH     WORK,SNDADR       GET SEND ADDR OPERAND             FOX09940
0AF4   08A6               LDAR   WORK2,WORK                                          FOX09950
0AF6   C460 03FF          NHI    WORK,X'3FF'       EXTRACT INTERFACE ADDRESS (SND)   FOX09960
0AFA   4060 04C2          STH    WORK,DEVSADR+2    SET UP TRANSMIT ADDRESS           FOX09970
0AFE   90AC               SRHLS  WORK2,12                                            FOX09980
0B00   C4A0 000F          NHI    WORK2,15          ISOLATE LAST DIGIT                FOX09990
0B04   D2A0 04C7          STB    WORK2,INTLVL+1    SET UP INTERRUPT LEVELS           FOX10000
0B08   030F               BR     LINK              RETURN                            FOX10010
                *--------------------------------                                    FOX10020
                * TO INITIALIZE REGISTERS, OPTION CELLS, AND ERROR TALLYS            FOX10030
0B0A   2440     INITAL    LIS    ZERO,0            INITIALIZE REGISTERS              FOX10040
0B0C   2451               LIS    ONE,1             'ZERO' & 'ONE'                    FOX10050
0B0E   C870 ABA9          LHI    DAT,X'ABA9'       LOAD PASLA (FDX) OC'S             FOX10060
                *                                                                    FOX10070
                * IF PASLA, TWRT = DISABLE, DATA TERMINAL READY,                     FOX10080
                * REVERSE CHANNEL MARK, AND WRITE                                   FOX10090
                * TREAD = DISABLE, DATA TERMINAL READY, REVERSE                      FOX10100
                * CHANNEL MARK, AND READ.                                           FOX10110
                *                                                                    FOX10120
0B12   4070 0C46          STH    DAT,TWRT          ESTABLISH PASLA (FDX) OC'S        FOX10130
0B16   4070 0C48          STH    DAT,TWRTB                                           FOX10140
0B1A   C870 6B69          LHI    DAT,X'6B69'                                         FOX10150
0B1E   4070 0C4A          STH    DAT,EBLWRT        ESTABLISH PASLA (FDX) ENABLE OC'S FOX10160
0B22   C870 2323          LHI    DAT,X'2323'                                         FOX10170
0B26   4070 0C4C          STH    DAT,RQ2S          ESTABLISH PASLA (FDX) RQ2S OC'S   FOX10180
0B2A   4050 0C44          STH    ONE,PASLA         SET PASLA INF FLAG                FOX10190
0B2E   4800 04C0          LH     DEV0,DEVSADR      LOAD DEVICE ADDRESSES             FOX10200
0B32   4810 04C2          LH     DEV1,DEVSADR+2                                      FOX10210
                *                                                                    FOX10220
                * DEVICE NUMBERS DIFFER : PASLA (FDX) CONTROLLER                     FOX10230
                *                                                                    FOX10240
0B36   0501               CLAR   DEV0,DEV1         DEVICE ADDRESSES THE SAME ?       FOX10250
0B38   4230 0BA0          BNE    INIT1             NO, IT IS PASLA (FDX) CONTROLLER  FOX10260
                *                                                                    FOX10270
                * DEVICE NUMBERS ALIKE MEANS CLI/PASLA (HDX) CONTROLLER              FOX10280
                *                                                                    FOX10290
0B3C   4860 02DA          LH     WORK,PASFLG       YES, IS HDX FLAG SET ?            FOX10300
0B40   4210 0B7E          BM     MICBUS            NEGATIVE = MICRO I/O BUS DEVICE   FOX10310
0B44   C560 000F          CLHI   WORK,X'0F'        IS IT PASLA HDX ?                 FOX10320
0B48   2137               BNES   TTY               NO, TTY CONTROLLER - BRANCH       FOX10330
0B4A   C870 6969          LHI    DAT,X'6969'                                         FOX10340
0B4E   4070 0C4C          STH    DAT,RQ2S          ESTABLISH PASLA (HDX) RQ2S OC'S   FOX10350
0B52   4300 0BA0          B      INIT1                                               FOX10360
                *                                                                    FOX10370
                * 'HDX' FLAG RESET MEANS CLI CONTROLLER                              FOX10380
                *                                                                    FOX10390
0B56   4040 0C44  TTY     STH    ZERO,PASLA        CLEAR PASLA FLAG                  FOX10400
0B5A   C870 9894          LHI    DAT,X'9894'       AND LOAD                          FOX10410
0B5E   4070 0C46          STH    DAT,TWRT          OC'S FOR                          FOX10420
0B62   C870 9894          LHI    DAT,X'9894'       TTY CONTROLLER                    FOX10430
0B66   4070 0C48          STH    DAT,TWRTB                                           FOX10440
0B6A   C870 5A66          LHI    DAT,X'5A66'                                         FOX10450
```

```
EXEC

0B6E   4070 0C4A          STH    DAT,EBLWRT                                  FOX10460
0B72   C870 6666          LHI    DAT,X'6666'                                 FOX10470
0B76   4070 0C4C          STH    DAT,RQ2S                                    FOX10480
0B7A   4300 0BA4          B      INIT2                                       FOX10490
                *                                                            FOX10500
                * MICRO I/O BUS CONTROLLER                                   FOX10510
                *                                                            FOX10520
0B7E   4040 0C44  MICBUS  STH    ZERO,PASLA        RESET PASLA FLAG          FOX10530
0B82   C870 1292          LHI    DAT,X'1292'       ESTABLISH MICRO I/O BUS OC'S FOX10540
0B86   4070 0C46          STH    DAT,TWRT                                    FOX10550
0B8A   4070 0C48          STH    DAT,TWRTB                                   FOX10560
0B8E   C870 3292          LHI    DAT,X'3292'                                 FOX10570
0B92   4070 0C4A          STH    DAT,EBLWRT                                  FOX10580
0B96   C870 9292          LHI    DAT,X'9292'                                 FOX10590
0B9A   4070 0C4C          STH    DAT,RQ2S                                    FOX10600
0B9E   2303               BS     INIT2             SKIP SPEED SET-UP & STOP BIT(S) OC FOX10610
0BA0   DE00 02D9  INIT1   OC     DEV0,SECOND       SET UP PASLA SPEED & STOP BIT(S) FOX10620
                *                                                            FOX10630
0BA4   2499       INIT2   LIS    STAT,9            CLEAR ALL ERROR TALLYS    FOX10640
0BA6   9191               SLHLS  STAT,1                                      FOX10650
0BA8   4049 0FFC  INIT3   STH    ZERO,ERROR0(STAT)                           FOX10660
0BAC   2792               SIS    STAT,2                                      FOX10670
0BAE   2213               BNMS   INIT3                                       FOX10680
0BB0   4040 0540          STH    ZERO,RUN          CLEAR RUN FLAG            FOX10690
0BB4   030F               BR     LINK                                        FOX10700
                * * * * * * * * * * * * * * * * * * * * * * * * *            FOX10710
                *                                                 *          FOX10720
                * SUBROUTINE TESTS (CHAR) FOR CORRECT PARITY      *          FOX10730
                *    CALL IS:                                     *          FOX10740
                *        BAL    RET2,PARCHK                       *          FOX10750
                *                                                 *          FOX10760
                * * * * * * * * * * * * * * * * * * * * * * * * *            FOX10770
0BB6   40B0 0C52  PARCHK  STH    CHAR,TEMP0        SAVE ORIGINAL CHARACTER   FOX10780
0BBA   40F0 0C50          STH    LINK,TEMP         SAVE LINK                 FOX10790
0BBE   41F0 09FA          BAL    LINK,PARGEN       GENERATE NEW CHARACTER W/PARITY FOX10800
0BC2   48F0 0C50          LH     LINK,TEMP         RESTORE LINK              FOX10810
0BC6   45B0 0C52          CLH    CHAR,TEMP0        IS PARITY OK ?            FOX10820
0BCA   0332               BER    RET2              YES, RETURN (OK)          FOX10830
                *                                                            FOX10840
                * INCORRECT PARITY                                           FOX10850
                *                                                            FOX10860
0BCC   48B0 0C52  PARNG   LH     CHAR,TEMP0        RESTORE ORIGINAL CHARACTER FOX10870
0BD0   2451               LIS    ONE,1             RESTORE REGISTER ONE      FOX10880
0BD2   6150 1004          AHM    ONE,ERROR4        INCREMENT PARITY ERROR TOTAL FOX10890
0BD6   4890 0508          LH     STAT,NOMSG        TEST ERROR MESSAGE OPTION FOX10900
0BDA   0232               BNZR   RET2              NO OUTPUT IF SET          FOX10910
                *                                                            FOX10920
0BDC   41F0 0922          BAL    LINK,OUTPUT       OUTPUT MESSAGE            FOX10930
0BE0   0DAA               DC     Z(MSG8)           "PARITY ERROR"            FOX10940
0BE2   0302               BR     RET2              RETURN                    FOX10950
                *-----------------------------------                         FOX10960
                * 50 MILLISECOND TIME OUT ROUTINE  (MINIMUM TIME OUT)        FOX10970
0BE4   D000 1D60  TMER   STM    R0,RSAVE          SAVE CALLING REGISTER SET FOX10980
0BE8   C860 1000          LHI    WORK,X'1000'      LOAD TIME-OUT VALUE       FOX10990
```

```
EXEC

0BEC   24AF                1100  TME1     LIS    WORK2,15          LOAD MINOR LOOP COUNT                FOX11000
                           1101  *                                                                      FOX11010
0BEE   27A1                1102  TME2     SIS    WORK2,1           DECREMENT MINOR LOOP COUNT           FOX11020
0BF0   2021                1103           BPS    TME2              BRANCH UNTIL VALUE IS ZERO           FOX11030
0BF2   2761                1104           SIS    WORK,1            DECREMENT TIME-OUT VALUE             FOX11040
0BF4   2024                1105           BPS    TME1              BRANCH UNTIL VALUE IS ZERO           FOX11050
0BF6   D100 1060           1106           LM     R0,RSAVE          RESTORE CALLING REGISTERS            FOX11060
0BFA   030F                1107           BR     LINK              RETURN                               FOX11070
                           1108  *--------------------------------                                    FOX11080
                           1109  * SUBROUTINE CONVERTS RECEIVED STATUS (STAT)                          FOX11090
                           1110  * TO HEX & OUTPUTS MESSAGE 'STATUS = XX'                              FOX11100
                           1111  *    CALL IS:                                                          FOX11110
                           1112  *        BAL    RET2,STATER                                            FOX11120
                           1113  *--------------------------------                                    FOX11130
0BFC   2451                1114  STATER   LIS    ONE,1                                                 FOX11140
0BFE   6150 1006           1115           AHM    ONE,ERROR5        INCREMENT STATUS ERROR TALLY         FOX11150
0C02   48B0 0508           1116           LH     CHAR,NOMSG        TEST ERROR MESSAGE OPTION            FOX11160
0C06   0232                1117           BNZR   RET2              NO OUTPUT IF SET                     FOX11170
                           1118  *                                                                      FOX11180
0C08   05B9                1119           LDAR   CHAR,STAT                                             FOX11190
0C0A   90B4                1120           SRHLS  CHAR,4            CONVERT RECEIVED                     FOX11200
0C0C   C4B0 000F           1121           NHI    CHAR,15           STATUS BYTE                          FOX11210
0C10   D3BB 0C76           1122           LB     CHAR,HEXTAB(CHAR) INTO TWO HEX                         FOX11220
0C14   D2B0 0DC6           1123           STB    CHAR,STATMSG      DIGITS IN MSG10                      FOX11230
0C18   C490 000F           1124           NHI    STAT,X'0F'                                             FOX11240
0C1C   D3B9 0C76           1125           LB     CHAR,HEXTAB(STAT)                                      FOX11250
0C20   D2B0 0DC7           1126           STB    CHAR,STATMSG+1                                         FOX11260
0C24   40F0 0C56           1127           STH    LINK,TEMP2        SAVE LINK                            FOX11270
0C28   41F0 0922           1128           BAL    LINK,OUTPUT       OUTPUT MESSAGE                       FOX11280
0C2C   00BA                1129           DC     Z(MSG10)          "STATUS = XX"                        FOX11290
0C2E   48F0 0C56           1130           LH     LINK,TEMP2        RESTORE LINK                         FOX11300
0C32   0302                1131           BR     RET2              RETURN                               FOX11310
                           1132  * * * * * * * * * * * * * * * * * * * * * * * * *                     FOX11320
                           1133  *                                                 *                    FOX11330
                           1134  * PROGRAM CONSTANTS                               *                    FOX11340
                           1135  *                                                 *                    FOX11350
                           1136  * * * * * * * * * * * * * * * * * * * * * * * * *                     FOX11360
0C34   0000                1137  TESTNO   DCX    0                                                     FOX11370
0C36   0000                1138  CURSOR   DCX    0                                                     FOX11380
0C38   0000                1139  FIRSTF   DCX    0                                                     FOX11390
0C3A   0000                1140  INPFLG   DCX    0                                                     FOX11400
0C3C   0000                1141  OUTFLG   DCX    0                                                     FOX11410
0C3E   0000                1142  WAIT     DCX    0                                                     FOX11420
0C40   0000                1143  BRKFLG   DCX    0                                                     FOX11430
0C42   8000                1144  TIME     DC     X'8000'                                               FOX11440
0C44   0001                1145  PASLA    DCX    1                                                     FOX11450
0C46   ABA9                1146  TWRT     DC     X'ABA9'                                               FOX11460
       0000 0C47           1147  TREAD    EQU    TWRT+1                                                FOX11470
0C48   ABA9                1148  TWRTB    DC     X'ABA9'                                               FOX11480
       0000 0C49           1149  TREADB   EQU    TWRTB+1                                               FOX11490
0C4A   6B69                1150  EBLWRT   DC     X'6B69'                                               FOX11500
       0000 0C4B           1151  EBLRED   EQU    EBLWRT+1                                              FOX11510
0C4C   2323                1152  RQ2S     DC     X'2323'                                               FOX11520
0C4E   80A9                1153  NORM     DCX    80A9                                                  FOX11530
```

```
EXEC

        0000 0C4F          1154  NEREAD   EQU    NORM+1                                                    FOX11540
0C50    0000               1155  TEMP     DCX    0                  TEMPORARY STORRAGE LOCATIONS           FOX11550
0C52    0000               1156  TEMP0    DCX    0                  FOR RETURN ADDRESS AND                 FOX11560
0C54    0000               1157  TEMP1    DCX    0                  CHARACTER SAVE LOCATIONS               FOX11570
0C56    0000               1158  TEMP2    DCX    0                                                         FOX11580
0C58    0000               1159  TEMP3    DCX    0                                                         FOX11590
0C5A    0000               1160  TEMP4    DCX    0                                                         FOX11600
0C5C    0000               1161  TEMP5    DCX    0                                                         FOX11610
0C5E    0000               1162  TEMP6    DCX    0                                                         FOX11620
0C60    0000               1163  TEMP7    DCX    0                                                         FOX11630
0C62    0000               1164  TEMP8    DCX    0                                                         FOX11640
0C64    0000               1165  CURSLINE DCX    0                  CURSOR LINE NO.   (FROM CURSREAD)      FOX11650
0C66    0000               1166  CURSCOLM DCX    0                  CURSOR COLUMN NO. (FROM CURSREAD)      FOX11660
0C68    0000               1167  RETURN   DCX    0                                                         FOX11670
0C6A    4003               1168  INCR     DCX    4003                                                      FOX11680
        0000 0C6B          1169  MBRSET   EQU    INCR+1                                                    FOX11690
0C6C    0000               1170  RCHAR    DCX    0                  TEMP READ CHARACTER SAVE LOCATION      FOX11700
0C6E    0000               1171  DUSAVE   DCX    0                  DU RETURN ADDRESS SAVE LOCATION        FOX11710
0C70    0000               1172  DURTN    DCX    0                  LINK INITIAL DU VALUE                  FOX11720
0C72    0000               1173  DU       DCX    0                  DU FLAG                                FOX11730
0C74    0000               1174  DUSTAT   DCX    0                  DU HANDLER CALLING STATUS              FOX11740
                           1175  ************************************************                          FOX11750
0C76    30313233           1176  HEXTAB   DC     C'0123456789ABCDEF'                                       FOX11760
        34353637
        38394142
        43444546
0C86    107C               1177  TSTTAB   DC     Z(TEST00),Z(TEST01),Z(TEST02),Z(TEST03)                   FOX11770
0C88    11F0
0C8A    129C
0C8C    1388
0C8E    15EE               1178           DC     Z(TEST04),Z(TEST05),Z(TEST06)                             FOX11780
0C90    192E
0C92    1B24
0C94    00808000           1179  BYTETAB  DB     0,X'80',X'80',0    16 EVEN PARITY BYTES FOR GENERATION    FOX11790
0C98    80000080           1180           DB     X'80',0,0,X'80'                                           FOX11800
0C9C    80000080           1181           DB     X'80',0,0,X'80'                                           FOX11810
0CA0    00808000           1182           DB     0,X'80',X'80',0                                           FOX11820
                           1183  * * * * * * * * * * * * * * * * * * * * * * * * * * *                     FOX11830
                           1184  *                                                 *                       FOX11840
                           1185  *  M E S S A G E S                               *                       FOX11850
                           1186  *                                                 *                       FOX11860
                           1187  * * * * * * * * * * * * * * * * * * * * * * * * * * *                     FOX11870
0CA4    0A8D               1188  MSG0     DC     X'0A8D'                                                   FOX11880
0CA6    0D8A               1189  MSG0.5   DC     X'0D8A'                                                   FOX11890
0CA8    0A0D               1190  MSG1     DC     X'0A0D',C'MODEL-1100 DISPLAY TERMINAL TEST PROGRAM'       FOX11900
0CAA    4D4F4445
        4C2D3131
        30302044
        4953504C
        41592054
        45524D49
        4E414C20
        54455354
        2050524F
```

```
EXEC
                4752414D
0CD2            2030362D          1191          DC      C' 06-217R01'                                   FOX11910
                32313752
                3031
0CDC                              1192          IFZ     ADC-2                                           FOX11920
0CDC            20463031          1193          DC      C' F01'                                         FOX11930
                                  1196          ENDC                                                    FOX11960
0CE0            0A8D              1197          DC      X'0A8D'                                         FOX11970
0CE2            44455052          1198  MSG2    DC      C'DEPRESS KEYS 1,2,3',X'0A8D'                   FOX11980
                45535320
                4B455953
                20312C32
                2C33
0CF4            0A8D
0CF6            20202020          1199  MSG3    DC      C'                                  '           FOX11990
                20202020
                20202020
                20202020
                20202020
                20202020
                20202020
                2020
0D14            5B20              1200          DC      X'5B20',C'T E S T   0 4 ',X'5D20'               FOX12000
0D16            54204520
                53205420
                20203020
                3420
0D24            5D20
0D26            20202020          1201          DC      C'                                  ',X'0D8A'   FOX12010
                20202020
                20202020
                20202020
                20202020
                20202020
                20202020
                2020
0D44            0D8A
0D46            42414420          1202  MSG4    DC      C'BAD LINE NUMBER = ',X'5827'*   "X'"          FOX12020
                4C494E45
                204E554D
                42455220
                3D20
0D58            5827
0D5A            2A2A              1203  ERR07M1 DC      C'**',X'2720'      "**' "                       FOX12030
0D5C            2720
0D5E            53484F55          1204          DC      C'SHOULD BE = ',X'5827'*     "X'"               FOX12040
                4C442042
                45203D20
0D6A            5827
0D6C            2A2A              1205  ERR07M2 DC      C'**',X'2720'      "**' "                       FOX12050
0D6E            2720
0D70            0D8A              1206          DC      X'0D8A'            CR, LF                       FOX12060
0D72            42414420          1207  MSG5    DC      C'BAD COLUMN POSITION = ',X'5827'*   "X'"        FOX12070
                434F4C55
```

```
EXEC

         4D4E2050
         4F554954
         494F4E20
         3020
0D88     5827
0D8A     2A2A          1208  ERR08M1  DC    C'**',X'2720'      "**' "                          FOX12080
0D8C     2720
0D8E     53484F55      1209           DC    C'SHOULD BE = ',X'5827'*     "x'"                  FOX12090
         4C442042
         45203D20
0D9A     5827
0D9C     2A2A          1210  ERR08M2  DC    C'**',X'2720'      "**' "                          FOX12100
0D9E     2720
0DA0     0D8A          1211           DC    X'0D8A'            CR, LF                          FOX12110
0DA2     0D0A          1212  MSG6     DC    X'0D0A',X'2AA0'    *      CRLF, * SPACE            FOX12120
0DA4     2AA0
0DA6     0A0D          1213  MSG7     DC    X'0A0D',X'3FA0'    *      CRLF, ? SPACE            FOX12130
0DA8     3FA0
0DAA     20205041      1214  MSG8     DC    C'  PARITY ERROR',X'20A0'                           FOX12140
         52495459
         20455252
         4F52
0DB8     20A0
0DBA     20202053      1215  MSG10    DC    C'   STATUS = '                                      FOX12150
         54415455
         53203D20
0DC6     2A2A2020      1216  STATMSG  DC    C'**  ',X'20A0'                                      FOX12160
0DCA     20A0
0DCC     0A0D          1217  MSG11    DC    X'0A0D',C'DEPRESS BREAK',X'20A0'                    FOX12170
0DCE     44455052
         45535320
         42524541
         4B20
0DDC     20A0
0DDE     0A0D          1218  MSG12    DC    X'0A0D',C'END OF TEST',X'20A0'                      FOX12180
0DE0     454E4420
         4F462054
         45535420
0DEC     20A0
0DEE     54455354      1219  MSG15    DC    C'TEST 05 ',X'0A0D'                                 FOX12190
         20303520
0DF6     0A0D
0DF8     484F4D45      1220           DC    C'HOME CURSOR & CLEAR SCREEN HAVE BEEN OUTPUT '     FOX12200
         20435552
         534F5220
         2620434C
         45415220
         53435245
         454E2048
         41564520
         4245454E
         204F5554
         50555420
0E24     0D8A          1221           DC    X'0D8A'                                             FOX12210
```

```
EXEC

                                1222  *                                                                    FOX12220
0E26  20204252                  1223  MSG16    DC     C'  BREAK OK',X'0A8D'                               FOX12230
      45414B20
      4F4B
0E30  0A8D
0E32  0A0D                      1224  MSG17    DC     X'0A0D',C'TEST 00 ',X'0A0D'                         FOX12240
0E34  54455354
      20303020
0E3C  0A0D
0E3E  4B455942                  1225           DC     C'KEYBOARD TEST ',X'0A8D'                           FOX12250
      4F415244
      20544553
      5420
0E4C  0A8D
0E4E  54455354                  1226  MSG18    DC     C'TEST 01 ',X'0A8D'                                 FOX12260
      20303120
0E56  0A8D
0E58  0A0D                      1227  MSG19    DC     X'0A0D',C'TEST 02 ',X'0A8D'                         FOX12270
0E5A  54455354
      20303220
0E62  0A8D
0E64  0A0D                      1228  MSG20    DC     X'0A0D',C'TEST 03 ',X'0A8D'                         FOX12280
0E66  54455354
      20303320
0E6E  0A8D
0E70  0D0A                      1229  MSG21    DC     X'0D0A',C'TEST 06 ',X'0A0D'                         FOX12290
0E72  54455354
      20303620
0E7A  0A0D
0E7C  44455052                  1230           DC     C'DEPRESS "HERE-IS" ',X'0D8A'                       FOX12300
      45535320
      22484552
      45204953
      2220
0E8E  0D8A
0E90  2C204C46                  1231  MSG23    DC     C', LF TO EXIT',X'0D8A'                             FOX12310
      20544F20
      45584954
0E9C  0D8A
0E9E  2C204C46                  1232  MSG24    DC     C', LF ON ERROR ',X'0D8A'                           FOX12320
      204F4E20
      4552524F
      5220
0EAC  0D8A
0EAE  22544553                  1233  MSG26    DC     C'"TEST 5" HAS NOW BEEN DELETED',X'0A8D'            FOX12330
      54203522
      20484153
      204E4F57
      20424545
      4E204445
      4C455445
      4420
0ECC  0A8D
0ECE  4D554C54                  1234  MSG27    DC     C'MULTICODE - '                                     FOX12340
```

```
EXEC

         49434F44
         45202020
0EDA     2A2A2053          1235  ERR9CHAR DC     C'** SEQUENCE DID NOT EXECUTE PROPERLY',X'0D8A'        FOX12350
         45515545
         4E434520
         44494420
         4E4F5420
         45584543
         55544520
         50524F50
         45524C59
0EFE     0D8A
0F00     434C4541          1236  MSG28    DC     C'CLEAR ALL HAS NOW BEEN OUTPUT ',X'0D0A'              FOX12360
         5220414C
         4C204841
         53204E4F
         57204245
         454E204F
         55545055
         5420
0F1E     0D0A
0F20     48495420          1237  MSG22    DC     C'HIT CR TO CONTINUE',X'FFFF'                          FOX12370
         43522054
         4F20434F
         4E544494E
         5545
0F32     FFFF
0F34     4D454348          1238  MSG30    DC     C'MECHANICAL RESTRAINTS MAY CAUSE THIS COPY TO'        FOX12380
         414E4943
         414C2052
         45535452
         41494E54
         53204D41
         59204341
         55534520
         54484953
         20434F50
         5920544F
0F60     20474152          1239           DC     C' GARBLE ON SOME PRINTER PORT DEVICES',X'0D8A'        FOX12390
         424C4520
         4F4E2053
         4F4D4520
         5052494E
         54455220
         504F5254
         20444556
         49434553
0F84     0D8A
0F86     0D0A              1240  MSG32    DC     X'0D0A',C'DU DETECTED ',X'FFFF'                        FOX12400
0F88     44552044
         45544543
         54454420
0F94     FFFF
0F96     494E2045          1241  MSG33    DC     C'IN EXEC ',X'0D8A'                                    FOX12410
```

```
EXEC

         58454320
0F9E     0D8A
0FA0     494E2054          1242  MSG34    DC     C'IN TEST **',X'0D8A'                          FOX12420
         45535420
         2A2A
0FAA     0D8A
         0000 0FA8         1243  DUMSG    EQU    MSG34+8                                        FOX12430
0FAC     54484953          1244  MSG40    DC     C'THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100'  FOX12440
         20495320
         41205445
         5354204F
         46205448
         4520494E
         54455244
         4154412C
         20494E43
         2E204D4F
         44454C20
         31313030
0FDC     20435254          1245          DC     C' CRT TERMINAL CURSOR POSITIONING'            FOX12450
         20544552
         4D494E41
         4C204355
         52534F52
         20504F53
         4954494F
         4E494E47
```

EXEC

```
                    *-------------------------------------
                    * ERROR TOTALS
                    *
                    * ERROR 00 = INCORRECT CHARACTER
                    *
0FFC   0000         ERROR0   DCX    0
                    *
                    * ERROR 01 = BAD CURSOR POSITION
                    *
0FFE   0000         ERROR1   DCX    0
                    *
                    * ERROR 02 = NO XMIT CHARACTER
                    *
1000   0000         ERROR2   DCX    0
                    *
                    * ERROR 03 = ILLEGAL CHARACTER
                    *
1002   0000         ERROR3   DCX    0
                    *
                    * ERROR 04 = PARITY ERROR
                    *
1004   0000         ERROR4   DCX    0
                    *
                    * ERROR 05 = STATUS ERROR
                    *
1006   0000         ERROR5   DCX    0
                    *
                    * ERROR 06 = INTERRUPT ERROR
                    *
1008   0000         ERROR6   DCX    0
                    *
                    * ERROR 07 = BAD CURSOR LINE POSITIONING
                    *
100A   0000         ERROR7   DCX    0
                    *
                    * ERROR 08 = BAD CURSOR COLUMN POSITIONING
                    *
100C   0000         ERROR8   DCX    0
                    *
                    * ERROR 09 = MULITCODE SEQUENCE FAILURE
                    *
100E   0000         ERROR9   DCX    0
```

```
                                 *--------------------------------                    FOX12900
                                 * TO INITIALIZE & DISPLAY TEST TITLE                  FOX12910
                                 *                                                     FOX12920
1010   24F0                      START    LIS    LINK,0                                FOX12930
1012   40F0 0C72                 STH      LINK,DU          RESET THE DU FLAG            FOX12940
1016   41F0 0AD8                 BAL      LINK,SETUP       SET UP DEVSADR & INTLVL TABLES FOX12950
101A   41F0 02F2                 BAL      LINK,LCORE       SET UP LOW CORE              FOX12960
101E   41F0 0B0A                 BAL      LINK,INITAL      INITIALIZE                   FOX12970
1022   41F0 0922                 BAL      LINK,OUTPUT      OUTPUT MESSAGE               FOX12980
1026   0CA8                      DC       Z(MSG1)          "MODEL-1100 TEST PROGRAM" (TITLE) FOX12990
1028   2430                      LIS      FLAG,0                                        FOX13000
                                 * * * * * * * * * * * * * * * * * * * * * * * *       FOX13010
                                 *                                                     FOX13020
                                 * OUTPUT 4-48 CHARACTER LINES OF THE                  FOX13030
                                 * 96 DISPLAYABLE CHARACTERS.                          FOX13040
                                 *                                                     FOX13050
                                 * * * * * * * * * * * * * * * * * * * * * * * *       FOX13060
102A   2480                      TESTA0   LIS      TAB,0            PATRN1 INDEX         FOX13070
                                 *                                                     FOX13080
102C   C888 0020                 TESTA1   LHI      CHAR,X'20'(TAB)  GET A CHARACTER      FOX13090
1030   4120 095A                 BAL      RET2,OUTCHR      OUTPUT IT                    FOX13100
1034   2681                      AIS      TAB,1            INCREMENT PATRN1 INDEX       FOX13110
1036   C580 0030                 CLHI     TAB,48           48 CHARACTERS DONE ?         FOX13120
103A   2087                      BLS      TESTA1           NOT YET, LOOP                FOX13130
103C   24B7                      LIS      CHAR,X'07'       BELL CODE                    FOX13140
103E   4120 095A                 BAL      RET2,OUTCHR                                   FOX13150
1042   24BA                      LIS      CHAR,X'0A'                                    FOX13160
1044   4120 095A                 BAL      RET2,OUTCHR      LINE FEED                    FOX13170
1048   24BD                      LIS      CHAR,X'0D'                                    FOX13180
104A   4120 095A                 BAL      RET2,OUTCHR      CARRIAGE RETURN              FOX13190
                                 *                                                     FOX13200
104E   C888 0020                 TESTA2   LHI      CHAR,X'20'(TAB)  GET A CHARACTER      FOX13210
1052   4120 095A                 BAL      RET2,OUTCHR      OUTPUT IT                    FOX13220
1056   2681                      AIS      TAB,1            INCREMENT PATRN1 INDEX       FOX13230
1058   C580 0060                 CLHI     TAB,96           96 CHARACTERS DONE ?         FOX13240
105C   2087                      BLS      TESTA2           NO, LOOP                     FOX13250
                                 *                                                     FOX13260
                                 * AT END OF EACH LINE, RING BELL THEN                 FOX13270
                                 * OUTPUT CARRIAGE RETURN, LINE-FEED                   FOX13280
                                 *                                                     FOX13290
105E   24B7                      LIS      CHAR,X'07'       BELL CODE                    FOX13300
1060   4120 095A                 BAL      RET2,OUTCHR                                   FOX13310
1064   24BA                      LIS      CHAR,X'0A'       LINE FEED                    FOX13320
1066   4120 095A                 BAL      RET2,OUTCHR                                   FOX13330
106A   C8B0 008D                 LHI      CHAR,X'8D'       CARRIAGE RETURN              FOX13340
106E   4120 095A                 BAL      RET2,OUTCHR                                   FOX13350
1072   0735                      XAR      FLAG,ONE         COMPLEMENT LINE COUNT        FOX13360
1074   4230 102A                 BNZ      TESTA0           DO SECOND LINE               FOX13370
1078   4300 0564                 B        OPTIN            ENTER COMMAND MODE           FOX13380
                                 * ALL PRINTABLE CHARACTERS HAVE NOW BEEN OUTPUT.      FOX13390
                                 *--------------------------------                    FOX13400
```

```
                                  * * * * * * * * * * * * * * * * * * * * * * * * *   FOX13420
                                  *                                                   FOX13430
                                  *          T E S T   M O D U L E   0                FOX13440
                                  *                                                   FOX13450
                                  * NEXT SECTION REQUIRES THAT THE OPERATOR          FOX13460
                                  * DEPRESS THE KEYBOARD KEYS THAT CORRESPOND TO     FOX13470
                                  * THE DISPLAYABLE CHARACTERS OR THE NON-           FOX13480
                                  * DISPLAYABLE FUNCTIONS.  THE DATA WILL BE READ    FOX13490
                                  * IN THE ECHO-PLEX MODE SO THAT THE KEY            FOX13500
                                  * DEPRESSED IS IMMEDIATELY DISPLAYED.  THE         FOX13510
                                  * PROGRAM THEN SENDS THE RECEIVED CHARACTERS       FOX13520
                                  * BACK TO THE MODEL-1100. A SPACE CHARACTER IS     FOX13530
                                  * THEN OUTPUT, FOLLOWED BY THE TWO DIGIT HEX       FOX13540
                                  * VALUE OF THE RECEIVED CHARACTER.                 FOX13550
                                  *                                                   FOX13560
                                  * THE PARITY OF THE RECEIVED BYTE IS TESTED.        FOX13570
                                  * IF INCORRECT, AN ERROR MESSAGE IS OUTPUT.        FOX13580
                                  *                                                   FOX13590
                                  * A CARRIAGE RETURN & LINEFEED IS OUTPUT.           FOX13600
                                  * CLOSING THE LOOP.  THIS TEST CAN BE               FOX13610
                                  * TERMINATED BY DEPRESSING THE LINE BREAK KEY       FOX13620
                                  *                                                   FOX13630
                                  * * * * * * * * * * * * * * * * * * * * * * * * *   FOX13640
107C   DE00 0C47                  TEST00   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED   FOX13650
1080   9B0B                                RDR    DEV0,CHAR         FORCE BUSY SET                   FOX13660
1082   DE10 0C46                           CC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED  FOX13670
1086   41F0 0922                           BAL    LINK,OUTPUT       "TEST 00"                        FOX13680
108A   0E32                                DC     Z(MSG17)          "KEYBOARD TEST"                  FOX13690
108C   9D19                                TESTB0 SSR    DEV1,STAT         WAIT FOR LAST                    FOX13700
108E   9A59                                WDR    ONE,STAT          WRITE DEVICE STATUS TO DISPLAY   FOX13710
1090   C390 0001                           THI    STAT,1            DEVICE DU ?                      FOX13720
1094   2337                                BZS    TESTB8            NO, BRANCH                       FOX13730
1096   40F0 0C70                           STH    LINK,DURTN                                         FOX13740
109A   41F0 1BB4                           BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER     FOX13750
109E   48F0 0C70                           LH     LINK,DURTN                                         FOX13760
10A2   C390 0008                           TESTB8 THI    STAT,8            BUSY ?                           FOX13770
10A6   203D                                BNZS   TESTB0            YES, WAIT                        FOX13780
10A8   DE00 0C47                           OC     DEV0,TREAD        SELECT READ MODE                 FOX13790
10AC   9D09                                TESTB1 SSR    DEV0,STAT                                  FOX13800
10AE   9A59                                WDR    ONE,STAT          WRITE STATUS TO DISPLAY          FOX13810
10B0   C390 0001                           THI    STAT,1            DEVICE DU ?                      FOX13820
10B4   2337                                BZS    TESTB9            NO, BRANCH                       FOX13830
10B6   40F0 0C70                           STH    LINK,DURTN                                         FOX13840
10BA   41F0 1BB4                           BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER     FOX13850
10BE   48F0 0C70                           LH     LINK,DURTN                                         FOX13860
10C2   C390 0008                           TESTB9 THI    STAT,8            DEVICE BUSY ?                    FOX13870
10C6   203D                                BNZS   TESTB1            YES, WAIT                        FOX13880
10C8   C390 0020                           THI    STAT,X'20'        LINE BREAK ?                     FOX13890
10CC   2336                                BZS    TESTB2            NO, BRANCH                       FOX13900
10CE   9B0B                                RDR    DEV0,CHAR         YES, READ A CHARACTER            FOX13910
10D0   087B                                LDAR   DAT,CHAR          TEST IF ZERO CHARACTER           FOX13920
10D2   4330 117E                           BZ     BRKWT             EXIT IF 'BREAK' DEPRESSED.       FOX13930
10D6   2302                                BS     TSTB2A                                             FOX13940
10D8   9B07                                TESTB2 RDR    DEV0,DAT          READ                             FOX13950
```

```
                                 *                                                                  FOX13960
10DA   08B7                      TSTB2A  LDAR    CHAR,DAT          CHARACTER                      FOX13970
10DC   DE10 0C46                         OC      DEV1,TWRT                                        FOX13980
10E0   C4B0 007F                         NHI     CHAR,X'7F'        REMOVE PARITY BIT              FOX13990
10E4   24C0                              LIS     POINT,0           CLEAR PATRN1 INDEX             FOX14000
10E6   C86C 0020                 TESTB3  LHI     WORK,X'20'(POINT)                                FOX14010
10EA   C460 007F                         NHI     WORK,X'7F'                                       FOX14020
10EE   056B                              CLAR    WORK,CHAR         MATCH ?                        FOX14030
10F0   2337                              BES     TESTB4            YES, BRANCH                    FOX14040
10F2   26C1                              AIS     POINT,1           NO, INCREMENT &                FOX14050
10F4   C5C0 0060                         CLHI    POINT,96          SEARCH THROUGH PATRN1          FOX14060
10F8   2089                              BLS     TESTB3                                           FOX14070
10FA   4300 114A                         B       TESTB5            ILLEGAL CHARACTER              FOX14080
                                 *                                                                  FOX14090
10FE   9D19                      TESTB4  SSR     DEV1,STAT                                        FOX14100
1100   DE50 0C6A                         OC      ONE,INCR          DISPLAY IN INCREMENTAL MODE    FOX14110
1104   9A59                              WDR     ONE,STAT          WRITE STATUS TO D1             FOX14120
1106   9A57                              WDR     ONE,DAT           WRITE CHARACTER TO D2 (AS READ) FOX14130
1108   DE50 0C4E                         OC      ONE,NORM          DISPLAY IN NORMAL MODE         FOX14140
110C   C390 0001                         THI     STAT,1            DEVICE DU ?                    FOX14150
1110   2337                              BZS     TESTB10           NO, BRANCH                     FOX14160
1112   40F0 0C70                         STH     LINK,DURTN                                       FOX14170
1116   41F0 1BB4                         BAL     LINK,DUPASS       YES, GO TO DU STATUS HANDLER   FOX14180
111A   48F0 0C70                         LH      LINK,DURTN                                       FOX14190
111E   C390 0008                 TESTB10 THI     STAT,8            DEVICE BUSY ?                  FOX14200
1122   4230 10FE                         BNZ     TESTB4            YES, LOOP ON BUSY              FOX14210
1126   9A17                              WDR     DEV1,DAT          OUTPUT CHARACTER AS RECEIVED   FOX14220
1128   48B0 02DA                         LH      CHAR,PASFLG       PASLA/HDX FLAG = 0 ?           FOX14230
112C   213F                              BNZS    TESTB5            NO, BRANCH                     FOX14240
112E   0501                              CLAR    DEV0,DEV1         YES, CLI ?                     FOX14250
1130   233D                              BES     TESTB5            YES, BRANCH                    FOX14260
1132   9D19                      TESTB12 SSR     DEV1,STAT         NO, PASLA FDX                  FOX14270
1134   2317                              BFFS    1,TESTB11         BRANCH IF DEVICE NOT DU        FOX14280
1136   40F0 0C70                         STH     LINK,DURTN                                       FOX14290
113A   41F0 1BB4                         BAL     LINK,DUPASS       OTHERWISE GO TO DU STATUS HANDLER FOX14300
113E   48F0 0C70                         LH      LINK,DURTN                                       FOX14310
1142   C390 0008                 TESTB11 THI     STAT,8                                           FOX14320
1146   203A                              BNZS    TESTB12           WAIT FOR BUSY TO DROP          FOX14330
1148   9A17                              WDR     DEV1,DAT          ECHO CHARACTER (PASLA FDX ONLY) FOX14340
114A   C8B0 0020                 TESTB5  LHI     CHAR,X'20'        SPACE                          FOX14350
114E   4120 095A                         BAL     RET2,OUTCHR                                      FOX14360
1152   08B7                              LDAR    CHAR,DAT          CONVERT                        FOX14370
1154   90B4                              SRHLS   CHAR,4            RECEIVED                       FOX14380
1156   D3BB 0C76                         LB      CHAR,HEXTAB(CHAR) CHARACTER                      FOX14390
115A   4120 095A                         BAL     RET2,OUTCHR       TO TWO HEX                     FOX14400
115E   08B7                              LDAR    CHAR,DAT          DIGITS AND                     FOX14410
1160   C4B0 000F                         NHI     CHAR,X'F'         OUTPUT                         FOX14420
1164   D3BB 0C76                         LB      CHAR,HEXTAB(CHAR)                                FOX14430
1168   4120 095A                         BAL     RET2,OUTCHR                                      FOX14440
116C   08B7                              LDAR    CHAR,DAT                                         FOX14450
116E   4120 0BB6                         BAL     RET2,PARCHK       CHECK CHARACTER PARITY         FOX14460
1172   087B                              LDAR    DAT,CHAR                                         FOX14470
1174   41F0 0922                         BAL     LINK,OUTPUT       CARRIAGE RETURN                FOX14480
1178   0CA4                              DC      Z(MSG0)           AND LINE FEED                  FOX14490
```

TEST 0

```
117A   4300 1C8C          B      TESTB0          LOOP                                FOX14500
                          *-----------------------------------                       FOX14510
                          * 'BREAK' IS SENSED.                                       FOX14520
                          *                                                          FOX14530
117E   48B0 02DA          BRKWT  LH     CHAR,PASFLG     DEVICE ON PASLA ?             FOX14540
1182   4210 11D0          BM     BRKMIC          BRANCH ON MICRO-BUS                 FOX14550
1186   4330 11AE          BZ     BRKWT1          YES, BRANCH                         FOX14560
118A   C390 0008          THI    STAT,8          NO, IS BUSY SET ?                   FOX14570
118E   4230 11C8          BNZ    BRKWT2          YES, BRANCH                         FOX14580
1192   9B0B               RDR    DEVO,CHAR       NO, FORCE BUSY SET                  FOX14590
1194   9D09               BRKWTA3 SSR   DEVO,STAT       DEVICE DU ?                   FOX14600
1196   2317               BFFS   1,BRKWTA1      NO, BRANCH                          FOX14610
1198   40F0 0C70          STH    LINK,DURTN                                          FOX14620
119C   41F0 1BB4          BAL    LINK,DUPASS     YES, GO TO DU STATUS HANDLER        FOX14630
11A0   48F0 0C70          LH     LINK,DURTN                                          FOX14640
11A4   C390 0008          BRKWTA1 THI   STAT,8                                       FOX14650
11A6   223A               BZS    BRKWTA3         WAIT FOR BUSY TO RISE               FOX14660
11AA   08BB               LDAR   CHAR,CHAR       CHARACTER READ = 0 ?                FOX14670
11AC   213E               BNZS   BRKWT2          NO, BRANCH                          FOX14680
11AE   9D09               BRKWT1 SSR    DEVO,STAT       YES, WAIT FOR BREAK STATUS    FOX14690
11B0   C390 0001          THI    STAT,1          DEVICE DU ?                         FOX14700
11B4   2337               BZS    BRKWTA2         NO, BRANCH                          FOX14710
11B6   40F0 0C70          STH    LINK,DURTN                                          FOX14720
11BA   41F0 1BB4          BAL    LINK,DUPASS     YES, GO TO DU STATUS HANDLER        FOX14730
11BE   48F0 0C70          LH     LINK,DURTN                                          FOX14740
11C2   C390 0020          BRKWTA2 THI   STAT,X'20'                                   FOX14750
11C6   203C               BNZS   BRKWT1          WAIT FOR BREAK STATUS TO APPEAR     FOX14760
11C8   4050 0C40          BRKWT2 STH    ONE,BRKFLG      SET BREAK FLAG                FOX14770
11CC   4300 0812          B      TSTEXT          END OF TEST MODULE                  FOX14780
                          *-----------------------------------                       FOX14790
                          *                                                          FOX14800
       0000 11D0          BRKMIC EQU    *                                            FOX14810
11D0   9B0B               RDR    DEVO,CHAR                                           FOX14820
11D2   9D09               SSR    DEVO,STAT                                           FOX14830
11D4   C390 0001          THI    STAT,1          DEVICE DU ?                         FOX14840
11D8   2337               BZS    BRKMIC2         NO, BRANCH                          FOX14850
11DA   40F0 0C70          STH    LINK,DURTN                                          FOX14860
11DE   41F0 1BB4          BAL    LINK,DUPASS     YES, GO TO DU STATUS HANDLER        FOX14870
11E2   48F0 0C70          LH     LINK,DURTN                                          FOX14880
11E6   C390 0020          BRKMIC2 THI   STAT,X'20'       BREAK STATUS ?              FOX14890
11EA   203D               BNZS   BRKMIC          YES, WAIT TILL BREAK DROPS          FOX14900
11EC   4300 11C8          B      BRKWT2          RETURN                              FOX14910
```

TEST 1

```
                                 * * * * * * * * * * * * * * * * * * * * * * * *          FOX14930
                                 *                                               *          FOX14940
                                 *          T E S T   M O D U L E   0 1          *          FOX14950
                                 *                                               *          FOX14960
                                 * A PRINTER PORT WARNING MESSAGE AND THEN       *          FOX14970
                                 * U'S AND *'S ARE OUTPUT TO THE MODEL-1100      *          FOX14980
                                 * SCREEN.  23 LINES OF 80 CHARACTERS EACH ARE   *          FOX14990
                                 * OUTPUT.  EACH LINE IS TERMINATED BY A         *          FOX15000
                                 * CARRIAGE RETURN AND A LINE FEED.  THE         *          FOX15010
                                 * OPERATOR MAY DEPRESS THE CARRIAGE RETURN KEY  *          FOX15020
                                 * TO REPEAT THE TEST, OR THE LINE FEED KEY TO   *          FOX15030
                                 * TERMINATE.                                    *          FOX15040
                                 *                                               *          FOX15050
                                 * * * * * * * * * * * * * * * * * * * * * * * *          FOX15060
11F0   DE00 0C47                 TEST01   OC     DEV0,TREAD          READ MODE          FOX15070
11F4   9B0B                               RDR    DEV0,CHAR           FORCE BUSY SET     FOX15080
11F6   DE10 0C46                          OC     DEV1,TWRT           WRITE MODE         FOX15090
11FA   41F0 1726                          BAL    LINK,CLRSCRN        CLEAR THE SCREEN   FOX15100
11FE   41F0 0922                          BAL    LINK,OUTPUT         OUTPUT MESSAGE     FOX15110
1202   0F34                               DC     Z(MSG30)            "MECHANICAL RESTRAINTS MAY....."  FOX15120
1204   41F0 0922                          BAL    LINK,OUTPUT         OUTPUT MESSAGE     FOX15130
1208   0E4E                               DC     Z(MSG18)            "TEST 01"          FOX15140
120A   2430                               LIS    FLAG,0              CLEAR INVERT FLAG  FOX15150
120C   2480                               TESTOC LIS    TAB,0               LINE COUNT         FOX15160
120E   2400                               LIS    COUNT,0             CHARACTER COUNT    FOX15170
1210   DE10 0C46                          OC     DEV1,TWRT           WRITE MODE         FOX15180
1214   C8B0 002A                          TESTOA LHI    CHAR,C'*'                      FOX15190
1218   07B3                               XAR    CHAR,FLAG           INVERT OR NOT      FOX15200
121A   4120 095A                          TESTOD BAL    RET2,OUTCHR         OUTPUT * OR U      FOX15210
121E   C7B0 007F                          XHI    CHAR,X'7F'          INVERT CHARACTER   FOX15220
1222   26D1                               AIS    COUNT,1             FOR EIGHTY         FOX15230
1224   C5D0 0050                          CLHI   COUNT,80            CHARACTERS         FOX15240
1228   2087                               BLS    TESTOD              LOOP TILL DONE     FOX15250
122A   C380 0001                          THI    TAB,1               OUTPUT CR-LF OR LF-CR BASED ON  FOX15260
122E   2335                               BZS    TESTOE              CURRENT LINE NUMBER FOX15270
1230   41F0 0922                          BAL    LINK,OUTPUT         (TEST BOTH WAYS)   FOX15280
1234   0CA4                               DC     Z(MSG0)             LF-CR              FOX15290
1236   2304                               BS     TESTOF                                 FOX15300
1238   41F0 0922                          TESTOE BAL    LINK,OUTPUT                    FOX15310
123C   0CA6                               DC     Z(MSG0.5)           CR-LF              FOX15320
123E   24D0                               TESTOF LIS    COUNT,0                        FOX15330
1240   2681                               AIS    TAB,1                                  FOX15340
1242   C580 0016                          CLHI   TAB,22              DONE ?             FOX15350
1246   2135                               BNES   TESTOG              NO, CONTINUE       FOX15360
1248   41F0 0922                          BAL    LINK,OUTPUT         YES, PRINT         FOX15370
124C   0CA4                               DC     Z(MSG0)             CR & LF            FOX15380
124E   2681                               AIS    TAB,1               INCREMENT NUMBER OF LINES  FOX15390
1250   C580 0018                          TESTOG CLHI   TAB,24               TWENTY-THREE LINES ?  FOX15400
                                 *                                               FOX15410
                                 *  CHANGE NEXT HALFWORD TO X'4300' TO LOOP ON ALTERNATING U'S & *'S.  FOX15420
                                 *                                               FOX15430
1254   4200 1218                          NOP    TESTOA+4                       FOX15440
                                 *                                               FOX15450
                                 *  CHANGE NEXT HALFWORD TO X'4300' TO CONTINUOUSLY LOOP ON TESTOA.  FOX15460
```

TEST 1

```
                                 *
1258   4280 1214                 DEBUG0   BL      TEST0A                TOTAL                                    FOX15470
125C   25B1                               LCS     CHAR,1                                                         FOX15480
125E   4120 095A                          BAL     RET2,OUTCHR           OUTPUT DELETE CHARACTER                  FOX15490
1262   9D19                               SSR     DEV1,STAT             DEVICE DU ?                              FOX15500
1264   2317                               BFFS    1,TESTB203            NO, BRANCH                               FOX15510
1266   40F0 0C70                          STH     LINK,DURTN                                                     FOX15520
126A   41F0 1BB4                          BAL     LINK,DUPASS           YES, GO TO DU STATUS HANDLER             FOX15530
126E   48F0 0C70                          LH      LINK,DURTN                                                     FOX15540
1272   C390 0008                          THI     STAT,8                                                         FOX15550
1276   203A                               BNZS    TEST0H                LAST CHARACTER                           FOX15560
1278   DE00 0C47                          OC      DEV0,TREAD            OC READ MODE                             FOX15570
127C   9B0B                               RDR     DEV0,CHAR             DUMMY READ TO CLEAR STATUS               FOX15580
127E   41F0 0A2E                          BAL     LINK,READ             READ A CHARACTER                         FOX15590
1282   C730 007F                          XHI     FLAG,X'7F'            FLIP PAGE FLAG                           FOX15600
1286   C5B0 000D                          CLHI    CHAR,X'0D'            CARRIAGE RETURN ?                        FOX15610
128A   4330 120C                          BE      TEST0C                YES,REPEAT                               FOX15620
128E   C730 007F                          XHI     FLAG,X'7F'            RESTORE FLAG                             FOX15630
1292   C5B0 000A                          CLHI    CHAR,X'0A'            LINE FEED ?                              FOX15640
1296   203C                               BNES    TEST0B                NO: READ A NEW CHARACTER                 FOX15650
1298   4300 0812                          B       TSTEXT                YES, EXIT TEST MODULE                    FOX15660
                                                                                                                  FOX15670
```

```
                                  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX15690
                                  *                                               *                    FOX15700
                                  *          T E S T   M O D U L E   0 2          *                    FOX15710
                                  *                                               *                    FOX15720
                                  * LINE 1 IS TESTED WITH U & * AS IN TEST 1.     *                    FOX15730
                                  * THE CRT SCREEN IS THEN CLEARED AND THE 32     *                    FOX15740
                                  * NON-DISPLAYABLE CHARACTERS ARE OUTPUT.        *                    FOX15750
                                  * NOTHING SHOULD APPEAR ON THE SCREEN.  THE     *                    FOX15760
                                  * OPERATOR MAY DEPRESS CARRIAGE RETURN TO       *                    FOX15770
                                  * REPEAT THIS TEST OR LINE-FEED TO TERMINATE.   *                    FOX15780
                                  *                                               *                    FOX15790
                                  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX15800
129C    2430                      TEST02   LIS    FLAG,0              CLEAR INVERT FLAG              FOX15810
                                  *                                                                  FOX15820
129E    DE00 0C47                 TEST2I   OC     DEV0,TREAD          READ MODE                      FOX15830
12A2    9B0B                               RDR    DEV0,CHAR           CLEAR THE STATUS               FOX15840
12A4    DE10 0C46                          OC     DEV1,TWRT           WRITE MODE                     FOX15850
12A8    41F0 1726                          BAL    LINK,CLRSCRN        CLEAR THE SCREEN               FOX15860
12AC    2480                               LIS    TAB,0               INITIALIZE THE LINE COUNTER    FOX15870
12AE    24D0                               LIS    COUNT,0             INITIALIZE THE CHARACTER COUNTER FOX15880
12B0    C8B0 002A                          LHI    CHAR,C'*'           LOAD THE CHARACTER             FOX15890
12B4    0783                               XAR    CHAR,FLAG           INVERT THE INITIAL CHARACTER   FOX15900
12B6    4120 095A                 TEST2G   BAL    RET2,OUTCHR         OUTPUT PATTERN ON FIRST LINE   FOX15910
12BA    C7B0 007F                          XHI    CHAR,X'7F'          INVERT THE NEXT CHARACTER      FOX15920
12BE    2601                               AIS    COUNT,1                                            FOX15930
12C0    C5D0 0050                          CLHI   COUNT,80            DONE 80 CHARACTERS ?           FOX15940
12C4    2087                               BLS    TEST2G              NO, BRANCH TILL DONE           FOX15950
12C6    41F0 0922                          BAL    LINK,OUTPUT         OUTPUT MESSAGE                 FOX15960
12CA    0CA4                               DC     Z(MSG0)             CRLF                           FOX15970
12CC    41F0 0922                          BAL    LINK,OUTPUT         OUTPUT MESSAGE                 FOX15980
12D0    0F20                               DC     Z(MSG22)            "HIT CR TO CONTINUE"           FOX15990
12D2    9D19                      TEST2A   SSR    DEV1,STAT           DEVICE DU ?                    FOX16000
12D4    2317                               BFFS   1,TEST2AA           NO, BRANCH                     FOX16010
12D6    40F0 0C70                          STH    LINK,DURTN                                         FOX16020
12DA    41F0 1BB4                          BAL    LINK,DUPASS         YES, GO TO DU STATUS HANDLER   FOX16030
12DE    48F0 0C70                          LH     LINK,DURTN                                         FOX16040
12E2    C390 0008                 TEST2AA  THI    STAT,8              DEVICE BUSY ?                  FOX16050
12E6    203A                               BNZS   TEST2A              YES, WAIT FOR BUSY TO DROP     FOX16060
12E8    DE00 0C47                          OC     DEV0,TREAD          READ MODE                      FOX16070
12EC    9B0B                               RDR    DEV0,CHAR           CLEAR THE STATUS               FOX16080
12EE    41F0 0A2E                 TEST2H   BAL    LINK,READ           READ A CHARACTER               FOX16090
12F2    C5B0 000A                          CLHI   CHAR,X'0A'                                         FOX16100
12F6    4330 0812                          BE     TSTEXT              EXIT TEST MODULE IF LF         FOX16110
12FA    C5B0 000D                          CLHI   CHAR,X'0D'          IF CR, CONTINUE TESTING        FOX16120
12FE    2038                               BNES   TEST2H              OTHERWISE READ AGAIN           FOX16130
1300    C730 007F                          XHI    FLAG,X'7F'          INVERT PATTERN FLAG            FOX16140
1304    0833                               LDAR   FLAG,FLAG           IF SECOND INVERSION, CONTINUE  FOX16150
1306    4230 129E                          BNZ    TEST2I              OTHERWISE, REPEAT FIRST LINE TEST FOX16160
130A    DE10 0C46                          OC     DEV1,TWRT           WRITE MODE                     FOX16170
130E    41F0 1726                          BAL    LINK,CLRSCRN        CLEAR THE SCREEN               FOX16180
1312    41F0 0922                          BAL    LINK,OUTPUT         OUTPUT MESSAGE                 FOX16190
1316    0E58                               DC     Z(MSG19)            "TEST 02"                      FOX16200
1318    2480                               LIS    TAB,0               INITIALIZE THE LINE COUNT      FOX16210
131A    DE10 0C46                          OC     DEV1,TWRT           WRITE MODE                     FOX16220
```

TEST 2

```
131E  24BA                TEST1A  LIS   CHAR,X'A'        OUTPUT CHARACTER                FOX16230
1320  4120 095A                    BAL   RET2,OUTCHR     LF                              FOX16240
1324  24BD                        LIS   CHAR,X'D'        OUTPUT CHARACTER                FOX16250
1326  4120 095A                    BAL   RET2,OUTCHR     CR                              FOX16260
132A  2681                        AIS   TAB,1            INCREMENT LINE COUNTER          FOX16270
132C  C580 0018                   CLHI  TAB,24           DONE 24 LINES TOTAL ?           FOX16280
1330  2089                        BLS   TEST1A           NO, LOOP                        FOX16290
                          *                                                               FOX16300
                          * SCREEN IS BLANK                                              FOX16310
                          *                                                               FOX16320
1332  2480                        LIS   TAB,0            YES, CONTINUE                   FOX16330
1334  24D0                TEST1D  LIS   COUNT,0                                          FOX16340
1336  08BD                TEST1C  LDAR  CHAR,COUNT       PICK-UP NON-PRINTING CHARACTER  FOX16350
1338  C5B0 0005                   CLHI  CHAR,X'05'       (SKIP "ENQ")                    FOX16360
133C  2333                        BES   TEST1F                                           FOX16370
133E  4120 095A                   BAL   RET2,OUTCHR      OUTPUT THIRTY-TWO               FOX16380
1342  2601                TEST1F  AIS   COUNT,1                                          FOX16390
1344  C5D0 0020                   CLHI  COUNT,32         CHARACTERS PER LINE             FOX16400
1348  2089                        BLS   TEST1C                                           FOX16410
                          *                                                               FOX16420
                          * LAST TWO CHARACTERS OUT WERE CARRIAGE RETURN, LINE-FEED.     FOX16430
                          *                                                               FOX16440
134A  0785                        XAR   TAB,ONE          COMPLEMENT LINE COUNT           FOX16450
                          *                                                               FOX16460
                          * CHANGE NEXT HALFWORD TO X'4300' TO CONTINOUSLY LOOP ON TEST1D. FOX16470
                          *                                                               FOX16480
134C  4230 1334           DEBUG1  BNZ   TEST1D           BRANCH TO DO SECOND LINE        FOX16490
1350  25B1                        LCS   CHAR,1                                           FOX16500
1352  4120 095A                   BAL   RET2,OUTCHR      OUTPUT PAD CHARACTER            FOX16510
1356  9D19                TEST2B  SSR   DEV1,STAT        DEVICE DU ?                     FOX16520
1358  2317                        BFFS  1,TEST2AB        NO, BRANCH                      FOX16530
135A  40F0 0C70                   STH   LINK,DURTN                                       FOX16540
135E  41F0 16B4                   BAL   LINK,DUPASS      YES, GO TO DU STATUS HANDLER    FOX16550
1362  48F0 0C70                   LH    LINK,DURTN                                       FOX16560
1366  C390 0008           TEST2AB THI   STAT,8           DEVICE BUSY ?                   FOX16570
136A  203A                        BNZS  TEST2B           YES, WAIT FOR BUSY TO DROP      FOX16580
136C  DE00 0C47                   OC    DEV0,TREAD       NO, SELECT READ MODE            FOX16590
1370  9B0B                        RDR   DEV0,CHAR        CLEAR THE STATUS (FORCE BUSY SET) FOX16600
1372  41F0 0A2E           TEST1E  BAL   LINK,READ        READ A CHARACTER                FOX16610
1376  C5B0 000D                   CLHI  CHAR,X'0D'       CHARRIAGE RETURN ?              FOX16620
137A  4330 129C                   BE    TEST02           YES, REPEAT                     FOX16630
137E  C5B0 000A                   CLHI  CHAR,X'0A'       LINE FEED ?                     FOX16640
1382  2038                        BNES  TEST1E           NO, READ A NEW CHARACTER        FOX16650
1384  4300 0812                   B     TSTEXT           YES, EXIT THE TEST MODULE       FOX16660
```

```
                                 * * * * * * * * * * * * * * * * * * * * * * * *                    FOX16680
                                 *                                               *                    FOX16690
                                 *          T E S T   M O D U L E   0 3          *                    FOX16700
                                 *                                               *                    FOX16710
                                 * THE MESSAGE  " DEPRESS KEYS 1,2,3 "           *                    FOX16720
                                 * IS OUTPUT UNDER INTERRUPT CONTROL.            *                    FOX16730
                                 *                                               *                    FOX16740
                                 * * * * * * * * * * * * * * * * * * * * * * * *                    FOX16750
1388                                      IFZ     ADC-2                                              FOX16760
1388   C8F0 02DC                 TEST03   LHI     LINK,PSW1          SET UP TO CLEAR PENDING         FOX16770
138C   40F0 0044                          STH     LINK,X'44'         DEVICE INTERRUPTS               FOX16780
1390   C8F0 040C                          LHI     LINK,PSWRTN                                        FOX16790
1394   40F0 0046                          STH     LINK,X'46'                                         FOX16800
                                          ENDC                                                       FOX16870
1398   48F0 02DC                          LH      LINK,PSW1          ENABLE PENDING INTERRUPTS       FOX16880
139C   959F                               EPSR    STAT,LINK          (IF ANY)                        FOX16890
139E                                      IFZ     ADC-2                                              FOX16900
139E   24F0                               LIS     LINK,0             RESTORE INTERRUPT POINTER TO    FOX16910
13A0   40F0 0044                          STH     LINK,X'44'         PROGRAM INTERRUPT HANDLER ADDRESS FOX16920
13A4   C8F0 034A                          LHI     LINK,XI16                                          FOX16930
13A8   40F0 0046                          STH     LINK,X'46'                                         FOX16940
                                          ENDC                                                       FOX17030
13AC   41F0 0922                          BAL     LINK,OUTPUT        OUTPUT MESSAGE                  FOX17040
13B0   0E64                               DC      Z(MSG20)           "TEST 03"                       FOX17050
13B2   4040 0C3A                          STH     ZERO,INPFLG        CLEAR INPUT FLAG                FOX17060
13B6   4040 0C3C                          STH     ZERO,OUTFLG        CLEAR OUTPUT FLAG               FOX17070
13BA   4040 0C40                          STH     ZERO,BRKFLG                                        FOX17080
13BE   C870 1466                          LHI     DAT,INTRPT                                         FOX17090
13C2   4070 04C8                          STH     DAT,DEVINT         SET UP FOR COMMON INT. HANDLER  FOX17100
13C6   4070 04CA                          STH     DAT,DEVINT+2                                       FOX17110
13CA   C8C0 0CE2                          LHI     POINT,MSG2                                         FOX17120
13CE   41F0 1432                          BAL     LINK,STRTOT        START OUTPUT                    FOX17130
                                 *                                                                   FOX17140
                                 * RETURN WHEN OUTPUT FINISHED.  NOW GET READY FOR INPUT.            FOX17150
                                 *                                                                   FOX17160
13D2   DE00 0C4B                          OC      DEV0,EBLRED        ENABLE                          FOX17170
13D6   4040 0C3C                          STH     ZERO,OUTFLG        CLEAR OUTPUT FLAG               FOX17180
13DA   4040 0C3E                          STH     ZERO,WAIT                                          FOX17190
13DE   DE10 0C46                          OC      DEV1,TWRT                                          FOX17200
13E2   24C0                               LIS     POINT,0            CLEAR BUFFER INDEX              FOX17210
13E4   4040 0C38                          STH     ZERO,FIRSTF                                        FOX17220
13E8   4050 0C3A                          STH     ONE,INPFLG                                         FOX17230
13EC   DE00 0C4C                          OC      DEV0,RQ2S                                          FOX17240
13F0   C860 0C0F                          LHI     WORK,X'C0F'                                        FOX17250
13F4   9164                               SLHLS   WORK,4             WORK = X'C0F0'                  FOX17260
13F6   95A6                               EPSR    WORK2,WORK         ENABLE INTERRUPTS & HALT        FOX17270
13F8   4300 0564                          B       OPTIN                                              FOX17280
                                 *                                                                   FOX17290
                                 * RETURN WHEN INPUT FINISHED. NOW MESSAGE "DEPRESS BREAK" IS OUTPUT. FOX17300
                                 *                                                                   FOX17310
13FC   C8C0 0DCC                 TST03A   LHI     POINT,MSG11        POINT TO MESSAGE                FOX17320
1400   41F0 1432                          BAL     LINK,STRTOT        START OUTPUT                    FOX17330
                                 *                                                                   FOX17340
                                 * RETURN WHEN MESSAGE OUTPUT IS FINISHED                            FOX17350
```

TEST 3

```
                                 *                                                                  FOX17360
1404   DE00 0C4B                 OC      DEV0,EBLRED        ENABLE  (READ MODE)                   FOX17370
1408   4040 0C3C                 STH     ZERO,OUTFLG        CLEAR OUTPUT FLAG                    FOX17380
140C   4040 0C3E                 STH     ZERO,WAIT                                               FOX17390
1410   DE10 0C46                 OC      DEV1,TWRT          DISABLE  (WRITE MODE)                FOX17400
1414   24C0                      LIS     POINT,0            CLEAR BUFFER INDEX                   FOX17410
1416   4040 0C38                 STH     ZERO,FIRSTF                                             FOX17420
141A   4050 0C3A                 STH     ONE,INPFLG         SET INPUT MODE                       FOX17430
141E   4050 0C40                 STH     ONE,BRKFLG         SET BREAK TEST                       FOX17440
1422   DE00 0C4C                 OC      DEV0,RQ2S                                               FOX17450
1426   C860 0C0F                 LHI     WORK,X'C0F'                                             FOX17460
142A   9164                      SLHLS   WORK,4             WORK = X'C0F0'                       FOX17470
142C   95A6                      EPSR    WORK2,WORK         ENABLE INTERRUPTS & HALT             FOX17480
142E   4300 054C                 B       CMDIN                                                   FOX17490
                                 *                                                                  FOX17500
                                 * SUBROUTINE STARTS OUTPUTTING DATA TO MODEL-1100 IN INTERRUPT MODE FOX17510
                                 *                                                                  FOX17520
1432   4050 0C3C                 STRTOT  STH     ONE,OUTFLG         SET OUTPUT FLAG                  FOX17530
1436   4040 0C3E                 STH     ZERO,WAIT          CLEAR WAIT                           FOX17540
143A   4040 0C38                 STH     ZERO,FIRSTF                                             FOX17550
143E   DE00 0C47                 OC      DEV0,TREAD         DISABLE INTERRUPTS, READ MODE        FOX17560
1442   DE10 0C4A                 OC      DEV1,EBLWRT        ENABLE INTERRUPTS, WRITE MODE        FOX17570
1446   4860 02DC                 NXTINT  LH      WORK,PSW1                                       FOX17580
144A   95A6                      EPSR    WORK2,WORK         ENABLE INTERRUPTS & WAIT             FOX17590
                                 * * * * * * * * * * * * * * * * * * * * * * * *                    FOX17600
                                 *                                                 *                FOX17610
                                 * SUBROUTINE WAITS ON INTERRUPT.  IF NO           *               FOX17620
                                 * INTERRUPT BEFORE TIMEOUT, ERROR 06 OCCURS.      *               FOX17630
                                 *                                                 *                FOX17640
                                 * * * * * * * * * * * * * * * * * * * * * * * *                    FOX17650
144C   4050 0C42                 DELAY   STH     ONE,TIME           SET COUNTER                  FOX17660
                                 *                                                                  FOX17670
1450   6150 0C42                 DELAYL  AHM     ONE,TIME           INCREMENT                    FOX17680
1454   2032                      BNZS    DELAYL             TEST                                 FOX17690
1456   C860 00F0                 LHI     WORK,X'F0'                                              FOX17700
145A   95A6                      EPSR    WORK2,WORK         NO INTERRUPTS, REG SET 15            FOX17710
145C   41F0 08E4                 NOINT   BAL     LINK,ERROR         OUTPUT MESSAGE               FOX17720
1460   1008                      DC      Z(ERROR6)          "ERROR 06"                           FOX17730
1462   4300 054C                 B       CMDIN                                                   FOX17740
                                 *                                                                  FOX17750
                                 * I/O INTERRUPT RECEIVED                                          FOX17760
                                 *                                                                  FOX17770
1466   4870 04CE                 INTRPT  LH      DAT,INTDEV         GET INTERRUPTING DEV ADR & STATUS FOX17780
146A   D390 04D2                 LB      STAT,INTSTA                                             FOX17790
146E   C390 0008                 THI     STAT,8                                                  FOX17800
1472   233D                      BZS     NTRUPT             NOT BUSY                             FOX17810
1474   48B0 0C38                 LH      CHAR,FIRSTF        IGNORE                               FOX17820
1478   213A                      BNZS    NTRUPT             IF STATUS JUST BUSY                  FOX17830
147A   C390 00F7                 THI     STAT,X'F7'                                              FOX17840
147E   2137                      BNZS    NTRUPT             BAD STATUS                           FOX17850
1480   4870 0C3C                 LH      DAT,OUTFLG                                              FOX17860
1484   4230 1446                 BNZ     NXTINT                                                  FOX17870
1488   4300 15D6                 B       GOBACK                                                  FOX17880
                                 *                                                                  FOX17890
```

TEST 3

```
148C   4050 0C38   NTRUPT  STH   ONE,FIRSTF                          FOX17900
1490   48B0 0C3C          LH    CHAR,OUTFLG     SEE IF OUTPUT       FOX17910
1494   2335               BZS   TINP            NO                  FOX17920
1496   4570 04C2          CLH   DAT,DEVSADR+2   TRANSMIT DEVICE ?   FOX17930
149A   4330 14D0          BE    TRYOUT                              FOX17940
149E   48B0 0C3A   TINP   LH    CHAR,INPFLG     TEST INPUT FLAG     FOX17950
14A2   2335               BZS   BADINT          NO                  FOX17960
14A4   4570 04C0          CLH   DAT,DEVSADR     RECEIVER ?          FOX17970
14A8   4330 1500          BE    TRYIN                               FOX17980
                   *                                                FOX17990
                   * UNSOLICITED INTERRUPT                          FOX18000
                   *                                                FOX18010
14AC   4070 04D0   BADINT STH   DAT,ERRDEV        ESTABLISH INTERRUPT ERROR  FOX18020
14B0   D290 04D3          STB   STAT,ERRSTA       MESSAGE DATA        FOX18030
14B4   C860 4634          LHI   WORK,C'F4'                            FOX18040
14B8   4060 04DC          STH   WORK,ERRNO                            FOX18050
14BC   2451               LIS   ONE,1                                 FOX18060
14BE   6150 1008          AHM   ONE,ERROR6                            FOX18070
14C2   41F0 0426          BAL   LINK,ERRALL       PRINT "ERROR F4"    FOX18080
                   *                                    "DEV DDD STA SS"  FOX18090
                   *                                    "PSW PPPP LOC LLLL"  FOX18100
14C6   2440               LIS   ZERO,0                                FOX18110
14C8   4040 0540          STH   ZERO,RUN          RESET RUN FLAG      FOX18120
14CC   4300 0564          B     OPTIN                                 FOX18130
                   *                                                FOX18140
14D0   0899       TRYOUT  LDAR  STAT,STAT         TEST STATUS         FOX18150
14D2   2335               BZS   OKOUT                                 FOX18160
                   *                                                FOX18170
                   * BAD STATUS                                     FOX18180
                   *                                                FOX18190
14D4   4120 0BFC          BAL   RET2,STATER       "STATUS ERROR !"    FOX18200
14D8   4300 1446          B     NXTINT                                FOX18210
                   *                                                FOX18220
14DC   4870 0C3E   OKOUT  LH    DAT,WAIT          RETURN IF LAS CHAR. FOX18230
14E0   023F               BNZR  LINK              HAS BEEN OUTPUT     FOX18240
14E2   D37C 0000          LB    DAT,0(POINT)      GET BYTE TO OUTPUT  FOX18250
14E6   26C1               AIS   POINT,1           BUMP POINTER        FOX18260
14E8   08B7               LDAR  CHAR,DAT                              FOX18270
14EA   086F               LDAR  WORK,LINK         SAVE RETURN ADDRESS FOX18280
14EC   41F0 09FA          BAL   LINK,PARGEN       GENERATE CORRECT PARITY  FOX18290
14F0   08F6               LDAR  LINK,WORK         RESTORE RETURN ADDRESS  FOX18300
14F2   9A1B               WDR   DEV1,CHAR         OUTPUT BYTE         FOX18310
14F4   C470 0080          NHI   DAT,X'80'         COPY BIT 0          FOX18320
14F8   4070 0C3E          STH   DAT,WAIT          TO WAIT FLAG        FOX18330
14FC   4300 1446          B     NXTINT            WAIT FOR NEXT INTERRUPT  FOX18340
                   *                                                FOX18350
1500   0899       TRYIN   LDAR  STAT,STAT         TEST STATUS         FOX18360
1502   4330 1576          BZ    OKINP             OK                  FOX18370
1506   4870 0C40          LH    DAT,BRKFLG        TEST LINEBREAK      FOX18380
150A   2135               BNZS  TSTBRK                                FOX18390
150C   4120 0BFC          BAL   RET2,STATER                           FOX18400
1510   4300 15D6          B     GOBACK                                FOX18410
                   *                                                FOX18420
1514   9B07       TSTBRK  RDR   DEV0,DAT          INPUT DATA          FOX18430
```

```
1516  0877                 1844          LDAR   DAT,DAT        DATA = 0 ?                          FOX18440
1518  2336                 1845          BZS    BRKOK          YES, BRANCH - OK                    FOX18450
                           1846  *                                                                  FOX18460
                           1847  * BAD CHARACTER                                                   FOX18470
                           1848  *                                                                  FOX18480
151A  41F0 08E4            1849          BAL    LINK,ERROR     NO, OUTPUT MESSAGE                  FOX18490
151E  1002                 1850          DC     Z(ERROR3)      "ERROR 3"                           FOX18500
1520  4300 054C            1851          B      CMDIN          RETURN TO EXEC                      FOX18510
                           1852  *                                                                  FOX18520
1524  9D09                 1853  BRKOK   SSR    DEV0,STAT      DEVICE DU ?                         FOX18530
1526  2317                 1854          BFFS   1,TEST3AA      NO, BRANCH                          FOX18540
1528  40F0 0C70            1855          STH    LINK,DURTN                                         FOX18550
152C  41F0 1BB4            1856          BAL    LINK,DUPASS    YES, GO TO DU STATUS HANDLER        FOX18560
1530  46F0 0C70            1857          LH     LINK,DURTN                                         FOX18570
1534  C390 0008            1858  TEST3AA THI    STAT,8                                             FOX18580
1538  223A                 1859          BZS    BRKOK          WAIT FOR BUSY TO APPEAR             FOX18590
153A  C860 7FFF            1860          LHI    WORK,X'7FFF'   LINE SETTLE DELAY            ***    FOX18600
153E  2761                 1861  BRKOK1  SIS    WORK,1                                             FOX18610
1540  2031                 1862          BNZS   BRKOK1                                             FOX18620
1542  41F0 0922            1863          BAL    LINK,OUTPUT    OUTPUT MESSAGE                      FOX18630
1546  0E26                 1864          DC     Z(MSG16)       "BREAK OK"                          FOX18640
                           1865  *                                                                  FOX18650
1546  48F0 02DE            1866  T3END   LH     LINK,PSW2                                          FOX18660
154C  959F                 1867          EPSR   STAT,LINK      PSW = X'30F0'                       FOX18670
154E  DE00 0C47            1868          OC     DEV0,TREAD     OC READ MODE                        FOX18680
1552  9B0B                 1869          RDR    DEV0,CHAR      DUMMY READ TO CLEAR STATUS          FOX18690
1554  DE10 0C46            1870          OC     DEV1,TWRT      OC WRITE MODE                       FOX18700
1558  41F0 0922            1871          BAL    LINK,OUTPUT    OUTPUT MESSAGE                      FOX18710
155C  0F20                 1872          DC     Z(MSG22)       "HIT CR TO CONTINUE"                FOX18720
155E  DE00 0C47            1873          OC     DEV0,TREAD     OC READ MODE                        FOX18730
1562  9B0B                 1874          RDR    DEV0,CHAR      DUMMY READ TO CLEAR STATUS          FOX18740
1564  41F0 0A2E            1875  T3END1  BAL    LINK,READ      READ A CHARACTER                    FOX18750
1568  C5B0 000D            1876          CLHI   CHAR,X'0D'                                         FOX18760
156C  2034                 1877          BNES   T3END1         WAIT FOR CR                         FOX18770
156E  DE10 0C46            1878          OC     DEV1,TWRT      WRITE MODE                          FOX18780
1572  4300 0812            1879          B      TSTEXT         END OF TEST MODULE                  FOX18790
                           1880  *                                                                  FOX18800
1576  9B07                 1881  OKINP   RDR    DEV0,DAT       INPUT CHARACTER                     FOX18810
1578  48F0 02DA            1882          LH     LINK,PASFLG    WHICH DEVICE INTERFACE ?            FOX18820
157C  2116                 1883          BMS    OKINP2         MICROBUS ADAPTER ? - YES, BRANCH    FOX18830
157E  4230 15C2            1884          BNZ    OKINP3         PASLA HDX ? - YES, BRANCH           FOX18840
1582  0501                 1885          CLAR   DEV0,DEV1                                          FOX18850
1584  4330 15C2            1886          BE     OKINP3         CLI ? - YES, BRANCH                 FOX18860
1588  DE10 0C46            1887  OKINP2  OC     DEV1,TWRT      SEI INTERFACE UP TO WRITE           FOX18870
                           1888  *                                                                  FOX18880
158C  9D19                 1889  TEST3AC SSR    DEV1,STAT      DEVICE DU ?                         FOX18890
158E  2317                 1890          BFFS   1,TEST3AB      NO, BRANCH                          FOX18900
1590  40F0 0C70            1891          STH    LINK,DURTN                                         FOX18910
1594  41F0 1BB4            1892          BAL    LINK,DUPASS    YES, GO TO DU STATUS HANDLER        FOX18920
1598  48F0 0C70            1893          LH     LINK,DURTN                                         FOX18930
159C  C390 0008            1894  TEST3AB THI    STAT,8                                             FOX18940
15A0  203A                 1895          BNZS   TEST3AC        WAIT FOR BUSY TO DROP               FOX18950
15A2  9A17                 1896          WOR    DEV1,DAT       WRITE CHARACTER AS RECEIVED         FOX18960
15A4  9D19                 1897  TEST3AD SSR    DEV1,STAT      DEVICE DU ?                         FOX18970
```

TEST 3

```
15A6   2317                 BFFS   1,TEST3AE            NO, BRANCH                          FOX18980
15A8   40F0 0C70            STH    LINK,DURTN                                               FOX18990
15AC   41F0 1BB4            BAL    LINK,DUPASS          YES, GO TO DU STATUS HANDLER        FOX19000
15B0   48F0 0C70            LH     LINK,DURTN                                               FOX19010
15B4   C390 0008  TEST3AE   THI    STAT,8                                                   FOX19020
15B8   203A                 BNZS   TEST3AD              WAIT FOR BUSY TO DROP               FOX19030
15BA   DE00 0C47            OC     DEV0,TREAD           OC DISABLE INTERRUPTS, READ MODE    FOX19040
15BE   DE00 0C4B            OC     DEV0,EBLRED          OC INTERFACE TO ENABLE & READ       FOX19050
15C2   C470 007F  OKINP3    NHI    DAT,X'7F'            MASK THE CHARACTER TO 7 BITS        FOX19060
15C6   26C1                 AIS    POINT,1                                                  FOX19070
15C8   D47C 0CEE            CLB    DAT,MSG2+12(POINT)   CORRECT CHARACTER (U.C.) ?          FOX19080
15CC   2137                 BNES   RECHK                NO, CONTINUE CHECKING               FOX19090
15CE   C5C0 0005  OKINP1    CLHI   POINT,5              5 CHARACTERS                        FOX19100
15D2   4330 13FC            BE     TST03A               YES, RETURN                         FOX19110
                            *                                                                FOX19120
15D6                        IFZ    ADC-2                                                    FOX19130
15D6   C200 0040  GOBACK    LPSW   X'40'                RETURN (16-BIT)                     FOX19140
                            ENDC                                                             FOX19180
                            *                                                                FOX19190
15DA   CB70 0020  RECHK     SHI    DAT,X'20'            CONVERT TO LOWER CASE               FOX19200
15DE   D47C 0CEE            CLB    DAT,MSG2+12(POINT)   CORRECT CHARACTER (U.C.) ?          FOX19210
15E2   223A                 BES    OKINP1               YES, OK                             FOX19220
15E4   41F0 08E4  BADCHAR   BAL    LINK,ERROR           NO, OUTPUT MESSAGE                  FOX19230
15E8   0FFC                 DC     Z(ERROR0)            "ERROR 00"                          FOX19240
15EA   4300 1388            B      TEST03               RESTART TEST MODULE                 FOX19250
```

```
                                  * * * * * * * * * * * * * * * * * * * * * * *                    FOX19270
                                  *                                           *                    FOX19280
                                  *          T E S T   M O D U L E   0 4      *                    FOX19290
                                  *                                           *                    FOX19300
                                  * THE CRT SCREEN IS CLEARED AND A MESSAGE IS *                  FOX19310
                                  * OUTPUT TO FILL THE SCREEN USING CURSOR    *                  FOX19320
                                  * POSITIONING & READING OF THE CURSOR POSITION *              FOX19330
                                  * TO VERIFY PROPER OPERATION.               *                  FOX19340
                                  *                                           *                    FOX19350
                                  * * * * * * * * * * * * * * * * * * * * * * *                    FOX19360
15EE   DE00 0C47                  TEST04   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED   FOX19370
15F2   9B0B                                RDR    DEV0,CHAR         FORCE BUSY SET                   FOX19380
15F4   DE10 0C46                           OC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED  FOX19390
15F8   41F0 1726                           BAL    LINK,CLRSCRN      CLEAR THE SCREEN                 FOX19400
15FC   C8D0 0037                           LHI    COUNT,X'37'                                        FOX19410
1600   41F0 17DA                           BAL    LINK,LPOS         POSITION CURSOR TO LAST LINE     FOX19420
1604   2460                                LIS    R6,0                                               FOX19430
1606   41F0 1602                           BAL    LINK,T4CPOS       POSITION CURSOR TO FIRST COLUMN  FOX19440
160A   C8F0 7FFF                           LHI    LINK,X'7FFF'                                       FOX19450
160E   27F1                       TST4A0   SIS    LINK,1            WAIT                             FOX19460
1610   2031                                BNZS   TST4A0                                             FOX19470
1612   41F0 0922                           BAL    LINK,OUTPUT       OUTPUT MESSAGE                   FOX19480
1616   0CF6                                DC     Z(MSG3)           "TEST 04"                        FOX19490
1618   C8D0 001F                           LHI    COUNT,X'1F'       INITIALIZE LINE COUNTER          FOX19500
                                  *                                                                  FOX19510
161C   26D1                       TST4A    AIS    COUNT,1           INCREMENT LINE COUNTER           FOX19520
161E   41F0 17DA                           BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE   FOX19530
1622   2460                                LIS    R6,0              START AT COLUMN 1 (L TO R)       FOX19540
1624   2471                                LIS    R7,1              FOR                              FOX19550
1626   C680 004F                           LHI    R8,79             80 POSITIONS                     FOX19560
162A   41F0 174A                  TST4B    BAL    LINK,CHARPOS      POSITION CURSOR & WRITE CHARACTER FOX19570
162E   C160 162A                           BXLE   R6,TST4B          DO ENTIRE LINE (L TO R)          FOX19580
                                  *                                                                  FOX19590
1632   26D1                       TST4C    AIS    COUNT,1           INCREMENT LINE COUNTER           FOX19600
1634   41F0 17DA                           BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE   FOX19610
1638   2430                                LIS    R3,0              START AT COLUMN 80 (R TO L)      FOX19620
163A   2441                                LIS    R4,1                                               FOX19630
163C   C850 004F                           LHI    R5,79                                              FOX19640
1640   C860 004F                  TST4D    LHI    R6,79                                              FOX19650
1644   0B63                                SAR    R6,R3                                              FOX19660
1646   41F0 174A                           BAL    LINK,CHARPOS      POSITION CURSOR & WRITE CHARACTER FOX19670
164A   C130 1640                           BXLE   R3,TST4D          DO ENTIRE LINE (R TO L)          FOX19680
                                  *                                                                  FOX19690
164E   26D1                       TST4E    AIS    COUNT,1           INCREMENT LINE COUNT             FOX19700
1650   41F0 17DA                           BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE   FOX19710
1654   2430                                LIS    R3,0              START AT POSITIONS 1 & 80        FOX19720
1656   2441                                LIS    R4,1              WORK TOWARD CENTER               FOX19730
1658   C850 0027                           LHI    R5,39                                              FOX19740
165C   C870 004F                           LHI    R7,79                                              FOX19750
1660   2581                                LCS    R8,1                                               FOX19760
1662   41F0 16E6                           BAL    LINK,TSTSUB4A     (DOUBLE) CURSOR POSITION &       FOX19770
                                  *                                  WRITE CHARACTERS                 FOX19780
                                  *                                                                  FOX19790
1666   26D1                       TST4F    AIS    COUNT,1           INCREMENT LINE COUNTER           FOX19800
```

TEST 4

```
1668  41F0 17DA   BAL   LINK,LPOS        POSITION CURSOR TO PROPER LINE   FOX19810
166C  C830 0028   LHI   R3,40            START FMOM CENTER                FOX19820
1670  2441        LIS   R4,1             AND WORK OUTWARD                 FOX19830
1672  C850 004F   LHI   R5,79                                             FOX19840
1676  C870 0027   LHI   R7,39                                             FOX19850
167A  2581        LCS   R8,1                                              FOX19860
167C  41F0 16E6   BAL   LINK,TSTSUB4A     (DOUBLE) CURSOR POSITION &       FOX19870
                  *                       WRITE CHARACTERS                 FOX19880
                  *                                                        FOX19890
1680  26D1        TST4G AIS   COUNT,1     INCREMENT LINE COUNT             FOX19900
1682  41F0 17DA   BAL   LINK,LPOS        POSITION CURSOR TO PROPER LINE   FOX19910
1686  2430        LIS   R3,0             START FROM 1 & 40 POSITION       FOX19920
1688  2441        LIS   R4,1             & WRITE (L TO R)                 FOX19930
168A  C850 0027   LHI   R5,39                                             FOX19940
168E  C870 0028   LHI   R7,40                                             FOX19950
1692  2481        LIS   R8,1                                              FOX19960
1694  41F0 16E6   BAL   LINK,TSTSUB4A     DUAL CURSOR POSITION &           FOX19970
                  *                       WRITE CHARACTERS                 FOX19980
                  *                                                        FOX19990
1698  26D1        TST4H AIS   COUNT,1     INCREMENT LINE COUNT             FOX20000
169A  41F0 17DA   BAL   LINK,LPOS        POSITION CURSOR TO PROPER LINE   FOX20010
169E  C830 0028   LHI   R3,40            START FROM COLUMNS 80 & 40       FOX20020
16A2  2441        LIS   R4,1             POSITION & WRITE (R TO L)        FOX20030
16A4  C850 004F   LHI   R5,79                                             FOX20040
16A8  2470        LIS   R7,0                                              FOX20050
16AA  2481        LIS   R8,1                                              FOX20060
16AC  41F0 1702   BAL   LINK,TSTSUB4C     DUAL CURSOR POSITION &           FOX20070
                  *                       WRITE CHARACTERS                 FOX20080
                  *                                                        FOX20090
16B0  C5D0 0025   CLHI  COUNT,X'25'       RETURN TO PROPER SECTION         FOX20100
16B4  2134        BNES  TST4I             OF TEST & FILL                   FOX20110
16B6  26DB        AIS   COUNT,11          ENTIRE SCREEN                    FOX20120
16B8  4300 161C   B     TST4A                                              FOX20130
16BC  C5D0 0036   TST4I CLHI  COUNT,X'36'                                  FOX20140
16C0  2135        BNES  TST4J                                              FOX20150
16C2  C8D0 0011   SHI   COUNT,17                                           FOX20160
16C6  4300 161C   B     TST4A                                              FOX20170
16CA  C5D0 002B   TST4J CLHI  COUNT,X'2B'                                  FOX20180
16CE  4330 1632   BE    TST4C                                              FOX20190
16D2  C5D0 0030   TST4K CLHI  COUNT,X'30'       FINISHED ?                 FOX20200
16D6  2134        BNES  TST4Z             YES, BRANCH TO EXIT              FOX20210
16D8  26D6        AIS   COUNT,6           NO, CONTINUE                     FOX20220
16DA  4300 1698   B     TST4H                                              FOX20230
                  *                                                        FOX20240
16DE  2440        TST4Z LIS   ZERO,0                                       FOX20250
16E0  2451        LIS   ONE,1                                              FOX20260
16E2  4300 0812   B     TSTEXT          END OF TEST MODULE                 FOX20270
```

TEST 4

```
                                 *-----------------------------------                    FOX20290
                                 *  OUTPUT CHARACTERS - ASCENDING ORDER                   FOX20300
16E6   40F0 0C54                 TSTSUB4A STH    LINK,TEMP1          SAVE RETURN ADDRESS   FOX20310
                                 *                                                         FOX20320
16EA   0863                      TSTSUB4B LDAR   R6,R3                                     FOX20330
16EC   41F0 174A                          BAL    LINK,CHARPOS        WRITE (IN DIRECTION 1) FOX20340
16F0   0867                               LDAR   R6,R7                                     FOX20350
16F2   41F0 174A                          BAL    LINK,CHARPOS        WRITE (IN DIRECTION 2) FOX20360
16F6   0A78                               AAR    R7,R8                                     FOX20370
16F8   C130 16EA                          BXLE   R3,TSTSUB4B         DO ENTIRE LINE AS FORMATTED FOX20380
16FC   48F0 0C54                          LH     LINK,TEMP1          RESTORE RETURN ADDRESS FOX20390
1700   030F                               BR     LINK                RETURN                FOX20400
                                 *-----------------------------------                    FOX20410
                                 *   OUTPUT CHARACTERS - DECENDING ORDER                   FOX20420
1702   40F0 0C54                 TSTSUB4C STH    LINK,TEMP1          SAVE RETURN ADDRESS   FOX20430
                                 *                                                         FOX20440
1706   C860 004F                 TSTSUB4D LHI    R6,79                                     FOX20450
170A   0863                               SAR    R6,R3               CHAR POS = 80 - (R3)  FOX20460
170C   41F0 174A                          BAL    LINK,CHARPOS        WRITE (R TO L)        FOX20470
1710   C860 004F                          LHI    R6,79                                     FOX20480
1714   0867                               SAR    R6,R7                                     FOX20490
1716   41F0 174A                          BAL    LINK,CHARPOS                              FOX20500
171A   0A78                               AAR    R7,R8                                     FOX20510
171C   C130 1706                          BXLE   R3,TSTSUB4D         DO THE COMPLETE LINE  FOX20520
1720   48F0 0C54                          LH     LINK,TEMP1          RESTORE RETURN ADDRESS FOX20530
1724   030F                               BR     LINK                RETURN                FOX20540
                                 *-----------------------------------                    FOX20550
                                 *   CLEAR THE TERMINAL SCREEN                             FOX20560
1726   40F0 0C5A                 CLRSCRN  STH    LINK,TEMP4          SAVE CALLING REGISTERS FOX20570
172A   C880 0048                          LHI    CHAR,C'H'                                 FOX20580
172E   41E0 18EA                          BAL    RET,MULOUT1         HOME CURSOR           FOX20590
1732   C880 004A                          LHI    CHAR,C'J'                                 FOX20600
1736   41E0 18EA                          BAL    RET,MULOUT1         CLEAR SCREEN          FOX20610
173A   2581                               LCS    CHAR,1                                    FOX20620
173C   4120 095A                          BAL    RET2,OUTCHR         OUTPUT PAD CHARACTER (DEL) FOX20630
1740   41F0 0BE4                          BAL    LINK,TMER           WAIT FOR OPERATION TO FINISH FOX20640
1744   48F0 0C5A                          LH     LINK,TEMP4          RESTORE REGISTERS     FOX20650
1748   030F                               BR     LINK                RETURN                FOX20660
                                 *-----------------------------------                    FOX20670
                                 *   POSITION CURSOR, CHECK POSITION, & WRITE A CHARACTER  FOX20680
174A   40F0 0C58                 CHARPOS  STH    LINK,TEMP3          SAVE RETURN ADDRESS   FOX20690
174E   41F0 1802                          BAL    LINK,T4CPOS                               FOX20700
1752   41F0 182A                          BAL    LINK,CURSREAD       READ CURSOR ADDRESS   FOX20710
1756   4500 0C64                          CLH    COUNT,CURSLINE      IS LINE NUMBER CORRECT ? FOX20720
175A   213E                               BNES   BADLPOS             NO, BRANCH TO ERROR   FOX20730
175C   C8B6 0020                          LHI    CHAR,X'20'(R6)      YES, GET CHARACTER POSITION FOX20740
1760   4580 0C66                          CLH    CHAR,CURSCOLM       IS CHARACTER POSITION CORRECT ? FOX20750
1764   4230 17A6                          BNE    BADCPO4             NO, BRANCH TO ERROR   FOX20760
1768   D3B6 0FAC                          LB     CHAR,MSG40(R6)      GET APPROPRIATE CHARACTER FOX20770
176C   4120 095A                          BAL    RET2,OUTCHR         & OUTPUT IT           FOX20780
1770   48F0 0C58                          LH     LINK,TEMP3          RESTORE RETURN ADDRESS FOX20790
1774   030F                               BR     LINK                RETURN                FOX20800
                                 *-----------------------------------                    FOX20810
                                 *   BAD LINE NUMBER - PRINT ERROR & EXIT TEST MODULE      FOX20820
```

TEST 4

```
1776  D000 1CE0   BADLPOS  STM    R0,ERRSAVE        SAVE CALLING REGISTERS          FOX20830
177A  2402                LIS    R0,2                                              FOX20840
177C  4810 0C64           LH     R1,CURSLINE                                       FOX20850
1780  C820 0D5A           LHI    R2,ERR07M1                                        FOX20860
1784  41F0 048A           BAL    LINK,HEXASC       PUT CURRENT LINE NUMBER         FOX20870
                          *                        IN ERROR DESCRIPTOR             FOX20880
1788  081D                LDAR   R1,COUNT                                          FOX20890
178A  C820 0D6C           LHI    R2,ERR07M2                                        FOX20900
178E  41F0 048A           BAL    LINK,HEXASC       PUT EXPECTED LINE NUMBER        FOX20910
                          *                        IN ERROR DESCRIPTOR             FOX20920
1792  41F0 08E4           BAL    LINK,ERROR        PRINT THE ERROR NUMBER          FOX20930
1796  100A                DC     Z(ERROR7)                                         FOX20940
1798  41F0 0922           BAL    LINK,OUTPUT       PRINT THE ERROR DESCRIPTOR      FOX20950
179C  0D46                DC     Z(MSG4)                                           FOX20960
179E  D100 1CE0           LM     R0,ERRSAVE        RESTORE REGISTERS               FOX20970
17A2  4300 16DE           B      TST4Z             EXIT TEST MODULE                FOX20980
                          *-----------------------------------                     FOX20990
                          *   BAD COLUMN NUMBER - PRINT ERROR & EXIT TEST MODULE   FOX21000
                          *                                                        FOX21010
17A6  CA60 0020   BADCP04 AHI    R6,X'20'                                          FOX21020
                          *                                                        FOX21030
17AA  D000 1CE0   BADCPOS STM    R0,ERRSAVE        SAVE CALLING REGISTERS          FOX21040
17AE  2402                LIS    R0,2                                              FOX21050
17B0  4810 0C66           LH     R1,CURSCOLM                                       FOX21060
17B4  C820 0D8A           LHI    R2,ERR08M1                                        FOX21070
17B8  41F0 048A           BAL    LINK,HEXASC       PUT CURRENT CURSOR COLUMN       FOX21080
                          *                        IN ERROR DESCRIPTOR             FOX21090
17BC  0816                LDAR   R1,R6                                             FOX21100
17BE  C820 0D9C           LHI    R2,ERR08M2                                        FOX21110
17C2  41F0 048A           BAL    LINK,HEXASC       PUT EXPECTED CURSOR COLUMN      FOX21120
                          *                        IN ERROR DESCRIPTOR             FOX21130
17C6  41F0 08E4           BAL    LINK,ERROR        PRINT THE ERROR NUMBER          FOX21140
17CA  100C                DC     Z(ERROR8)                                         FOX21150
17CC  41F0 0922           BAL    LINK,OUTPUT       PRINT THE ERROR DESCRIPTOR      FOX21160
17D0  0D72                DC     Z(MSG5)                                           FOX21170
17D2  D100 1CE0           LM     R0,ERRSAVE        RESTORE REGISTERS               FOX21180
17D6  4300 16DE           B      TST4Z             EXIT TEST MODULE                FOX21190
                          *-----------------------------------                     FOX21200
                          *   POSITION CURSOR TO LINE NUMBER IN REGISTER "COUNT".  FOX21210
17DA  40F0 0C5A   LPOS    STH    LINK,TEMP4        SAVE RETURN ADDRESS             FOX21220
17DE  C8B0 0058           LHI    CHAR,C'X'                                         FOX21230
17E2  41E0 18EA           BAL    RET,MULOUT1                                       FOX21240
17E6  08BD                LDAR   CHAR,COUNT                                        FOX21250
17E8  4120 095A           BAL    RET2,OUTCHR       OUTPUT LINE NUMBER              FOX21260
17EC  4890 02DA           LH     STAT,PASFLG       PASLA ?                         FOX21270
17F0  2136                BNZS   LPOS2             IF HDX DEVICE, BRANCH           FOX21280
17F2  0501                CLAR   DEV0,DEV1         CLI ?                           FOX21290
17F4  2334                BES    LPOS2             YES, BRANCH                     FOX21300
17F6  25B1                LCS    CHAR,1                                            FOX21310
17F8  4120 095A           BAL    RET2,OUTCHR       OUTPUT PAD CHARACTER (DEL)      FOX21320
17FC  48F0 0C5A   LPOS2   LH     LINK,TEMP4        RESTORE RETURN ADDRESS          FOX21330
1800  030F                BR     LINK              RETURN                          FOX21340
                          *-----------------------------------                     FOX21350
                          * T4CPOS - POSITION CURSOR TO COLUMN NUMBER  X'20'(R6).  FOX21360
```

TEST 4

```
                                 *                                                                  FOX21370
                                 * CPOS  -  POSITION CURSOR TO COLUMN NUMBER IN R6.                  FOX21380
                                 *                                                                  FOX21390
1802   C8B6 0020                 T4CPOS   LHI    CHAR,X'20'(R6)     ESTABLISH CURSOR COLUMN         FOX21400
1806   40B0 0C60                 STH     CHAR,TEMP7         ADDRESS CHARACTER                     FOX21410
180A   2303                      BS      CPOS1                                                    FOX21420
                                 *                                                                  FOX21430
180C   4060 0C60                 CPOS     STH     R6,TEMP7           SAVE COLUMN ADDRESS CHARACTER  FOX21440
                                 *                                                                  FOX21450
1810   40F0 0C5A                 CPOS1    STH     LINK,TEMP4         SAVE RETURN ADDRESS            FOX21460
1814   C8B0 0059                 LHI     CHAR,C'Y'                                                 FOX21470
1818   41E0 18EA                 BAL     RET,MULOUT1                                               FOX21480
181C   48B0 0C60                 LH      CHAR,TEMP7         GET THE CHARACTER POSITION             FOX21490
1820   4120 095A                 BAL     RET2,OUTCHR        DIRECT CURSOR CHARACTER POSITION       FOX21500
1824   48F0 0C5A                 LH      LINK,TEMP4         RESTORE RETURN ADDRESS                 FOX21510
1828   030F                      BR      LINK               RETURN (PAD CHAR NOT NEEDED)           FOX21520
                                 *-----------------------------------                               FOX21530
                                 *   READ CURRENT CURSOR POSITION & STORE IN 'CURSLINE' & 'CURSCOLM'. FOX21540
182A   40F0 0C5A                 CURSREAD STH     LINK,TEMP4         SAVE RETURN ADDRESS            FOX21550
182E   C8B0 005A                 LHI     CHAR,C'Z'                                                 FOX21560
1832   41E0 18EA                 BAL     RET,MULOUT1        SET TO READ CURSOR POSITION            FOX21570
1836   4890 02DA                 LH      STAT,PASFLG        PASLA - FDX ?                          FOX21580
183A   2118                      BMS     CURSRED2           NO.  IF MICROBUS, BRANCH               FOX21590
183C   2133                      BNZS    CURSRED1           IF PASLA HDX, BRANCH                   FOX21600
183E   0501                      CLAR    DEV0,DEV1          CLI ?                                  FOX21610
1840   2335                      BES     CURSRED2           YES, BRANCH                            FOX21620
1842   C8B0 007F                 CURSRED1 LHI     CHAR,X'7F'                                        FOX21630
1846   4120 095A                 BAL     RET2,OUTCHR        SEND PAD CHARACTER (DEL)               FOX21640
184A   9D19                      CURSRED2 SSR     DEV1,STAT          DEVICE DU ?                    FOX21650
184C   2317                      BFFS    1,CURSRED9         NO, BRANCH                             FOX21660
184E   40F0 0C70                 STH     LINK,DURTN                                                FOX21670
1852   41F0 1BB4                 BAL     LINK,DUPASS        YES, GO TO DU STATUS HANDLER           FOX21680
1856   48F0 0C70                 LH      LINK,DURTN                                                FOX21690
185A   C390 0008                 CURSRED9 THI     STAT,8                                            FOX21700
185E   203A                      BNZS    CURSRED2           WAIT FOR BUSY TO DROP                  FOX21710
1860   4890 02DA                 LH      STAT,PASFLG        CLI OR PASLA FDX ?                     FOX21720
1864   2133                      BNZS    CURSRED3           NO, BRANCH                             FOX21730
1866   0501                      CLAR    DEV0,DEV1          CLI ?                                  FOX21740
1868   2134                      BNES    CURSRED4           NO, PASLA FDX - SO BRANCH              FOX21750
186A   0E00 0C49                 CURSRED3 OC      DEV0,TREADB        INTERFACE IN READ MODE (BLOCKED) FOX21760
186E   9B0B                      RDR     DEV0,CHAR          FORCE BUSY SET                         FOX21770
1870   9D09                      CURSRED4 SSR     DEV0,STAT                                         FOX21780
1872   9A59                      WDR     ONE,STAT           WRITE THE STATUS TO DISPLAY            FOX21790
1874   C390 0001                 THI     STAT,1             DEVICE DU ?                            FOX21800
1878   2337                      BZS     CURSREDC           NO, BRANCH                             FOX21810
187A   40F0 0C70                 STH     LINK,DURTN                                                FOX21820
187E   41F0 1BB4                 BAL     LINK,DUPASS        YES, GO TO DU STATUS HANDLER           FOX21830
1882   48F0 0C70                 LH      LINK,DURTN                                                FOX21840
1886   C390 0006                 CURSREDC THI     STAT,6                                            FOX21850
188A   4230 0A72                 BNZ     BSTAT              BRANCH ON BAD DEVICE STATUS            FOX21860
188E   C390 0008                 THI     STAT,8                                                    FOX21870
1892   4230 1870                 BNZ     CURSRED4           WAIT FOR BUSY TO DROP                  FOX21880
1896   9B0B                      RDR     DEV0,CHAR          READ CURSOR LINE CHARACTER             FOX21890
1898   C4B0 007F                 NHI     CHAR,X'7F'         MASK CHARACTER TO 7 BITS               FOX21900
```

TEST 4

```
189C  4330 0812          BZ      TSTEXT          EXIT ON LINE BREAK                FOX21910
18A0  40B0 0C64          STH     CHAR,CURSLINE   SAVE CURSOR LINE POSITION         FOX21920
18A4  9D09               SSR     DEV0,STAT                                         FOX21930
18A6  9A59               WDR     ONE,STAT        WRITE THE STATUS TO DISPLAY       FOX21940
18A8  C390 0001          THI     STAT,1          DEVICE DU ?                       FOX21950
18AC  2337               BZS     CURSREDB        NO, BRANCH                        FOX21960
18AE  40F0 0C70          STH     LINK,DURTN                                        FOX21970
18B2  41F0 16B4          BAL     LINK,DUPASS     YES, GO TO DU STATUS HANDLER      FOX21980
18B6  48F0 0C70          LH      LINK,DURTN                                        FOX21990
18BA  C390 0008  CURSREDB THI    STAT,8                                            FOX22000
18BE  203D               BNZS    CURSRED5        WAIT FOR BUSY TO DROP             FOX22010
18C0  9B0B               RDR     DEV0,CHAR       READ CURSOR COLUMN CHARACTER      FOX22020
18C2  4890 02DA          LH      STAT,PASFLG     CLI OR PASLA FDX ?                FOX22030
18C6  2133               BNZS    CURSRED6        NO, BRANCH                        FOX22040
18C8  0501               CLAR    DEV0,DEV1       CLI ?                             FOX22050
18CA  2133               BNES    CURSRED7        NO, PASLA FDX                     FOX22060
18CC  DE10 0C46  CURSRED6 OC     DEV1,TWRT       TURN LINE AROUND (HDX DEV ONLY)   FOX22070
18D0  C4B0 007F  CURSRED7 NHI    CHAR,X'7F'      MASK CHARACTER TO 7 BITS          FOX22080
18D4  4330 0812          BZ      TSTEXT          EXIT ON LINE BREAK                FOX22090
18D8  40B0 0C66          STH     CHAR,CURSCOLM   SAVE CURSOR COLUMN POSITION       FOX22100
18DC  4040 0C40          STH     ZERO,BRKFLG                                       FOX22110
18E0  48F0 0C5A  CURSRED8 LH     LINK,TEMP4      RESTORE RETURN ADDRESS            FOX22120
18E4  030F               BR      LINK            RETURN                            FOX22130
                         *-----------------------------------                      FOX22140
                         *   ISSUE A MULTICODE SEQUENCE FROM REGISTER "CHAR".      FOX22150
                         *   SAVE CHARACTER OUTPUT AT "TEMP6".                     FOX22160
                         *     CALLING SEQUENCE IS:                                FOX22170
                         *       BAL     RET,MULOUT                                FOX22180
                         *                                                         FOX22190
18E6  40B0 0C5E  MULOUT  STH     CHAR,TEMP6      SAVE CHAR FOR ERROR MESSAGE USE   FOX22200
                         *                                                         FOX22210
18EA  40E0 0C62  MULOUT1 STH     RET,TEMP8       SAVE THE RETURN ADDRESS           FOX22220
18EE  40B0 0C5C          STH     CHAR,TEMP5      SAVE CHARACTER TO BE OUTPUT       FOX22230
18F2  48B0 0528          LH      CHAR,MULCAR     GET MULTICODE CHARACTER OPTION    FOX22240
18F6  4120 095A          BAL     RET2,OUTCHR     OUTPUT IT                         FOX22250
18FA  48B0 0C5C          LH      CHAR,TEMP5      RETRIVE CHARACTER                 FOX22260
18FE  4120 095A          BAL     RET2,OUTCHR     OUTPUT IT                         FOX22270
1902  48E0 0C62          LH      RET,TEMP8       RESTORE RETURN ADDRESS            FOX22280
1906  030E               BR      RET             RETURN                            FOX22290
                         *-----------------------------------                      FOX22300
                         *   MULTICODE SEQUENCE FAILURE - (FAILING CHARACTER IS IN TEMP6)  FOX22310
                         *                                                         FOX22320
1908  D000 1CE0  ERROR09 STM     R0,ERRSAVE      SAVE CALLING REGISTERS            FOX22330
190C  41F0 08E4          BAL     LINK,ERROR      OUTPUT MESSAGE                    FOX22340
1910  100E               DC      Z(ERROR9)       "ERROR 09"                        FOX22350
1912  2402               LIS     R0,2                                              FOX22360
1914  4810 0C5E          LH      R1,TEMP6                                          FOX22370
1918  C820 0EDA          LHI     R2,ERR9CHAR     PUT MULTICODE LETTER IN           FOX22380
191C  41F0 048A          BAL     LINK,HEXASC     ERROR DESCRIPTOR                  FOX22390
1920  D100 1CE0          LM      R0,ERRSAVE      RESTORE REGISTERS                 FOX22400
1924  41F0 0922          BAL     LINK,OUTPUT     OUTPUT MESSAGE                    FOX22410
1928  0ECE               DC      Z(MSG27)        "MULTICODE ERROR"                 FOX22420
192A  4300 1B20          B       TST5Z           EXIT TEST MODULE                  FOX22430
```

```
                                 * * * * * * * * * * * * * * * * * * * * * * * *                    FOX22450
                                 *                                             *                    FOX22460
                                 *          T E S T   M O D U L E   0 5        *                    FOX22470
                                 * THIS MODULE TESTS ALL MULTICODE SEQUENCES VIA *                FOX22480
                                 * OPERATOR INTERVENTION.                      *                    FOX22490
                                 *                                             *                    FOX22500
                                 * * * * * * * * * * * * * * * * * * * * * * * *                    FOX22510
192E   DE00 0C47                 TEST05   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED   FOX22520
1932   9B0B                               RDR    DEV0,CHAR         FORCE BUSY SET                   FOX22530
1934   DE10 0C46                          OC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED  FOX22540
1938   41F0 1726                          BAL    LINK,CLRSCRN      CLEAR SCREEN                     FOX22550
193C   C8B0 004A                          LHI    CHAR,C'J'                                          FOX22560
1940   40B0 0C5E                          STH    CHAR,TEMP6        OUTPUT MESSAGES:                 FOX22570
1944   41F0 0922                          BAL    LINK,OUTPUT       "TEST 05"                        FOX22580
1948   0DEE                               DC     Z(MSG15)          "HC & CS HAVE BEEN OUTPUT"       FOX22590
194A   41F0 0922                          BAL    LINK,OUTPUT       "HIT CR TO CONTINUE, "           FOX22600
194E   0F20                               DC     Z(MSG22)                                           FOX22610
1950   41F0 0922                          BAL    LINK,OUTPUT       "LF ON ERROR"                    FOX22620
1954   0E9E                               DC     Z(MSG24)                                           FOX22630
1956   DE00 0C47                          OC     DEV0,TREAD        READ MODE                        FOX22640
195A   9B0B                               RDR    DEV0,CHAR         SET BUSY                         FOX22650
                                 *                                                                  FOX22660
195C   41F0 0A2E                 TST5A    BAL    LINK,READ         READ A CHARACTER                 FOX22670
1960   C5B0 000A                          CLHI   CHAR,X'0A'                                         FOX22680
1964   4330 1908                          BE     ERROR09           IF LF, BRANCH TO ERROR           FOX22690
1968   C5B0 000D                          CLHI   CHAR,X'0D'        IF CR, CONTINUE                  FOX22700
196C   2038                               BNES   TST5A             OTHERWISE READ A NEW CHARACTER   FOX22710
196E   DE10 0C46                          OC     DEV1,TWRT         WRITE MODE                       FOX22720
                                 *                                                                  FOX22730
1972   C8D0 002A                 TST5B    LHI    COUNT,X'2A'       SET UP INITIAL CURSOR POSITION   FOX22740
1976   41F0 17DA                          BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE   FOX22750
197A   086D                               LDAR   R6,COUNT                                           FOX22760
197C   41F0 180C                          BAL    LINK,CPOS         POSITION CURSOR TO PROPER COLUMN FOX22770
1980   41F0 182A                          BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION     FOX22780
1984   45D0 0C64                          CLH    COUNT,CURSLINE    IS LINE NUMBER CORRECT ?         FOX22790
1988   4230 1776                          BNE    BADLPOS           NO, BRANCH TO ERROR              FOX22800
198C   4560 0C66                          CLH    R6,CURSCOLM       IS COLUMN NUMBER CORRECT ?       FOX22810
1990   4230 17AA                          BNE    BADCPOS           NO, BRANCH TO ERROR              FOX22820
                                 *                                                                  FOX22830
1994   C8B0 0041                 TST5C    LHI    CHAR,C'A'                                          FOX22840
1998   41E0 18E6                          BAL    RET,MULOUT        MOVE CURSOR UP 1 LINE            FOX22850
199C   41F0 182A                          BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION     FOX22860
19A0   27D1                               SIS    COUNT,1                                            FOX22870
19A2   45D0 0C64                          CLH    COUNT,CURSLINE    IS LINE NUMBER CORRECT ?         FOX22880
19A6   4230 1908                          BNE    ERROR09           NO, BRANCH TO ERROR              FOX22890
19AA   C8B0 0042                          LHI    CHAR,C'B'                                          FOX22900
19AE   41E0 18E6                          BAL    RET,MULOUT        MOVE CURSOR DOWN 1 LINE          FOX22910
19B2   41F0 182A                          BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION     FOX22920
19B6   26D1                               AIS    COUNT,1                                            FOX22930
19B8   45D0 0C64                          CLH    COUNT,CURSLINE    IS LINE NUMBER CORRECT ?         FOX22940
19BC   4230 1908                          BNE    ERROR09           NO, BRANCH TO ERROR              FOX22950
19C0   C8B0 0043                 TST5D    LHI    CHAR,C'C'                                          FOX22960
19C4   41E0 18E6                          BAL    RET,MULOUT        MOVE CURSOR RIGHT 1 COLUMN       FOX22970
19C8   41F0 182A                          BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION     FOX22980
```

TEST 5

```
19CC  2661                2299          AIS   R6,1                                          FOX22990
19CE  4560 0C66           2300          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23000
19D2  4230 1908           2301          BNE   ERROR09            NO, BRANCH TO ERROR         FOX23010
19D6  C8B0 0044           2302          LHI   CHAR,C'D'                                       FOX23020
19DA  41E0 18E6           2303          BAL   RET,MULOUT         MOVE CURSOR LEFT 1 COLUMN   FOX23030
19DE  41F0 182A           2304          BAL   LINK,CURSREAD      READ CURRENT CURSOR POSITION FOX23040
19E2  2761                2305          SIS   R6,1                                          FOX23050
19E4  4560 0C66           2306          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23060
19E8  4230 1908           2307          BNE   ERROR09            NO, BRANCH TO ERROR         FOX23070
                          2308  *                                                             FOX23080
19EC  C8B0 0033           2309  TST5E   LHI   CHAR,C'3'                                       FOX23090
19F0  41E0 18E6           2310          BAL   RET,MULOUT         CLEAR ALL TABS              FOX23100
19F4  24B9                2311          LIS   CHAR,X'09'                                      FOX23110
19F6  4120 095A           2312          BAL   RET2,OUTCHR        TABULATE !                  FOX23120
19FA  41F0 182A           2313          BAL   LINK,CURSREAD      READ CURRENT CURSOR POSITION FOX23130
19FE  C860 006F           2314          LHI   R6,X'6F'                                        FOX23140
1A02  4560 0C66           2315          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23150
1A06  4230 1908           2316          BNE   ERROR09            NO, BRANCH TO ERROR         FOX23160
                          2317  *                                                             FOX23170
1A0A  086D                2318  TST5F   LDAR  R6,COUNT                                        FOX23180
1A0C  41F0 180C           2319          BAL   LINK,CPOS          POSITION CURSOR TO PROPER COLUMN FOX23190
1A10  41F0 182A           2320          BAL   LINK,CURSREAD      READ CURRENT CURSOR POSITION FOX23200
1A14  4560 0C66           2321          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23210
1A18  4230 17AA           2322          BNE   BADCPOS            NO, BRANCH TO ERROR         FOX23220
1A1C  C8B0 0031           2323          LHI   CHAR,C'1'                                       FOX23230
1A20  41E0 18E6           2324          BAL   RET,MULOUT         SET TAB AT PRESENT COLUMN   FOX23240
1A24  C860 0020           2325          LHI   R6,X'20'                                        FOX23250
1A28  41F0 180C           2326          BAL   LINK,CPOS          POSITION CURSOR TO START OF LINE FOX23260
1A2C  41F0 182A           2327          BAL   LINK,CURSREAD      READ CURRENT CURSOR POSITION FOX23270
1A30  4560 0C66           2328          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23280
1A34  4230 17AA           2329          BNE   BADCPOS            NO, BRANCH TO ERROR         FOX23290
1A38  24B9                2330          LIS   CHAR,X'09'                                      FOX23300
1A3A  4120 095A           2331          BAL   RET2,OUTCHR        TABULATE !                  FOX23310
1A3E  41F0 182A           2332          BAL   LINK,CURSREAD      READ CURRENT CURSOR POSITION FOX23320
1A42  086D                2333          LDAR  R6,COUNT                                        FOX23330
1A44  4560 0C66           2334          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23340
1A48  4230 1908           2335          BNE   ERROR09            NO, BRANCH TO ERROR         FOX23350
                          2336  *                                                             FOX23360
1A4C  C860 0020           2337  TST5G   LHI   R6,X'20'                                        FOX23370
1A50  41F0 180C           2338          BAL   LINK,CPOS          POSITION CURSOR TO START OF LINE FOX23380
1A54  41F0 182A           2339          BAL   LINK,CURSREAD      READ CURRENT CURSOR POSITION FOX23390
1A58  4560 0C66           2340          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23400
1A5C  4230 17AA           2341          BNE   BADCPOS            NO, BRANCH TO ERROR         FOX23410
1A60  C8B0 0033           2342          LHI   CHAR,C'3'                                       FOX23420
1A64  41E0 18E6           2343          BAL   RET,MULOUT         CLEAR ALL TABS              FOX23430
1A68  24B9                2344          LIS   CHAR,X'09'                                      FOX23440
1A6A  4120 095A           2345          BAL   RET2,OUTCHR        TABULATE !                  FOX23450
1A6E  41F0 182A           2346          BAL   LINK,CURSREAD      READ CURRENT CURSOR POSITION FOX23460
1A72  C860 006F           2347          LHI   R6,X'6F'                                        FOX23470
1A76  4560 0C66           2348          CLH   R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?  FOX23480
1A7A  4230 1908           2349          BNE   ERROR09            NO, BRANCH TO ERROR         FOX23490
                          2350  *                                                             FOX23500
1A7E  C8D0 0020           2351  TST5H   LHI   COUNT,X'20'                                     FOX23510
1A82  41F0 17DA           2352          BAL   LINK,LPOS          POSITION CURSOR TO PROPER LINE FOX23520
```

TEST 5

```
1A86   086D                2353          LDAR   R6,COUNT                                          FOX23530
1A88   41F0 180C           2354          BAL    LINK,CPOS          POSITION CURSOR TO PROPER COLUMN FOX23540
1A8C   41F0 182A           2355          BAL    LINK,CURSREAD      READ CURRENT CURSOR POSITION     FOX23550
1A90   45D0 0C64           2356          CLH    COUNT,CURSLINE     IS LINE NUMBER CORRECT ?         FOX23560
1A94   4230 1776           2357          BNE    BADLPOS            NO, BRANCH TO ERROR              FOX23570
1A98   4560 0C66           2358          CLH    R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?       FOX23580
1A9C   4230 17AA           2359          BNE    BADCPOS            NO, BRANCH TO ERROR              FOX23590
1AA0   C8B0 0049           2360          LHI    CHAR,C'I'                                           FOX23600
1AA4   41E0 18E6           2361          BAL    RET,MULOUT         CLEAR THE LINE                   FOX23610
1AA8   41F0 0BE4           2362          BAL    LINK,TMER          WAIT 50 MILLISECONDS             FOX23620
1AAC   26D1                2363          AIS    COUNT,1                                             FOX23630
1AAE   41F0 17DA           2364          BAL    LINK,LPOS          POSITION CURSOR TO PROPER LINE   FOX23640
1AB2   41F0 0922           2365          BAL    LINK,OUTPUT        CRLF                             FOX23650
1AB6   0CA4                2366          DC     Z(MSG0)                                             FOX23660
1AB8   41F0 0922           2367          BAL    LINK,OUTPUT        CRLF                             FOX23670
1ABC   0CA6                2368          DC     Z(MSG0,5)                                           FOX23680
1ABE   41F0 0922           2369          BAL    LINK,OUTPUT        "TEST 5 HAS BEEN DELETED"        FOX23690
1AC2   0EAE                2370          DC     Z(MSG26)                                            FOX23700
1AC4   41F0 0922           2371          BAL    LINK,OUTPUT        "HIT CR TO CONTINUE, "           FOX23710
1AC8   0F20                2372          DC     Z(MSG22)                                            FOX23720
1ACA   41F0 0922           2373          BAL    LINK,OUTPUT        "LF ON ERROR"                    FOX23730
1ACE   0E9E                2374          DC     Z(MSG24)                                            FOX23740
1AD0   DE00 0C47           2375          OC     DEV0,TREAD         READ MODE                        FOX23750
1AD4   9B0B                2376          RDR    DEV0,CHAR          SET BUSY                         FOX23760
                           2377   *                                                                 FOX23770
1AD6   41F0 0A2E           2378   TST5I  BAL    LINK,READ          READ A CHARACTER                 FOX23780
1ADA   C5B0 000A           2379          CLHI   CHAR,X'0A'         LF ?                             FOX23790
1ADE   4330 1908           2380          BE     ERROR09            YES, BRANCH TO ERROR             FOX23800
1AE2   C5B0 000D           2381          CLHI   CHAR,X'0D'         CR ?                             FOX23810
1AE6   2038                2382          BNES   TST5I              NO, READ A NEW CHARACTER         FOX23820
1AE8   DE10 0C46           2383          OC     DEV1,TWRT          WRITE MODE                       FOX23830
                           2384   *                                                                 FOX23840
1AEC   C8B0 004B           2385   TST5K  LHI    CHAR,C'K'                                           FOX23850
1AF0   41E0 16E6           2386          BAL    RET,MULOUT         CLEAR ALL                        FOX23860
1AF4   41F0 0BE4           2387          BAL    LINK,TMER          WAIT 50 MILLISECONDS             FOX23870
1AF8   41F0 0922           2388          BAL    LINK,OUTPUT        OUTPUT MESSAGE                   FOX23880
1AFC   0F00                2389          DC     Z(MSG28)           "CLEAR ALL HAS BEEN OUTPUT"      FOX23890
1AFE   41F0 0922           2390          BAL    LINK,OUTPUT        "HIT CR TO CONTINUE, "           FOX23900
1B02   0E9E                2391          DC     Z(MSG24)           "LF ON ERROR"                    FOX23910
1B04   DE00 0C47           2392          OC     DEV0,TREAD         READ MODE                        FOX23920
1B08   9B0B                2393          RDR    DEV0,CHAR          SET BUSY                         FOX23930
                           2394   *                                                                 FOX23940
1B0A   41F0 0A2E           2395   TST5L  BAL    LINK,READ          READ A CHARACTER                 FOX23950
1B0E   C5B0 000A           2396          CLHI   CHAR,X'0A'         LF ?                             FOX23960
1B12   4330 1908           2397          BE     ERROR09            YES, BRANCH TO ERROR             FOX23970
1B16   C5B0 000D           2398          CLHI   CHAR,X'0D'         CR ?                             FOX23980
1B1A   2038                2399          BNES   TST5L              NO, READ A NEW CHARACTER         FOX23990
1B1C   DE10 0C46           2400          OC     DEV1,TWRT          WRITE MODE                       FOX24000
                           2401   *                                                                 FOX24010
1B20   4300 0812           2402   TST5Z  B      TSTEXT             END OF TEST MODULE               FOX24020
```

TEST 6

```
                                 * * * * * * * * * * * * * * * * * * * * * * *                    FOX24040
                                 *                                           *                    FOX24050
                                 *          T E S T   M O D U L E   0 6      *                    FOX24060
                                 * THIS MODULE TESTS THE ANSWER-BACK (HERE-IS)  *                FOX24070
                                 * ROM.  IT CAN ALSO BE USED AS AN ECHO TEST BY  *                FOX24080
                                 * CHANGING THE "HEREIS" OPTION.                  *                FOX24090
                                 *                                           *                    FOX24100
                                 * * * * * * * * * * * * * * * * * * * * * * *                    FOX24110
1B24   DE00 0C47                 TEST06   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED   FOX24120
1B28   9B0B                                RDR    DEV0,CHAR         DUMMY READ TO FORCE BUSY SET     FOX24130
1B2A   DE10 0C46                           OC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED  FOX24140
1B2E   41F0 0922                           BAL    LINK,OUTPUT       "TEST 06"                        FOX24150
1B32   0E70                                DC     Z(MSG21)          "DEPRESS 'HERE-IS'"              FOX24160
1B34   2460                                LIS    R6,0                                               FOX24170
1B36   2471                                LIS    R7,1                                               FOX24180
1B38   4880 0530                           LH     R8,HEREIS         ARE 32 CHARACTERS EXPECTED ?     FOX24190
1B3C   2134                                BNZS   HERE80            NO, 80 - BRANCH                  FOX24200
1B3E   C880 001F                           LHI    R8,31             YES, SET TO READ 32 CHARACTERS(BXLE) FOX24210
1B42   2303                                BS     READ6                                              FOX24220
1B44   C880 004F                 HERE80    LHI    R8,79             SET TO READ 80 CHARACTERS(BXLE)  FOX24230
1B48   DE00 0C47                 READ6     OC     DEV0,TREAD        OC READ MODE                     FOX24240
1B4C   9B0B                                RDR    DEV0,CHAR         DUMMY READ TO CLEAR STATUS       FOX24250
1B4E   41F0 0A2E                 READ60    BAL    LINK,READ         READ A CHARACTER                 FOX24260
1B52   C4B0 007F                           NHI    CHAR,X'7F'        MASK TO 7 BITS                   FOX24270
1B56   D2B6 1C7A                           STB    CHAR,READBUF(R6)  SAVE THE CHARACTER               FOX24280
1B5A   C5B0 000D                           CLHI   CHAR,X'0D'        CR ?                             FOX24290
1B5E   2333                                BES    READ61            YES, BRANCH                      FOX24300
1B60   C160 1B4E                           BXLE   R6,READ60         NO, CONTINUE UNTILL DONE         FOX24310
1B64   0886                      READ61    LDAR   R8,R6             ESTABLISH TRUE                   FOX24320
1B66   2781                                SIS    R6,1              BUFFER LIMITS                    FOX24330
1B68   2460                                LIS    R6,0                                               FOX24340
1B6A   41F0 0922                           BAL    LINK,OUTPUT       CR, LF                           FOX24350
1B6E   0CA6                                DC     Z(MSG0.5)                                          FOX24360
1B70   DE10 0C46                           OC     DEV1,TWRT         OC WRITE MODE                    FOX24370
1B74   D3B6 1C7A                 WRITE6    LB     CHAR,READBUF(R6)                                   FOX24380
1B78   4120 095A                           BAL    RET2,OUTCHR       WRITE CHARACTER BUFFER AS READ   FOX24390
1B7C   C5B0 000D                           CLHI   CHAR,X'0D'        CR ?                             FOX24400
1B80   2333                                BES    READ62            YES, BRANCH                      FOX24410
1B82   C160 1B74                           BXLE   R6,WRITE6         NO, CONTINUE UNTILL DONE         FOX24420
1B86   41F0 0922                 READ62    BAL    LINK,OUTPUT       CR, LF                           FOX24430
1B8A   0CA4                                DC     Z(MSG0)                                            FOX24440
1B8C   41F0 0922                           BAL    LINK,OUTPUT       "HIT CR TO CONTINUE, "           FOX24450
1B90   0F20                                DC     Z(MSG22)                                           FOX24460
1B92   41F0 0922                           BAL    LINK,OUTPUT       "LF TO EXIT"                     FOX24470
1B96   0E90                                DC     Z(MSG23)                                           FOX24480
1B98   DE00 0C47                           OC     DEV0,TREAD        OC READ MODE                     FOX24490
1B9C   9B0B                                RDR    DEV0,CHAR         DUMMY READ TO CLEAR STATUS       FOX24500
1B9E   41F0 0A2E                 READ63    BAL    LINK,READ         READ A CHARACTER (LF OR CR ONLY) FOX24510
1BA2   C5B0 000A                           CLHI   CHAR,X'0A'        LF ?                             FOX24520
1BA6   4330 0812                           BE     TSTEXT            YES, EXIT TEST MODULE            FOX24530
1BAA   C5B0 000D                           CLHI   CHAR,X'0D'        NO, CR ?                         FOX24540
1BAE   4330 1B24                           BE     TEST06            YES, REPEATE TEST                FOX24550
1BB2   220A                                BS     READ63            NO, READ A NEW CHARACTER         FOX24560
```

DU DETECTED HANDLER

```
1BB4  4090 0C74   2458  DUPASS   STH   STAT,DUSTAT     SAVE DU STATUS REGISTER        FOX24580
1BB8  4890 0C72   2459           LH    STAT,DU         IS DU FLAG ALREADY SET ?       FOX24590
1BBC  4230 1C1E   2460           BNZ   DUPESTOR        YES, IGNORE PRESENT DU STSTUS  FOX24600
1BC0  40F0 0C6E   2461           STH   LINK,DUSAVE     NO, SAVE CALLING REGISTER      FOX24610
1BC4  40F0 0C72   2462           STH   LINK,DU         SET THE DU FLAG                FOX24620
1BC8  2401        2463           LIS   R0,1                                           FOX24630
1BCA  DE00 0C6A   2464           OC    R0,INCR         OC DISPLAY IN INCREMENTAL MODE FOX24640
1BCE  C810 AD0B   2465           LHI   R1,X'AD0B'                                     FOX24650
1BD2  9801        2466           WHR   R0,R1           "00B7" = BIT 7                 FOX24660
1BD4  C810 B700   2467           LHI   R1,X'B700'                                     FOX24670
1BD8  9801        2468           WHR   R0,R1           "0BAD" = BAD                   FOX24680
1BDA  DE00 0C4E   2469           OC    R0,NORM         OC DISPLAY IN NORMAL MODE      FOX24690
1BDE  4810 0C34   2470           LH    R1,TESTNO                                      FOX24700
1BE2  C610 3030   2471           OHI   R1,X'3030'                                     FOX24710
1BE6  4010 0FA8   2472           STH   R1,DUMSG        PUT TEST NUMBER IN DU MESSAGE  FOX24720
1BEA  4800 04C0   2473           LH    DEV0,DEVSADR    RESTORE DEV0 & DEV1 REGISTERS  FOX24730
1BEE  4810 04C2   2474           LH    DEV1,DEVSADR+2                                 FOX24740
1BF2  DE10 0C46   2475           OC    DEV1,TWRT       OC CONSOLE DEVICE IN WRITE MODE FOX24750
1BF6  9019        2476  DUPASS1  SSR   DEV1,STAT       WAIT FOR DU & BUSY             FOX24760
1BF8  2091        2477           BTBS  9,DUPASS1       TO DISAPPEAR                   FOX24770
1BFA  41F0 0922   2478           BAL   LINK,OUTPUT     OUTPUT MESSAGE                 FOX24780
1BFE  0F86        2479           DC    Z(MSG32)        "DU DETECTED"                  FOX24790
1C00  48F0 0540   2480           LH    LINK,RUN        IS RUN FLAG SET ?              FOX24800
1C04  2335        2481           BZS   DUEXEC          NO, DU IS IN EXEC, SO BRANCH   FOX24810
                  2482  *                                                              FOX24820
1C06  41F0 0922   2483  DUTEST   BAL   LINK,OUTPUT     OTHERWISE OUTPUT MESSAGE       FOX24830
1C0A  0FA0        2484           DC    Z(MSG34)        "IN TEST XX"                   FOX24840
1C0C  2304        2485           BS    DUCOM           BRANCH                         FOX24850
                  2486  *                                                              FOX24860
1C0E  41F0 0922   2487  DUEXEC   BAL   LINK,OUTPUT     OUTPUT MESSAGE                 FOX24870
1C12  0F96        2488           DC    Z(MSG33)        "IN EXEC"                      FOX24880
                  2489  *                                                              FOX24890
1C14  24F0        2490  DUCOM    LIS   LINK,0                                         FOX24900
1C16  40F0 0C72   2491           STH   LINK,DU         RESET DU FLAG                  FOX24910
1C1A  48F0 0C6E   2492           LH    LINK,DUSAVE     RESTORE CALLING REGISTER       FOX24920
                  2493  *                                                              FOX24930
1C1E  4890 0C74   2494  DURESTOR LH    STAT,DUSTAT     RESTORE STATUS REGISTER        FOX24940
1C22  030F        2495           BR    LINK            RETURN TO POINT WHERE          FOX24950
                  2496  *                               DU WAS FIRST DETECTED          FOX24960
```

```
                                  * IF THE MODEL-1100 DOES NOT RESPOND WHEN THE TEST PROGRAM                FOX24980
                                  * IS STARTED, TRY THE FOLLOWING TWO SMALL ROUTINES.                       FOX24990
                                  * THEY SUPPORT PASLA STRAPPED FOR FULL-DUPLEX OR HALF-DUPLEX OPERATION.   FOX25000
                                  * VARIFY OTHER STRAPS AS PER SECTION 4 OF TEST PROGRAM DESCRIPTION.       FOX25010
                                  *                                                                         FOX25020
                                  * THIS ROUTINE SETS UP THE DEVICE TO READ KEYBOARD KEYS DEPRESSED BY       FOX25030
                                  * USER. THE KEY CODE IS READ IN AND DISPLAYED ON THE DISPLAY PANEL.        FOX25040
                                  * USER SHOULD CHECK THE HEX VALUE DISPLAY WITH THE KEY CODE.              FOX25050
                                  *                                                                         FOX25060
1C24   2440                       TRY1     LIS    ZERO,0                                                   FOX25070
1C26   9564                                EPSR   WORK,ZERO          NO INTERRUPTS, REG SET 0               FOX25080
1C28   2451                                LIS    ONE,1                                                    FOX25090
1C2A   DE50 0C4E                           OC     ONE,NORM           DISPLAY IN NORMAL MODE                 FOX25100
1C2E   4800 02D4                           LH     DEV0,RECADR                                               FOX25110
1C32   C400 03FF                           NHI    DEV0,X'3FF'        ISOLATE DEVICE ADDRESS                 FOX25120
1C36   DE00 02D9                           OC     DEV0,SECOND        SET UP PASLA SPEED AND STOP BITS       FOX25130
1C3A   2040                       FSYNC1   BTBS   4,FSYNC1           FALSE SYNC, CHECK ADDRESS STRAPS       FOX25140
1C3C   DE00 0C47                           OC     DEV0,TREAD         GIVE READ COMMAND                      FOX25150
1C40   9B0B                                RDR    DEV0,CHAR          CLEAR THE STATUS                       FOX25160
1C42   9D09                       SS1      SSR    DEV0,STAT          SENSE READ SIDE STATUS                 FOX25170
1C44   2081                                BTBS   8,1                LOOP ON BSY TILL KEY IS DEPRESSED      FOX25180
1C46   9B0B                                RDR    DEV0,CHAR          READ CHARACTER IN ECHO-PLEX MODE       FOX25190
1C48   9A5B                                WDR    ONE,CHAR           DISPLAY CHARACTER WITH PARITY          FOX25200
1C4A   2204                                BS     SS1                REPEAT                                 FOX25210
                                  *                                                                         FOX25220
                                  * THIS ROUTINE SETS UP THE DEVICE IN WRITE MODE. USER ENTERED DATA        FOX25230
                                  * BYTE INTO SWITCH REGISTER IS READ AND THE CORRESPONDING CHARACTER       FOX25240
                                  * IS DISPLAYED ON THE MODEL-1100 SCREEN. THEN PROCESSOR HALTS. USER       FOX25250
                                  * SHOULD ENTER ANOTHER DATA BYTE & HIT RUN FOR DISPLAY OF                 FOX25260
                                  * CORRESPONDING CHARACTER ON THE MODEL-1100 DISPLAY TERMINAL.             FOX25270
                                  *                                                                         FOX25280
1C4C   2440                       TRY2     LIS    ZERO,0                                                   FOX25290
1C4E   9564                                EPSR   WORK,ZERO          NO INTERRUPTS. REGISTER SET 0          FOX25300
1C50   2451                                LIS    ONE,1                                                    FOX25310
1C52   DE50 0C4E                           OC     ONE,NORM           DISPLAY IN NORMAL MODE                 FOX25320
1C56   4810 02D6                           LH     DEV1,SNDADR        GET TRANSMIT DEVICE ADDRESS            FOX25330
1C5A   C410 03FF                           NHI    DEV1,X'3FF'                                               FOX25340
1C5E   DE10 02D9                           OC     DEV1,SECOND        SET UP PASLA SPEED AND STOP BITS       FOX25350
1C62   2040                       FSYNC2   BTBS   4,FSYNC2           FALSE SYNC, CHECK ADDRESS STRAPS       FOX25360
1C64   DE10 0C46                           OC     DEV1,TWRT          GIVE WRITE COMMAND                     FOX25370
                                  *                                                                         FOX25380
1C68   9B5B                       DISPLAY  RDR    ONE,CHAR           READ DATA BYTE FROM SWITCH REGISTER    FOX25390
1C6A   9D19                                SSR    DEV1,STAT          SENSE CRT STATUS                       FOX25400
1C6C   2081                                BTBS   8,1                LOOP TILL BSY DROPS                    FOX25410
1C6E   9A1B                                WDR    DEV1,CHAR          WRITE DATA BYTE (CHAR) TO MODEL-1100   FOX25420
                                  *                                   DISPLAYED CHARACTER SHOULD MATCH THE   FOX25430
                                  *                                   DATA BYTE ENTERED BY USER.             FOX25440
1C70   C840 4000                           LHI    ZERO,X'4000'                                              FOX25450
1C74   9141                                SLHLS  ZERO,1                                                    FOX25460
1C76   9564                                EPSR   WORK,ZERO          PROCESSOR HALTS, ENTER DATA BYTE       FOX25470
1C78   2208                                BS     DISPLAY            INTO SWITCH REGISTER                   FOX25480
                                  * HIT RUN FOR NEXT CHARACTER DISPLAY ON THE MODEL-1100 DISPLAY TERMINAL   FOX25490
                                  *                                                                         FOX25500
       0000 1C79                  LNZB     EQU    *-1                LAST NON-ZERO BYTE                     FOX25510
```

BUFFERS & SAVE AREAS

```
                          *--------------------------------                                  FOX25530
                          * BUFFER & SAVE AREAS                                              FOX25540
                          *                                                                   FOX25550
1C7A                      READBUF  DS      80                HERE IS INPUT BUFFER             FOX25560
1CCA                      CMDBUF   DS      6                 COMMAND MODE SAVE BUFFER         FOX25570
1CD0                      CSAVE    DS      2                 LAST CHARACTER SAVE SPACE        FOX25580
                          *--------------------------------                                  FOX25590
                          *                                                                   FOX25600
1CD8                                ALIGN   8                                                 FOX25610
                          *                                                                   FOX25620
1CD8                      PSWSAVE  DS      8                 PSW SAVE AREA                    FOX25630
1CE0                      ERRSAVE  DS      64                REG STORAGE FOR ERROR ROUTINES   FOX25640
1D20                      IORSAVE  DS      64                I/O REGISTER SAVE AREA           FOX25650
1D60                      RSAVE    DS      32                INTERRUPT REGISTER SAVE AREA(16-BIT) FOX25660
                          *                                                                   FOX25670
1D80                                DS      64                REGISTER SAVE FOR 32-BIT WITH 2  FOX25680
                          *                                   REGISTER SETS OR 16-BIT WITH DFU FOX25690
                                    ENDC                                                      FOX25730
```

CHKSUM/M17 PUNCHER

```
1DC0   2400                2575  $CHKSUM  LIS    R0,0          PUNCH M17 TAPE WITH CHECKSUM      F0X25750
1DC2   9510                2576           EPSR   R1,R0         SELECT REG. SET 0 & CLEAR PSW     F0X25760
                           2577  *                                                               F0X25770
1DC4   C810 02D0           2578           LDAI   R1,ORIGIN     LOAD START ADDRESS                F0X25780
1DC8   2421                2579           LIS    R2,1          LOAD INCREMENT VALUE              F0X25790
1DCA   C830 1C79           2580           LDAI   R3,LNZB       LOAD FINAL ADDRESS                F0X25800
1DCE   2440                2581           LIS    R4,0          INITIALIZE CHKSUM BYTE            F0X25810
                           2582  *                                                               F0X25820
1DD0   D351 0000           2583  $GEN     LB     R5,0(R1)                                        F0X25830
1DD4   0745                2584           XAR    R4,R5         CALCULATE CHKSUM BYTE             F0X25840
1DD6   C110 1DD0           2585           BXLE   R1,$GEN                                         F0X25850
1DDA   D240 0099           2586           STB    R4,MN+3       CHECKSUM BYTE TO BOOT LOADER      F0X25860
                           2587  *                                                               F0X25870
1DDE   C810 0080           2588  $TAPE    LHI    R1,X'0080'                                      F0X25880
1DE2   9E21                2589           OCR    R2,R1         DISPLAY IN NORMAL MODE            F0X25890
1DE4   9444                2590           EXBR   R4,R4                                           F0X25900
1DE6   9824                2591           WHR    R2,R4         DISPLAY CHKSUM BYTE (TO D1)       F0X25910
1DE8   9411                2592           EXBR   R1,R1                                           F0X25920
1DEA   9501                2593           EPSR   R0,R1         HALT PROCESSOR.                   F0X25930
                           2594  *                                                               F0X25940
                           2595  ***********************************************************      F0X25950
                           2596  *                                                               F0X25960
1DEC   D360 007A           2597  $PUNCH   LB     R6,X'7A'      GET BOUTDV (PUNCH) ADDRESS.       F0X25970
1DF0   DE60 007B           2598           OC     R6,X'7B'      START TAPE PUNCH                  F0X25980
1DF4   9D60                2599           SSR    R6,R0                                           F0X25990
1DF6   2081                2600           BTBS   8,1                                             F0X26000
1DF8   41F0 1E3A           2601           BAL    R15,$TAPL     PUNCH LEADER (256 CHARACTERS)     F0X26010
1DFC   9411                2602           EXBR   R1,R1         (R1) = X'0080'                    F0X26020
1DFE   C830 00CF           2603           LHI    R3,X'CF'                                        F0X26030
                           2604  *                                                               F0X26040
1E02   DA61 0000           2605  $PNCH1   WD     R6,0(R1)      PUNCH BOOT LOADER                 F0X26050
1E06   9D60                2606           SSR    R6,R0                                           F0X26060
1E08   2081                2607           BTBS   8,1                                             F0X26070
1E0A   C110 1E02           2608           BXLE   R1,$PNCH1                                       F0X26080
1E0E   41F0 1E40           2609           BAL    R15,$TAPL1    PUNCH ONE-FOLD GAP.               F0X26090
                           2610  *                                                               F0X26100
1E12   D340 0099           2611           LB     R4,MN+3       GET CHECKSUM BYTE                 F0X26110
1E16   C810 02D0           2612           LDAI   R1,ORIGIN     (NORMALLY X'A00')                 F0X26120
1E1A   C830 1C79           2613           LDAI   R3,LNZB                                         F0X26130
                           2614  *                                                               F0X26140
1E1E   D351 0000           2615  $PNCH2   LB     R5,0(R1)      PUNCH PROGRAM                     F0X26150
1E22   0745                2616           XAR    R4,R5         (ORIGIN1 TO LNZB)                 F0X26160
1E24   9A65                2617           WDR    R6,R5                                           F0X26170
1E26   9401                2618           EXBR   R0,R1                                           F0X26180
1E28   9820                2619           WHR    R2,R0         DISPLAY ADDRESS PUNCHED           F0X26190
1E2A   9D60                2620           SSR    R6,R0                                           F0X26200
1E2C   2081                2621           BTBS   8,1                                             F0X26210
1E2E   C110 1E1E           2622           BXLE   R1,$PNCH2                                       F0X26220
1E32   41F0 1E3A           2623           BAL    R15,$TAPL     PUNCH TRAILER.                    F0X26230
1E36   4300 1DDE           2624           B      $TAPE         DISPLAY CHECKSUM, HALT PROCESSOR. F0X26240
                           2625  *                                                               F0X26250
1E3A   C800 0100           2626  $TAPL    LHI    R0,256        TO PUNCH BLANK LEADER             F0X26260
1E3E   2303                2627           BS     $TAPLP                                          F0X26270
                           2628  *                                                               F0X26280
```

```
                                 2630  *  CHKSUM/M17 PUNCHER (CONTINUED)                                          FOX26300
                                 2631  *                                                                          FOX26310
1E40   C800 0080                 2632  $TAPL1   LHI    R0,128          TO PUNCH 1-FOLD GAP              ***     FOX26320
                                 2633  *                                                                          FOX26330
1E44   2701                      2634  $TAPLP   SIS    R0,1                                                     FOX26340
1E46   032F                      2635           BNPR   R15             RETURN                                   FOX26350
1E48   2430                      2636           LIS    R3,0                                                     FOX26360
1E4A   9A63                      2637           WDR    R6,R3           PUNCH BLANK FRAME                        FOX26370
1E4C   9D68                      2638           SSR    R6,R8                                                    FOX26380
1E4E   2081                      2639           BTBS   8,1                                                      FOX26390
1E50   2206                      2640           BS     $TAPLP          CONTINUE.                                FOX26400
                                 2641  *                                                                          FOX26410
1E52                             2642           END                                                              FOX26420
```

NO ERRORS 0 SQUEZ PASSES

CAL 04-01

$CHKSUM	1DC0													
$GEN	1DD0	2585												
$PNCH1	1E02	2608												
$PNCH2	1E1E	2622												
$PUNCH	1DEC													
$TAPE	1DDE	2624												
$TAPL	1E3A	2601	2623											
$TAPL1	1E40	2609												
$TAPLP	1E44	2627	2640											
ABOVE	03FC	334												
ABSTOP	1E52													
ADC	0002	5	54	134	173	181	210	222	251	259	275	307	323	341
		1192	1676	1690	1913	2570								
ASCIDEV	04E6	371												
ASCILOC	0502	388												
ASCIPSW	04F8	385												
ASCISTA	04EE	375												
BADCHAR	15E4													
BADCP04	17A6	2076												
BADCPOS	17AA	2282	2322	2329	2341	2359								
BADINT	14AC	1796												
BADLPOS	1776	2073	2280	2357										
BOOT	0086	103												
BRKFLG	0C40	943	951	953	1477	1708	1744	1836	2211					
BRKMIC	11D0	1455	1490											
BRKMIC2	11E6	1485												
BRKOK	1524	1845	1859											
BRKOK1	153E	1862												
BRKWT	117E	1393												
BRKWT1	11AE	1456	1476											
BRKWT2	11C8	1458	1468	1491										
BRKWTA1	11A4	1461												
BRKWTA2	11C2	1471												
BRKWTA3	1194	1466												
BSTAT	0A72	930	2186											
BSTAT1	0A98	948												
BSTAT2	0A8E	950												
BSTAT3	0AA6	954	961											
BSTAT5	0AA0	958												
BSTAT6	0AD0	980												
BSTAT8	0AB8	971												
BSTAT9	0AA8	976												
BYTETAB	0C94	610	898											
CHAR	000B	495	497	499	500	504	505	508	510	512	514	521	548	551
		554	558	560	562	569	573	575	576	578	580	582	584	587
		596	597	603	608	610	614	618	620	635	636	648	649	658
		664	670	671	672	673	673	684	689	712	714	763	765	768
		770	771	771	791	822	824	826	828	868	879	880	881	883
		884	886	893	894	896	899	906	909	912	933	939	942	951
		962	969	979	979	1078	1082	1087	1116	1119	1120	1121	1122	1122
		1123	1125	1126	1309	1314	1316	1318	1321	1330	1332	1334	1366	1391
		1392	1397	1399	1403	1423	1435	1437	1438	1439	1439	1441	1442	1443

		1443	1445	1447	1454	1459	1467	1467	1482	1508	1519	1520	1522	1549
		1559	1562	1565	1584	1589	1590	1592	1608	1610	1612	1623	1625	1635
		1636	1650	1660	1662	1664	1782	1791	1795	1827	1831	1869	1874	1876
		1938	2058	2060	2062	2074	2075	2077	2123	2125	2131	2140	2141	2147
		2149	2156	2163	2177	2189	2190	2192	2202	2208	2210	2220	2223	2224
		2226	2253	2256	2257	2265	2268	2270	2284	2290	2296	2302	2309	2311
		2323	2330	2342	2344	2360	2376	2379	2381	2385	2393	2396	2398	2413
		2425	2427	2428	2429	2438	2440	2450	2452	2454	2516	2519	2520	2539
		2542												
CHARPOS	174A	1957	1967	2034	2036	2047	2050							
CLRSCRN	1726	1510	1586	1618	1940	2255								
CMD1	0592	493												
CMD2	05A6	488												
CMDBUF	1CCA	481	482	483	505	514	531							
CMDERR	074A	503	529	549	553	557	559	563	570	579	583	585	604	637
		650												
CMDIN	054C	300	317	1749	1774	1851								
COMM	03C6													
COMM1	03CE	339												
CONTIN	0518	742												
COUNT	000C	1517	1523	1524	1533	1588	1593	1594	1634	1635	1639	1640	1941	1950
		1952	1960	1970	1980	1990	2000	2010	2012	2014	2016	2018	2020	2022
		2072	2089	2125	2274	2276	2279	2287	2288	2293	2294	2318	2333	2351
		2353	2356	2363										
CPOS	180C	2277	2319	2326	2338	2354								
CPOS1	1810	2142												
CSAVE	1CD0	521	596	635	648									
CURSCOLM	0C66	2075	2106	2210	2281	2300	2306	2315	2321	2328	2334	2340	2348	2358
CURSLINE	0C64	2072	2085	2192	2279	2288	2294	2356						
CURSOR	0C36	466	639	703	705	713	723	739						
CURSREAD	182A	2071	2278	2286	2292	2298	2304	2313	2320	2327	2332	2339	2346	2355
CURSRED1	1842	2160												
CURSRED2	184A	2159	2162	2171										
CURSRED3	186A	2173												
CURSRED4	1870	2175	2188											
CURSRED5	18A4	2201												
CURSRED6	18CC	2204												
CURSRED7	18D0	2206												
CURSRED8	18E0													
CURSRED9	185A	2166												
CURSREDB	18BA	2196												
CURSREDC	1886	2181												
DAT	0007	464	465	466	475	480	481	482	483	528	531	537	538	539
		539	540	599	600	612	613	614	615	616	624	625	657	661
		666	670	682	686	687	687	703	704	705	713	714	722	723
		724	738	739	742	752	762	768	769	788	790	796	797	799
		820	824	826	827	1006	1013	1014	1015	1016	1017	1018	1034	1035
		1041	1042	1043	1044	1045	1046	1047	1048	1054	1055	1056	1057	1058
		1059	1060	1392	1395	1397	1413	1422	1434	1437	1441	1445	1447	1709
		1710	1711	1778	1786	1793	1797	1802	1823	1825	1827	1832	1833	1838
		1843	1844	1844	1881	1896	1906	1908	1920	1921				
DEBUG0	1258													
DEBUG1	134C													
DELAY	144C													
DELAYL	1450	1769												
DEV0	0000	494	495	818	839	841	843	853	857	922	933	937	962	969

		970	1020	1025	1062	1365	1366	1379	1380	1391	1395	1425	1459	1460
		1469	1482	1483	1507	1508	1558	1559	1583	1584	1607	1608	1659	1660
		1717	1724	1737	1745	1756	1843	1853	1868	1869	1873	1874	1881	1885
		1904	1905	1937	1938	2129	2161	2174	2176	2177	2178	2189	2193	2202
		2205	2252	2253	2264	2265	2375	2376	2392	2393	2412	2413	2424	2425
		2449	2450	2473	2511	2512	2513	2515	2516	2517	2519			
DEV1	0001	477	485	651	817	821	840	841	870	879	937	939	1021	1025
		1367	1370	1398	1410	1422	1425	1427	1434	1509	1518	1551	1585	1600
		1617	1622	1652	1720	1740	1757	1831	1870	1878	1885	1887	1889	1896
		1897	1939	2129	2161	2165	2174	2205	2207	2254	2272	2383	2400	2414
		2437	2474	2475	2476	2533	2534	2535	2537	2540	2542			
DEVINT	04C8	272	1710	1711										
DEVMSG	04E0	378	439	440										
DEVSADR	04C0	266	817	818	839	840	990	997	1020	1021	1793	1797	2473	2474
DFAULT	FC00	449	599											
DISPLAY	1C68	2548												
DU	0C72	1294	2459	2462	2491									
DUCOM	1C14	2485												
DUEXEC	1C0E	2481												
DUMSG	0FA8	2472												
DUPASS	1BB4	490	847	862	875	927	973	1375	1385	1418	1430	1463	1473	1487
		1554	1603	1655	1856	1892	1900	2168	2183	2198				
DUPASS1	1BF6	2477												
DURESTOR	1C1E	2460												
DURTN	0C70	489	491	846	848	861	863	874	876	926	928	972	974	1374
		1376	1384	1386	1417	1419	1429	1431	1462	1464	1472	1474	1486	1488
		1553	1555	1602	1604	1654	1656	1855	1857	1891	1893	1899	1901	2167
		2169	2182	2184	2197	2199								
DUSAVE	0C6E	2461	2492											
DUSTAT	0C74	2458	2494											
DUTEST	1C06													
EBLRED	0C4B	1717	1737	1905										
EBLWRT	0C4A	1016	1046	1058	1151	1757								
ERR	0410	315												
ERR07M1	0D5A	2086												
ERR07M2	0D6C	2090												
ERR08M1	0D8A	2107												
ERR08M2	0D9C	2111												
ERR9CHAR	0EDA	2238												
ERRALL	0426	298	1808											
ERRDEV	04D0	293	370	1802										
ERRDS1	0444	362												
ERRNO	04DC	292	306	322	758	800	1805							
ERRNOMSG	04D4	353	361	437	761	805								
ERROR	08E4	981	1772	1849	1923	2093	2114	2234						
ERROR0	0FFC	751	756	796	1066	1924								
ERROR09	1908	2269	2289	2295	2301	2307	2316	2335	2349	2380	2397			
ERROR1	0FFE													
ERROR2	1000													
ERROR3	1002	982	1850											
ERROR4	1004	1089												
ERROR5	1006	1115												
ERROR6	1008	1773	1807											
ERROR7	100A	2094												
ERROR8	100C	2115												
ERROR9	100E	775	2235											

ERRORL	088E	778												
ERRPL1	0468	316	363											
ERRSAVE	1CE0	349	354	357	364	2083	2097	2104	2118	2233	2240			
ERRSTA	04D3	294	374	1803										
FIRSTF	0C38	1722	1742	1755	1782	1790								
FLAG	0003	484	502	505	514	515	516	526	531	533	534	669	671	675
		679	684	691	1300	1336	1515	1520	1561	1564	1581	1590	1614	1615
		1615												
FSYNC1	1C3A	2514												
FSYNC2	1C62	2536												
GO	0852	715												
GOBACK	15D6	1788	1841											
GOTCHAR	05DA	501												
HALT	02F0													
HERE80	1B44	2420												
HEREIS	0530	2419												
HEXASC	048A	372	376	386	389	759	801	2087	2091	2108	2112	2239		
HEXASC1	0494	407												
HEXTAB	0C76	403	673	684	771	1122	1125	1439	1443					
II	03B6	217												
IMPTOP	0000B													
INCR	0C6A	851	1169	1411	2464									
INIT1	0BA0	1026	1036											
INIT2	0BA4	642	1049	1061										
INIT3	0BA8	1068												
INITAL	0B0A	463	1297											
INPFLG	0C3A	1706	1723	1743	1795									
INTDEV	04CE	257	1778											
INTLVL	04C6	993	1000											
INTPSW	04CC	256												
INTRPT	1466	1709												
INTSTA	04D2	258	1779											
IORSAVE	1D20	787	802	816	830									
LADC	0001													
LAST	0868	725												
LAST1	087E	867												
LCORE	02F2	462	1296											
LCOREXIT	0344													
LDWT	00C8	132												
LEADER	00A2	117												
LINK	000F	248	298	315	352	355	360	365	372	376	377	386	389	390
		409	461	462	463	478	489	490	491	496	518	550	561	572
		607	617	629	642	655	701	702	744	745	746	759	760	788
		792	801	803	804	806	807	820	831	846	847	848	861	862
		863	869	874	875	876	914	926	927	928	944	965	972	973
		974	981	1001	1070	1079	1080	1081	1093	1107	1127	1128	1130	1293
		1294	1295	1296	1297	1298	1368	1374	1375	1376	1384	1385	1386	1417
		1418	1419	1429	1430	1431	1448	1462	1463	1464	1472	1473	1474	1486
		1487	1488	1510	1511	1513	1528	1531	1537	1553	1554	1555	1560	1586
		1596	1598	1602	1603	1604	1609	1618	1619	1654	1655	1656	1661	1677
		1678	1679	1680	1688	1689	1691	1692	1693	1694	1704	1713	1733	1772
		1808	1824	1828	1829	1830	1849	1855	1856	1857	1863	1866	1867	1871
		1875	1882	1891	1892	1893	1899	1900	1901	1923	1940	1942	1944	1945
		1946	1948	1953	1957	1961	1967	1971	1977	1981	1987	1991	1997	2001
		2007	2031	2034	2036	2039	2040	2043	2047	2050	2053	2054	2057	2064
		2065	2066	2069	2070	2071	2079	2080	2087	2091	2093	2095	2108	2112

		2114	2116	2122	2133	2134	2146	2151	2152	2155	2167	2168	2169	2182
		2183	2184	2197	2198	2199	2212	2213	2234	2239	2241	2255	2258	2260
		2262	2267	2275	2277	2278	2286	2292	2298	2304	2313	2319	2320	2326
		2327	2332	2338	2339	2346	2352	2354	2355	2362	2364	2365	2367	2369
		2371	2373	2378	2387	2388	2390	2395	2415	2426	2435	2443	2445	2447
		2451	2461	2462	2478	2480	2483	2487	2490	2491	2492	2495		
LNZB	1C79	107	2580	2613										
LOAD	00AC	126												
LOOKUP	0614	535												
LPOS	17DA	1942	1953	1961	1971	1981	1991	2001	2275	2352	2364			
LPOS2	17FC	2128	2130											
MASK	FE00	625	724											
MBKSET	0C6B													
MICBUS	0B7E	1031												
MM	03E0	219												
MM32	03F0													
MN	0096	2586	2611											
MSG0	0CA4	656	1449	1529	1538	1597	2366	2444						
MSG0.5	0CA6	1532	2368	2433										
MSG1	0CA8	1299												
MSG10	0DBA	1129												
MSG11	0DCC	1732												
MSG12	0DDE	747												
MSG15	0DEE	2259												
MSG16	0E26	1864												
MSG17	0E32	1369												
MSG18	0E4E	1514												
MSG19	0E58	1620												
MSG2	0CE2	1712	1908	1921										
MSG20	0E64	1705												
MSG21	0E70	2416												
MSG22	0F20	1599	1872	2261	2372	2446								
MSG23	0E90	2448												
MSG24	0E9E	2263	2374	2391										
MSG26	0EAE	2370												
MSG27	0ECE	2242												
MSG28	0F00	2389												
MSG3	0CF6	1949												
MSG30	0F34	1512												
MSG32	0F86	2479												
MSG33	0F96	2488												
MSG34	0FA0	1243	2484											
MSG4	0D46	2096												
MSG40	0FAC	2077												
MSG5	0D72	2117												
MSG6	0DA2	479												
MSG7	0DA6	630												
MSG8	0DAA	1094												
MULCAR	0528	591	2224											
MULOUT	18E6	2285	2291	2297	2303	2310	2324	2343	2361	2386				
MULOUT1	18EA	2059	2061	2124	2148	2157								
NEREAD	0C4F													
NOINT	145C													
NOMSG	0508	528	556	560	652	791	1090	1116						
NORM	0C4E	856	1154	1414	2469	2510	2532							
NTRUPT	148C	1781	1783	1785										

NXTERR	08D6	753												
NXTINT	1446	1787	1821	1834										
OKIN	0602	509	511											
OKIN1	0608	525	532											
OKIN2	0612	523												
OKINP	1576	1837												
OKINP1	15CE	1922												
OKINP2	1588	1863												
OKINP3	15C2	1884	1886											
OKOUT	14DC	1816												
OLOC	048E	264	312	331	387									
ONE	0005	247	474	486	638	639	643	644	680	681	682	686	692	693
		693	695	706	707	789	790	819	851	852	855	856	858	871
		923	953	1005	1019	1088	1089	1114	1115	1336	1371	1381	1411	1412
		1413	1414	1477	1645	1723	1743	1744	1753	1766	1768	1790	1806	1807
		2026	2179	2194	2509	2510	2520	2531	2532	2539				
OPSW	04BA	263	311	330	384									
OPSW32	04B8													
OPTIN	0564	513	564	592	601	626	631	645	654	708	776	984	1338	1728
		1813												
OPTION	0538	653												
ORIGIN	02D0	106	2578	2612										
OUTCHR	095A	659	665	674	685	690	764	766	772	823	825	1310	1315	1317
		1319	1322	1331	1333	1335	1436	1440	1444	1521	1550	1591	1624	1626
		1638	1651	2063	2078	2126	2132	2150	2164	2225	2227	2312	2331	2345
		2439												
OUTCHR1	0996	865												
OUTCHR2	09BA	842	850	887										
OUTCHR3	09C2	878												
OUTCHR4	097C	845												
OUTCHR5	09AC	860												
OUTCHR6	09D6	873												
OUTFLG	0C3C	1707	1718	1738	1753	1786	1791							
OUTMRK	0A28	903												
OUTODD	0A1C													
OUTOK	0A2C	905	907	910										
OUTP1	093E	829												
OUTPUT	0922	352	360	377	390	478	629	655	746	760	804	1093	1128	1298
		1368	1448	1511	1513	1528	1531	1537	1596	1598	1619	1704	1863	1871
		1948	2095	2116	2241	2258	2260	2262	2365	2367	2369	2371	2373	2388
		2390	2415	2435	2443	2445	2447	2478	2483	2487				
OUTSPA	0A22	901												
PALSPD	02D8	165												
PARCHK	0BB6	941	1446											
PARGEN	09FA	869	1080	1829										
PARITY	0520	556	900											
PARNG	0BCC													
PASFLG	02DA	934	1030	1423	1454	1882	2127	2158	2172	2203				
PASLA	0C44	1019	1040	1053										
POINT	000C	520	522	524	528	530	536	537	556	560	568	586	587	590
		591	652	653	658	660	663	666	667	719	720	721	730	731
		731	732	733	733	734	751	752	755	762	775	777	1400	1401
		1405	1406	1712	1721	1732	1741	1825	1826	1907	1908	1910	1921	
PSW1	02DC	1677	1688	1758										
PSW2	02DE	701	728	1866										
PSWMSG	04F2	391	442	443										

PSWRTN	040C	1679												
PSWSAVE	1CD8	104												
PURETOP	0000R													
R0	0000	202	203	207	209	215	252	260	263	286	295	313	314	335
		336	337	349	351	354	357	359	364	369	373	383	396	397
		408	754	787	798	802	816	830	1098	1106	2083	2084	2097	2104
		2105	2118	2233	2236	2240	2463	2464	2466	2468	2469	2575	2576	2593
		2599	2606	2618	2619	2620	2626	2632	2634					
R1	0001	106	118	119	121	126	187	190	199	203	204	205	207	208
		215	216	261	264	350	351	358	359	370	374	384	387	400
		755	756	757	799	2085	2089	2106	2110	2237	2465	2466	2467	2468
		2470	2471	2472	2576	2578	2583	2585	2588	2589	2592	2592	2593	2602
		2602	2605	2608	2612	2615	2618	2622						
R10	000A	255	255	256										
R11	0006													
R12	000C													
R13	000D													
R14	000E	308	311	327	330									
R15	000F	309	312	328	331	2601	2609	2623	2635					
R2	0002	102	122	128	189	191	200	253	257	268	293	297	305	306
		314	321	322	337	371	375	385	388	404	405	758	800	2086
		2090	2107	2111	2238	2579	2589	2591	2619					
R3	0003	107	108	109	201	206	211	217	218	253	258	294	296	297
		397	398	399	401	406	1962	1966	1968	1972	1982	1992	2002	2033
		2038	2046	2052	2580	2603	2613	2636	2637					
R4	0004	111	112	113	115	123	125	219	220	221	226	400	401	402
		403	403	404	1963	1973	1983	1993	2003	2581	2584	2586	2590	2590
		2591	2611	2616										
R5	0005	113	115	116	116	118	119	120	123	125	131	227	228	265
		266	270	272	332	333	1964	1974	1984	1994	2004	2583	2584	2615
		2616	2617											
R6	0006	110	120	127	127	128	266	268	272	274	291	292	1943	1954
		1958	1965	1966	2033	2035	2045	2046	2048	2049	2074	2077	2102	2110
		2140	2144	2276	2281	2299	2300	2305	2306	2314	2315	2318	2321	2325
		2328	2333	2334	2337	2340	2347	2348	2353	2358	2417	2428	2431	2432
		2434	2438	2442	2597	2598	2599	2605	2606	2617	2620	2637	2638	
R7	0007	129	130	131	1955	1975	1985	1995	2005	2035	2037	2049	2051	2418
R8	0008	121	122	1956	1976	1986	1996	2006	2037	2051	2419	2421	2423	2432
		2433	2638											
R9	0009													
RCHAR	0C6C	854												
RDCHAR	05B4	506	517											
RDCHAR1	05C2	498												
READ	0A2E	496	518	550	561	572	607	617	932	952	957	1560	1609	1661
		1875	2267	2378	2395	2426	2451							
READ0	0A62	935												
READ1	0A64	936	938	978										
READ5	0A44	925												
READ6	1B48	2422												
READ60	1B4E	2431												
READ61	1B64	2430												
READ62	1B86	2441												
READ63	1B9E	2456												
READBUF	1C7A	2428	2438											
RECADR	02D4	987	2511											
RECHK	15DA	1909												

RET	000E	316	362	363	379	392	605	627	2059	2061	2124	2148	2157	2222
		2228	2229	2285	2291	2297	2303	2310	2324	2343	2361	2386		
RET2	0002	659	665	674	685	690	764	766	772	823	825	882	885	941
		964	1083	1091	1095	1117	1131	1310	1315	1317	1319	1322	1331	1333
		1335	1436	1440	1444	1446	1521	1550	1591	1624	1626	1638	1651	1820
		1840	2063	2078	2126	2132	2150	2164	2225	2227	2312	2331	2345	2439
RETURN	0C68	803	806											
RQ2S	0C4C	1018	1035	1048	1060	1724	1745							
RSAVE	1D60	105	221	252	286	295	396	408	1098	1106				
RUN	0540	475	644	745	983	1069	1812	2480						
SECOND	02D9	1062	2513	2535										
SELOOP	0834	726												
SETUP	0AD8	461	1295											
SNDADR	02D6	994	2533											
SS1	1C42	2521												
START	1010	189												
START2	02E0	139												
STAT	0009	485	486	487	492	702	843	844	849	852	853	854	855	857
		858	859	864	866	870	871	872	877	894	895	896	897	898
		898	899	900	902	904	922	923	924	929	931	934	947	949
		956	960	970	975	977	1064	1065	1066	1067	1090	1119	1124	1125
		1370	1371	1372	1377	1380	1381	1382	1387	1389	1410	1412	1415	1420
		1427	1432	1457	1460	1465	1469	1470	1475	1483	1484	1489	1551	1556
		1600	1605	1652	1657	1689	1779	1780	1784	1803	1815	1815	1836	1836
		1853	1858	1867	1889	1894	1897	1902	2127	2158	2165	2170	2172	2178
		2179	2180	2185	2187	2193	2194	2195	2200	2203	2458	2459	2476	2494
		2517	2540											
STATER	0BFC	964	1820	1840										
STATMSG	0DC6	1123	1126											
STRTOT	1432	1713	1733											
T3END	1548													
T3END1	1564	1877												
T4CPOS	1802	1944	2070											
TAB	0008	1307	1309	1311	1312	1321	1323	1324	1516	1526	1534	1535	1539	1540
		1587	1621	1627	1628	1633	1645							
TALLY	08C4	774												
TCMDERR	0746	609	611	621										
TEMP	0C50	868	880	1079	1081									
TEMP0	0C52	1078	1082	1087										
TEMP1	0C54	2031	2039	2043	2053									
TEMP2	0C56	1127	1130											
TEMP3	0C58	2069	2079											
TEMP4	0C5A	2057	2065	2122	2133	2146	2151	2155	2212					
TEMP5	0C5C	2223	2226											
TEMP6	0C5E	2220	2237	2257										
TEMP7	0C60	2141	2144	2149										
TEMP8	0C62	2222	2228											
TEST	0510	600	605	606	615	616	624	627	667	712				
TEST00	107C	1177												
TEST01	11F0	1177												
TEST02	129C	1177	1663											
TEST03	1388	1177	1925											
TEST04	15EE	1178												
TEST05	192E	1178												
TEST06	1B24	1178	2455											
TESTOA	1214	1544	1548											

TEST0B	127E	1566												
TEST0C	120C	1563												
TEST0D	121A	1525												
TEST0E	1236	1527												
TEST0F	123E	1530												
TEST0G	1250	1536												
TEST0H	1262	1557												
TEST1A	131E	1629												
TEST1C	1336	1641												
TEST1D	1334	1649												
TEST1E	1372	1665												
TEST1F	1342	1637												
TEST2A	12D2	1606												
TEST2AA	12E2	1601												
TEST2AB	1366	1653												
TEST2B	1356	1658												
TEST2G	12B6	1595												
TEST2H	12EE	1613												
TEST2I	129E	1616												
TEST3AA	1534	1854												
TEST3AB	159C	1890												
TEST3AC	158C	1895												
TEST3AD	15A4	1903												
TEST3AE	15B4	1898												
TESTA0	102A	1337												
TESTA1	102C	1313												
TESTA2	104E	1325												
TESTB0	108C	1378	1450											
TESTB1	10AC	1388												
TESTB10	111E	1416												
TESTB11	1142	1428												
TESTB12	1132	1433												
TESTB2	10D8	1390												
TESTB203	1272	1552												
TESTB3	10E6	1407												
TESTB4	10FE	1404	1421											
TESTB5	114A	1408	1424	1426										
TESTB8	10A2	1373												
TESTB9	10C2	1383												
TESTNO	0C34	467	641	707	719	721	730	741	2470					
TESTOUT	07DE	668												
TESTOUT1	07E6	694												
TESTOUT2	0802	683												
TESTOUT3	080C	688												
TIME	0C42	1766	1768											
TINP	149E	1792												
TME1	0BEC	1105												
TME2	0BEE	1103												
TMER	0BE4	2064	2362	2387										
TREAD	0C47	494	1365	1379	1507	1558	1583	1607	1659	1756	1868	1873	1904	1937
		2252	2264	2375	2392	2412	2424	2449	2515					
TREADB	0C49	2176												
TRY1	1C24													
TRY2	1C4C													
TRYIN	1500	1798												
TRYOUT	14D0	1794												

TST03A	13FC	1911												
TST4A	161C	2013	2017											
TST4A0	160E	1947												
TST4B	162A	1958												
TST4C	1632	2019												
TST4D	164C	1968												
TST4E	164E													
TST4F	1666													
TST4G	1680													
TST4H	169B	2023												
TST4I	16BC	2011												
TST4J	16CA	2015												
TST4K	16D2													
TST4Z	16DE	2021	2098	2119										
TST5A	195C	2271												
TST5B	1972													
TST5C	1994													
TST5D	19C0													
TST5E	19EC													
TST5F	1A0A													
TST5G	1A4C													
TST5H	1A7E													
TST5I	1AD6	2382												
TST5K	1AEC													
TST5L	1B0A	2399												
TST5Z	1B20	2243												
TSTB2A	10DA	1394												
TSTBRK	1514	1839												
TSTEXT	0812	1478	1567	1611	1666	1879	2027	2191	2209	2402	2453			
TSTSEL	082C	476	743											
TSTSUB4A	16E6	1977	1987	1997										
TSTSUB4B	16EA	2038												
TSTSUB4C	1702	2007												
TSTSUB4D	170B	2052												
TSTTAB	0C86	610	733											
TTY	0B56	1033												
TWRT	0C46	477	651	821	1013	1042	1055	1147	1367	1398	1509	1518	1585	1617
		1622	1720	1740	1870	1878	1887	1939	2207	2254	2272	2383	2400	2414
		2437	2475	2537										
TWRTB	0C48	1014	1044	1056	1149									
TYPE1	064A	542	542	542	543									
TYPE11	0676	552	555											
TYPE2	068A	543												
TYPE2A	0694	588												
TYPE2B	06C6	577	581											
TYPE2C	06CE	574												
TYPE3	06DA	542												
TYPE31	073A	619												
TYPE3A	06F0	598												
TYPE3L	0700	622												
TYPE4	0754	543												
TYPE5	077A	543												
TYPE5A	079E	662												
TYPE5B	078E	677	696											
TYPE5C	07C4	676												
TYPTAB	063A	539												

WAIT	0C3E	1719	1739	1754	1823	1833								
WORK	0006	471	472	728	729	987	988	989	990	994	995	996	997	1030
		1032	1099	1104	1401	1402	1403	1725	1726	1727	1746	1747	1748	1758
		1759	1770	1771	1804	1805	1828	1830	1860	1861	2508	2530	2547	
WORK2	000A	472	729	767	773	988	991	992	993	995	998	999	1000	1100
		1102	1727	1748	1759	1771								
WRITE6	1B74	2442												
XI1	0370	271												
XI16	034A	227	1693											
XI2	0380	269												
XI3	038C													
XI32	0350													
XI32A	0366													
XI4	0390	288												
XIERR	0394	209	267	273										
XIEXIT	0392	274												
ZERO	0004	246	467	473	606	640	641	740	741	943	983	1004	1040	1053
		1066	1069	1706	1707	1708	1718	1719	1722	1738	1739	1742	1754	1755
		1811	1812	2025	2211	2507	2508	2529	2530	2545	2546	2547		
ZERO1	02FC	204												
ZERO2	030C	208												
ZERO3	031C	216												

PROG= M1132 ASSEMBLED BY CAL 03-066R04-01 (32-BIT)

```
                                 1          SCRAT                                                  FOX00010
                                 2          CROSS                                                  FOX00020
                                 3          WIDTH  120                                             FOX00030
0000001                          4          NLSTC                                                  FOX00040
                                 8          ELSE                                                   FOX00080
                                10  *       TARGT 32                                               FOX00100
                                11          NORX3                                                  FOX00110
0000001                         12          ENDC                                                   FOX00120
0000001                         13          SQCHK                                                  FOX00130
                                14  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  FOX00140
                                15  *                                                             *  FOX00150
                                16  * COPYRIGHT    INTERDATA, INC.          JULY, 1977           *  FOX00160
                                17  *                                                             *  FOX00170
                                18  * PROGRAM USES THE SUBSET OF BASIC MODEL 7/16 INSTRUCTION SET.  *  FOX00180
                                19  * THIS TEST RUNS ON 16-BIT (MODEL 5/16 OR EQUIVALENT) AND      *  FOX00190
                                20  * 32-BIT (7/32 OR EQUIVALENT) PROCESSORS.                      *  FOX00200
                                21  *                                                             *  FOX00210
                                22  * ASUMPTIONS :                                                 *  FOX00220
                                23  *  THIS PROGRAM ASSUMES THAT THE PROCESSOR TEST, MEMORY TEST,  *  FOX00230
                                24  *  & PALS OFF-LINE TEST/CURRENT LOOP INTERFACE TEST HAVE BEEN  *  FOX00240
                                25  *  RUN WITHOUT DETECTING AN ERROR.                            *  FOX00250
                                26  *                                                             *  FOX00260
                                27  * THE TEST                                                    *  FOX00270
                                28  *  THIS PROGRAM TESTS THE MODEL-1100 DISPLAY TERMINAL AS A    *  FOX00280
                                29  *  CONSOLE OUTPUT DEVICE AND KEYBOARD DEVICE. THIS LOCAL      *  FOX00290
                                30  *  TERMINAL MAY BE INTERFACED TO THE HOST PROCESSOR THROUGH THE *  FOX00300
                                31  *  PROGRAMMABLE ASYNCHRONOUS SINGLE LINE ADAPTER (PASLA) OR THE *  FOX00310
                                32  *  CURRENT LOOP INTERFACE OR THE 5/16 MICRO I/O BUS. THE TEST  *  FOX00320
                                33  *  SUPPORTS THE PASLA STRAPPED FOR EITHER HALF OR FULL DUPLEX. *  FOX00330
                                34  *                                                             *  FOX00340
                                35  *                                                             *  FOX00350
                                36  *  TO TEST THE MODEL-1100 DISPLAY TERMINAL, RUN TESTS 0, 1, 2, *  FOX00360
                                37  *  3, 4, & 5.  TEST 6 (ECHO/HEREIS TEST) IS OPTIONAL.         *  FOX00370
                                38  *  IF THE MODEL-1100 DISPLAY TERMINAL DOES NOT RESPOND TO THE *  FOX00380
                                39  *  TEST AT ALL, THEN TRY THE TWO SIMPLE READ & WRITE ROUTINES *  FOX00390
                                40  *  AT LABELS "TRY1" AND "TRY2" (DISPLAY PANEL REQUIRED).      *  FOX00400
                                41  *                                                             *  FOX00410
                                42  * PREREQUISITE :                                              *  FOX00420
                                43  *  PRIOR TO STARTING THIS TEST, USER MUST SET UP THE HALFWORDS *  FOX00430
                                44  *  "RECADR", "SNDADR", "PALSPD", & "PASFLG" AS REQUIRED.      *  FOX00440
                                45  *                                                             *  FOX00450
                                46  * LOADING PROCEDURE                                           *  FOX00460
                                47  *    1.  MANUALLY ENTER THE '50 SEQUENCE'.                    *  FOX00470
                                48  *    2.  PLACE THE TEST TAPE IN TAPE READER.                  *  FOX00480
                                49  *    3.  ADDRESS X'50' & DEPRESS RUN/EXE. TAPE LOADING STARTS. *  FOX00490
                                50  *    4.  WHEN THE PROCESSOR HALTS, OBSERVE THAT THE CHKSUM BYTE *  FOX00500
                                51  *        DISPLAYED IN DISPLAY REGISTER D1 (IF EQUIPPED) IS    *  FOX00510
                                52  *        ZERO. IF NOT, REPEAT STEPS 1, 2, & 3 ABOVE.          *  FOX00520
                                53  *    5.  SET UP THE DEVICE ADDRESSES AS EXPLAINED ABOVE.      *  FOX00530
                                56          ELSE                                                   FOX00560
                                57  *    6.  START AT  X'A00' FOR 32-BIT PROCESSOR.               *  FOX00570
0000001                         58          ENDC                                                   FOX00580
                                59  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  FOX00590
```

REGISTER ASSIGNMENTS

```
                        61  *                                                  FOX00610
                        62  * REGISTER ASSIGNMENTS:                           FOX00620
                        63  *                                                  FOX00630
0000 0000               64  R0      EQU   0                                   FOX00640
0000 0000               65  DEV0    EQU   0                                   FOX00650
0000 0001               66  R1      EQU   1                                   FOX00660
0000 0001               67  DEV1    EQU   1                                   FOX00670
0000 0002               68  R2      EQU   2                                   FOX00680
0000 0002               69  RET2    EQU   2                                   FOX00690
0000 0003               70  R3      EQU   3                                   FOX00700
0000 0003               71  FLAG    EQU   3                                   FOX00710
0000 0004               72  R4      EQU   4                                   FOX00720
0000 0004               73  ZERO    EQU   4                                   FOX00730
0000 0005               74  R5      EQU   5                                   FOX00740
0000 0005               75  ONE     EQU   5                                   FOX00750
0000 0006               76  R6      EQU   6                                   FOX00760
0000 0006               77  WORK    EQU   6                                   FOX00770
0000 0007               78  R7      EQU   7                                   FOX00780
0000 0007               79  DAT     EQU   7                                   FOX00790
0000 0008               80  R8      EQU   8                                   FOX00800
0000 0008               81  TAB     EQU   8                                   FOX00810
0000 0009               82  R9      EQU   9                                   FOX00820
0000 0009               83  STAT    EQU   9                                   FOX00830
0000 000A               84  R10     EQU   10                                  FOX00840
0000 000A               85  WORK2   EQU   10                                  FOX00850
0000 000B               86  R11     EQU   11                                  FOX00860
0000 000B               87  CHAR    EQU   11                                  FOX00870
0000 000C               88  R12     EQU   12                                  FOX00880
0000 000C               89  POINT   EQU   12                                  FOX00890
0000 000D               90  R13     EQU   13                                  FOX00900
0000 000D               91  COUNT   EQU   13                                  FOX00910
0000 000E               92  R14     EQU   14                                  FOX00920
0000 000E               93  RET     EQU   14                                  FOX00930
0000 000F               94  R15     EQU   15                                  FOX00940
0000 000F               95  LINK    EQU   15                                  FOX00950
```

BOOTSTRAP LOADER

```
                                 97  *                                                                    FOX00970
                                 98  *  BOOTLOADER WITH CHKSUM                                           FOX00980
                                 99  *                                                                    FOX00990
0000001                         100          ORG    X'80'                                                 FOX01000
                                101  *                                                                    FOX01010
000080   2421                  102          LIS    R2,1                                                  FOX01020
000082   2303                  103          BS     BOOT                                                  FOX01030
000084   2438                  104          DC     Z(PSWSAVE)        CURRENT PSW SAVE POINTER(32-BIT M/C)  FOX01040
000086   24C0                  105          DC     Z(RSAVE)          REGISTER SAVE POINTER(32-BIT M/C)     FOX01050
000088   C810 0A00             106  BOOT    LHI    R1,ORIGIN         R1 = ADR( FIRST BYTE OF TEST PROG )   FOX01060
00008C   C830 23DE             107          LHI    R3,LNZB+1                                             FOX01070
000090   4030 0022             108          STH    R3,X'22'                                              FOX01080
000094   2731                  109          SIS    R3,1              R3 = ADR( LAST NON-ZERO BYTE )        FOX01090
000096   C860 0000             110  MN      LHI    R6,0              R6 = CHKSUM BYTE = X'MN'              FOX01100
00009A   D340 0078             111          LB     R4,X'78'          INPUT DEV ADR                         FOX01110
00009E   DE40 0079             112          DC     R4,X'79'                                                FOX01120
0000A2   9D45                  113  LEADER  SSR    R4,R5                                                   FOX01130
0000A4   2091                  114          BTBS   9,1               DU,BSY                                FOX01140
0000A6   9B45                  115          RDR    R4,R5                                                   FOX01150
0000A8   0855                  116          LDAR   R5,R5                                                   FOX01160
0000AA   2234                  117          BZS    LEADER            IGNORE LEADER                         FOX01170
0000AC   D251 0000             118  LOAD    STB    R5,0(R1)          STORE 1ST NON-ZERO & SUBSEQUENT BYTE  FOX01180
0000B0   D351 0000             119          LB     R5,0(R1)          FETCH BYTE AS STORRED                 FOX01190
0000B4   0765                  120          XAR    R6,R5             GENERATE CHKSUM                       FOX01200
0000B6   9481                  121          EXBR   R8,R1                                                   FOX01210
0000B8   9828                  122          WHR    R2,R8             DISPLAY ADDRESS BEING LOADED          FOX01220
0000BA   9D45                  123          SSR    R4,R5                                                   FOX01230
0000BC   2091                  124          BTBS   9,1               DU,BSY                                FOX01240
0000BE   9B45                  125          RDR    R4,R5                                                   FOX01250
0000C0   C110 00AC             126          BXLE   R1,LOAD           LOAD TILL LAST BYTE                   FOX01260
0000C4   9466                  127          EXBR   R6,R6                                                   FOX01270
0000C6   9826                  128          WHR    R2,R6             DISPLAY FINAL CHKSUM                  FOX01280
0000C8   2478                  129  LDWT    LIS    R7,8                                                    FOX01290
0000CA   917C                  130          SLHLS  R7,12                                                   FOX01300
0000CC   9557                  131          EPSR   R5,R7             PSW = X'8000' (HALT)                  FOX01310
0000CE   2203                  132          BS     LDWT              HALT !                                FOX01320
```

```
EXEC

000000                          IFNZ   ADC-2                                    FOX01340
000000                          ORG    X'A00'                                   FOX01350
000A00   4300 0A10              B      START1          START HERE FOR 32-BIT PROCESSOR  FOX01360
                                ENDC                                            FOX01400
                                *-----------------------------------------------FOX01410
                                * MODEL-1100 INTERFACE DEVICE ADDRESSES & INTERRUPT LEVELS  FOX01420
                                *                                               FOX01430
                                * USER MUST SETUP NEXT FOUR HALFWORDS PRIOR TO STARTING THE TEST.  FOX01440
                                *                                               FOX01450
                                * IF PASLA (FDX ONLY) CONTROLLER :              FOX01460
                                *        RECADR 0:3  = INTERRUPT LEVEL OF RECEIVE SIDE  FOX01470
                                *        RECADR 4:15 = DEVICE ADDRESS OF RECEIVE SIDE (EVEN)  FOX01480
                                *                                               FOX01490
                                *        SNDADR 0:3  = INTERRUPT LEVEL OF TRANSMIT SIDE  FOX01500
                                *        SNDADR 4:15 = DEVICE ADDRESS OF TRANSMIT SIDE (ODD)  FOX01510
                                *                                               FOX01520
                                * IF CLI, MICRO I/O BUS, OR PASLA (HDX) CONTROLLER :  FOX01530
                                *        RECADR 0:3 = SNDADR 0:3 = CLI INTERRUPT LEVEL  FOX01540
                                *        RECADR 4:15 = SNDADR 4:15 = CLI DEVICE ADDRESS (HDX)  FOX01550
                                *                                               FOX01560
000A04   0010                   RECADR DCX    0010            RECEIVE DEVICE ADDRESS  FOX01570
                                *                                               FOX01580
000A06   0011                   SNDADR DCX    0011            SEND DEVICE ADDRESS  FOX01590
                                *                                               FOX01600
                                * SECOND PASLA COMMAND = HIGHEST BAUD RATE.     FOX01610
                                * 8 DATA BITS, 1 STOP BIT, NO PARITY CHECK (X'F0').  FOX01620
                                *                                               FOX01630
000A08   00F0                   PALSPD DCX    00F0            PALS SPEED OUTPUT COMMAND  FOX01640
         0000 0A09              SECOND EQU    PALSPD+1                         FOX01650
                                *                                               FOX01660
                                * FOR PASLA (HDX) CONTROLLER ONLY, CHANGE NEXT HW TO X'000F'.  FOX01670
                                * FOR MICRO I/O BUS CONTROLLER CHANGE NEXT HW TO X'F000'.  FOX01680
                                * OTHERWISE LET THE NEXT HALFWORD = 0.         FOX01690
                                *                                               FOX01700
000A0A   0000                   PASFLG DCX    0               PASLA/MICRO-BUS FLAG  FOX01710
                                *                                               FOX01720
                                ENDC                                            FOX01760
                                *                                               FOX01770
000A0C   70F0                   PSW1   DCX    70F0            ENABLE PSW USED IN PROGRAM  FOX01780
000A0E   30F0                   PSW2   DCX    30F0            DISABLE PSW USED IN PROGRAM  FOX01790
                                *-----------------------------------------------FOX01800
000A10                          IFNZ   ADC-2                                    FOX01810
000A10   2410                   START1 LIS    R1,0                             FOX01820
000A12   C820 00F0              LHI    R2,X'F0'                                 FOX01830
000A16   4010 0030              STH    R1,X'30'        DISABLE INT AT PROCESSOR LEVEL  FOX01840
000A1A   4020 0032              STH    R2,X'32'        SELECT REG SET 15        FOX01850
                                ENDC                                            FOX01880
000A1E   C820 1766              LHI    R2,START                                 FOX01890
000A22   4010 0034              STH    R1,X'34'                                 FOX01900
000A26   4020 0036              STH    R2,X'36'        ESTABLISH II INT NEW PSW LOC  FOX01910
000A2A   0000                   DCX    0               TAKE ILLEGAL INSTRUCTION INTERRUPT  FOX01920
                                *                                               FOX01930
000A2C   2200                   HALT   DCX    2200            HALT IF II INTERRUPT IS NOT TAKEN  FOX01940
                                *                                               FOX01950
```

```
EXEC

                                 196  ***********************************                                    FOX01960
                                 197  *  LOW CORE SET UP ROUTINE                                            FOX01970
                                 198  *                                                                     FOX01980
000A2E  2410                     199  LCORE    LIS    R1,0                                                 FOX01990
000A30  2422                     200           LIS    R2,2                                                 FOX02000
000A32  C830 004E                201           LHI    R3,X'4E'                                             FOX02010
000A36  2400                     202           LIS    R0,0                                                 FOX02020
000A38  4001 0000                203  ZERO1    STH    R0,0(R1)                                             FOX02030
000A3C  C110 0A38                204           BXLE   R1,ZERO1          ZERO CORE FROM 0 THRU X'4F'          FOX02040
000A40  C810 0080                205           LHI    R1,X'80'          (LEAVE X'50' - X'7F' AS IS)          FOX02050
000A44  C830 00CE                206           LHI    R3,X'CE'                                             FOX02060
000A48  4001 0000                207  ZERO2    STH    R0,0(R1)                                             FOX02070
000A4C  C110 0A48                208           BXLE   R1,ZERO2          ZERO CORE FROM X'80' THRU X'CF'      FOX02080
000A50  C800 0AF0                209           LHI    R0,XIERR          EXTERNAL INT ERROR ROUTINE START ADR FOX02090
                                 212           ELSE                                                         FOX02120
000A54  C830 08CE                213           LHI    R3,X'8CE'                                            FOX02130
000A58                           214           ENDC                                                         FOX02140
000A58  4001 0000                215  ZERO3    STH    R0,0(R1)                                             FOX02150
000A5C  C110 0A58                216           BXLE   R1,ZERO3          SET UP INT SERVICE POINTER TABLE     FOX02160
000A60  C830 0B12                217           LHI    R3,II                                                FOX02170
000A64  4030 0036                218           STH    R3,X'36'          ILL INST INT NEW PSW LOC           FOX02180
000A68  C840 0B34                219           LHI    R4,MM                                                FOX02190
000A6C  4040 003E                220           STH    R4,X'3E'          M. M. INT NEW PSW LOC              FOX02200
000A70  C840 24C0                221           LHI    R4,RSAVE                                             FOX02210
                                 229           ELSE                                                         FOX02290
                                 230  *                                                                     FOX02300
                                 231  *  SET UP LOW CORE FOR 32 BIT MACHINE                                FOX02310
                                 232  *                                                                     FOX02320
000A74  4040 0086                233  LCORE32  STH    R4,X'86'          REG SAVE POINTER                   FOX02330
000A78  2440                     234           LIS    R4,0                                                 FOX02340
000A7A  4040 0084                235           STH    R4,X'84'          PSW SAVE AREA                      FOX02350
000A7E  2410                     236           LIS    R1,0              TO SET UP SERVCIE POINTER TABLE    FOX02360
000A80  C830 0A9A                237           LHI    R3,XI32                                              FOX02370
000A84  4821 0C10                238  LCORE32A LH     R2,DEVSADR(R1)    GET DEV ADR FROM TABLE             FOX02380
000A88  2116                     239           BMS    LCOREXIT          IF DONE, BRANCH                    FOX02390
000A8A  0A22                     240           AAR    R2,R2                                                FOX02400
000A8C  4032 00D0                241           STH    R3,X'D0'(R2)      STORE @  X'D0'+2(DEV ADR)          FOX02410
000A90  2612                     242           AIS    R1,2                                                 FOX02420
000A92  2207                     243           BS     LCORE32A                                             FOX02430
000A94                           244           ENDC                                                         FOX02440
                                 245  *                                                                     FOX02450
000A94  2440                     246  LCOREXIT LIS    ZERO,0            INITIALIZE "ZERO"                  FOX02460
000A96  2451                     247           LIS    ONE,1             AND "ONE"                          FOX02470
000A98  030E                     248           BR     LINK              RETURN                             FOX02480
                                 249  ***********************************************                        FOX02490
                                 250  *  EXTERNAL INTERRUPT HANDLER                                        FOX02500
                                 254           ENDC                                                         FOX02540
000A9A  95AA                     255  XI32     EPSR   R10,R10           32-BIT PROCESSOR INTERRUPT HANDLER FOX02550
000A9C  40A0 0C1E                256           STH    R10,INTPSW        SAVE CURRENT PSW                   FOX02560
000AA0  4020 0C20                257           STH    R2,INTDEV         STORE INTERRUPTING DEV ADR         FOX02570
000AA4  D230 0C24                258           STB    R3,INTSTA         AND STATUS                         FOX02580
                                 262           ENDC                                                         FOX02620
000AA8  4000 0C0A                263  XI32A    STH    R0,OPSW           SAVE OLD PSW                       FOX02630
000AAC  4010 0C0E                264           STH    R1,OLOC           SAVE OLD LOC                       FOX02640
```

```
EXEC

000AB0   2450                 LIS    R5,0                                    FOX02650
000AB2   4865 0C10            LH     R6,DEVSADR(R5)     GET DEV ADR FROM TABLE   FOX02660
000AB6   4210 0AF0            BM     XIERR              IF DEV NOT IN TABLE, BRANCH  FOX02670
000ABA   0562                 CLAR   R6,R2              COMPARE IT WITH INTERRUPTING DEV ADR  FOX02680
000ABC   2333                 BES    XI2                BRANCH IF EQUAL          FOX02690
000ABE   2652                 AIS    R5,2                                        FOX02700
000AC0   2207                 BS     XI1                                         FOX02710
000AC2   4865 0C1A            LH     R6,DEVINT(R5)      GET DEV INTERRUPT HANDLER ADDRESS  FOX02720
000AC6   4330 0AF0            BZ     XIERR              IF INTERRUPT NOT EXPECTED, BRANCH  FOX02730
000ACA   4060 0AEE            STH    R6,XIEXIT                                   FOX02740
000ACE                        IFNZ   ADC-2                                       FOX02750
000ACE   9051                 SRHLS  R5,1               CHECK INTERRUPT LEVEL    FOX02760
000AD0   90A4                 SRHLS  R10,4                                       FOX02770
000AD2   C4A0 000F            NHI    R10,15             R10 = INTERRUPT LEVEL    FOX02780
000AD6   C860 4636            LHI    R6,C'F6'                                    FOX02790
000ADA   D4A5 0C18            CLB    R10,INTLVL(R5)     COMPARE IT WITH THE ASSIGNED ONE  FOX02800
000ADE   213B                 BNES   XIERR+4                                     FOX02810
000AE0   C810 00F0            LHI    R1,X'F0'                                    FOX02820
000AE4   9501                 EPSR   R0,R1              DIS INT , REG SET 15     FOX02830
000AE6   2303                 BS     XI4                                         FOX02840
000AE8                        ENDC                                               FOX02850
000AE8   D100 24C0            LM     R0,RSAVE           RESTORE REG (16-BIT PROCESSOR)  FOX02860
000AEC   4300 0AEC            B      *                  RETURN TO TEST OR INTERRUPT HANDLER  FOX02870
         0000 0AEE            EQU    XI4+2                                       FOX02880
                              *-----------------------------------                FOX02890
                              *      EXTERNAL INTERRUPT ERROR ROUTINE             FOX02900
000AF0   C860 4634            LHI    R6,C'F4'                                    FOX02910
000AF4   4060 0C2E            STH    R6,ERRNO           ESTABLISH ERROR MESSAGE  FOX02920
000AF8   4020 0C22            STH    R2,ERRDEV          PARAMETERS               FOX02930
000AFC   D230 0C25            STB    R3,ERRSTA                                   FOX02940
000B00   D100 24C0            LM     R0,RSAVE           RESTORE REGISTERS        FOX02950
000B04   C830 00F0            LHI    R3,X'F0'                                    FOX02960
000B08   9523                 EPSR   R2,R3              REG SET 15               FOX02970
000B0A   41F0 0B78            BAL    LINK,ERRALL        OUTPUT MESSAGES:  "ERROR XXF4"  FOX02980
                              *                         "DEV DDD STA SS","PSW PPPP LOC LLLL"  FOX02990
000B0E   4300 0CA0            B      CMDIN              GO TO BEGINING           FOX03000
                              *-----------------------------------                FOX03010
                              *  SPURIOUS INTERRUPT HANDLERS                     FOX03020
                              *-----------------------------------                FOX03030
                              *  ILLEGAL INSTRUCTION INTERRUPT TRAP               FOX03040
000B12   C820 4632            LHI    R2,C'F2'                                    FOX03050
000B16   4020 0C2E            STH    R2,ERRNO           SET ERROR # F2           FOX03060
                              ENDC                                               FOX03100
000B1A   40E0 0C0A            STH    R14,OPSW           SAVE OLD PSW             FOX03110
000B1E   40F0 0C0E            STH    R15,OLOC           SAVE OLD LOC             FOX03120
000B22   C800 00F0            LHI    R0,X'F0'                                    FOX03130
000B26   9520                 EPSR   R2,R0              NO INT., REG SET 15      FOX03140
000B28   41F0 0B62            BAL    LINK,ERR           PRINT "ERROR XXFN"       FOX03150
000B2C   41E0 0BBA            BAL    RET,ERRPL1         PRINT "PSW PPPP  LOC LLLL"  FOX03160
000B30   4300 0CA0            B      CMDIN              GO TO BEGINING           FOX03170
                              *                                                  FOX03180
                              *  MACHINE MALFUNCTION INTERRUPT TRAP               FOX03190
                              *                                                  FOX03200
000B34   C820 4633            LHI    R2,C'F3'                                    FOX03210
```

```
EXEC

000B38  4020 0C2E          STH    R2,ERRNO          SET ERROR # F3                  FOX03220
000B3C                     IFNZ   ADC-2                                             FOX03230
000B3C  48E0 0022          LH     R14,X'22'         GET OLD PSW (32-BIT PROCESSOR)  FOX03240
000B40  48F0 0026          LH     R15,X'26'         GET OLD LOC                     FOX03250
                           ENDC                                                     FOX03290
000B44  40E0 0C0A  MM32    STH    R14,OPSW          STORE OLD PSW                   FOX03300
000B48  40F0 0C0E          STH    R15,OLOC          STORE OLD LOC                   FOX03310
000B4C  C850 7FFF          LHI    R5,X'7FFF'                                         FOX03320
000B50  2751       ABOVE   SIS    R5,1                                               FOX03330
000B52  2031               BNZS   ABOVE             WAIT (PROCESSOR SETTELING TIME) FOX03340
000B54  C800 080F          LHI    R0,X'080F'                                         FOX03350
000B58  9104               SLHLS  R0,4              R0 = X'80F0' = PSW              FOX03360
000B5A  9520               EPSR   R2,R0             HALT PROCESSOR                  FOX03370
                   *   WHEN EXE/RUN IS DEPRESSED, ERROR MSG IS PRINTED.             FOX03380
000B5C  4300 0B22          B      COMM1                                              FOX03390
                   *                                                                FOX03400
                           ELSE                                                     FOX03430
000B60  1800       PSWRTN  LPSWR  R0                RETURN ON INTERRUPT TO LOC      FOX03440
000B62                     ENDC                    WHERE INTERRUPT OCCURRED        FOX03450
                   *                                                                FOX03460
                   *  ERROR ROUTINES                                                FOX03470
                   *                                                                FOX03480
000B62  D000 2440  ERR     STM    R0,ERRSAVE        STORE REGISTERS                 FOX03490
000B66  C810 00F0          LHI    R1,X'F0'                                           FOX03500
000B6A  9501               EPSR   R0,R1             DISABLE INT. @ PROCESSOR LEVEL  FOX03510
000B6C  41F0 1078          BAL    LINK,OUTPUT       OUTPUT MESSAGE                  FOX03520
000B70  0C26               DC     Z(ERRNOMSG)       "ERROR XX"                      FOX03530
000B72  D100 2440          LM     R0,ERRSAVE        RESTORE REGISTERS               FOX03540
000B76  030F               BR     LINK              RETURN TO TEST                  FOX03550
                   *                                                                FOX03560
000B78  D000 2440  ERRALL  STM    R0,ERRSAVE        STORE REGISTERS                 FOX03570
000B7C  C810 00F0          LHI    R1,X'F0'                                           FOX03580
000B80  9501               EPSR   R0,R1             DISABLE INT @ PROCESSOR LEVEL   FOX03590
000B82  41F0 1078          BAL    LINK,OUTPUT       OUTPUT MESSAGE                  FOX03600
000B86  0C26               DC     Z(ERRNOMSG)       "ERROR XX"                      FOX03610
000B88  41E0 0B96          BAL    RET,ERRDS1        PRINT 'DEV DDD STA SS'          FOX03620
000B8C  41E0 0BBA          BAL    RET,ERRPL1        PRINT 'PSW PPPP  LOC LLLL'      FOX03630
000B90  D100 2440          LM     R0,ERRSAVE        RESTORE REGISTERS               FOX03640
000B94  030F               BR     LINK              RETURN                          FOX03650
                   *                                                                FOX03660
                   *  TO PRINT 'DEV DDD STA SS'                                     FOX03670
                   *                                                                FOX03680
000B96  2403       ERRDS1  LIS    R0,3              SET UP DIGITS = 3               FOX03690
000B98  4810 0C22          LH     R1,ERRDEV         R1 = ERROR DEV #                FOX03700
000B9C  C820 0C38          LHI    R2,ASCIDEV                                         FOX03710
000BA0  41F0 0BDC          BAL    LINK,HEXASC       CONVERT IT TO ASCII             FOX03720
000BA4  2402               LIS    R0,2              SET UP DIGITS = 2               FOX03730
000BA6  D310 0C25          LB     R1,ERRSTA         R1 = ERROR STATUS               FOX03740
000BAA  C820 0C40          LHI    R2,ASCISTA                                         FOX03750
000BAE  41F0 0BDC          BAL    LINK,HEXASC       CONVERT IT TO ASCII             FOX03760
000BB2  41F0 1078          BAL    LINK,OUTPUT       OUTPUT MESSAGE                  FOX03770
000BB6  0C32               DC     Z(DEVMSG)         "DEV DDD STA SS"                FOX03780
000BB8  030E               BR     RET               RETURN                          FOX03790
                   *                                                                FOX03800
```

```
EXEC

                                 381  *  TO PRINT 'PSW PPPP  LOC LLLL'                                  FOX03810
                                 382  *                                                                FOX03820
000BBA   2404                    383  ERRFL1   LIS    R0,4              SET UP DIGITS = 4             FOX03830
000BBC   4810 0C0A               384           LH     R1,OPSW           R1 = OLD PSW                  FOX03840
000BC0   C820 0C4A               385           LHI    R2,ASCIPSW                                      FOX03850
000BC4   41F0 0BDC               386           BAL    LINK,HEXASC       CONVERT IT TO ASCII           FOX03860
000BC8   4810 0C0E               387           LH     R1,OLOC           R1= OLD LOC                   FOX03870
000BCC   C820 0C54               388           LHI    R2,ASCILOC                                      FOX03880
000BD0   41F0 0BDC               389           BAL    LINK,HEXASC       CONVERT IT TO ASCII           FOX03890
000BD4   41F0 1078               390           BAL    LINK,OUTPUT       OUTPUT MESSAGE                FOX03900
000BD8   0C44                    391           DC     Z(PSWMSG)         "PSW PPPP LOC LLLL"           FOX03910
000BDA   030E                    392           BR     RET               RETURN                        FOX03920
                                 393  *-----------------------------------                           FOX03930
                                 394  *  TO CONVERT THE NUMBER OF DIGITS IN R0, FROM THE BINARY DATA IN R1  FOX03940
                                 395  *  INTO ASCII CHARACTERS AND STORE AT 0(R2).                     FOX03950
000BDC   D000 24C0               396  HEXASC   STM    R0,RSAVE          STORE REGISTERS               FOX03960
000BE0   0830                    397           LDAR   R3,R0             R3 = DIGITS                   FOX03970
000BE2   9132                    398           SLHLS  R3,2                                            FOX03980
000BE4   2734                    399           SIS    R3,4              R3 = 4(DIGITS)-4              FOX03990
000BE6   0841                    400  HEXASC1  LDAR   R4,R1             R4 = HEX DATA                 FOX04000
000BE8   CC43 0000               401           SRHL   R4,0(R3)                                        FOX04010
000BEC   C440 000F               402           NHI    R4,15             R4 = HEX DIGIT TO BE CONVERTED FOX04020
000BF0   D344 13CC               403           LB     R4,HEXTAB(R4)     GET ASCII FOR HEX DIGIT       FOX04030
000BF4   D242 0000               404           STB    R4,0(R2)          STORE ASCII CHAR AT (R2)      FOX04040
000BF8   2621                    405           AIS    R2,1                                            FOX04050
000BFA   2734                    406           SIS    R3,4                                            FOX04060
000BFC   221B                    407           BNMS   HEXASC1           LOOP TILL ALL DIGITS ARE CONVERTED FOX04070
000BFE   D100 24C0               408           LM     R0,RSAVE          RESTORE REGISTERS             FOX04080
000C02   030F                    409           BR     LINK              RETURN                        FOX04090
                                 410  *-----------------------------------                           FOX04100
                                 411  * ETPE CONSTANTS & MESSAGES                                     FOX04110
                                 412  *-----------------------------------                           FOX04120
                                 413  * TEST SEQUENCEING PAREMETERS                                   FOX04130
         0000 FC00               414  DFAULT   EQU    X'FC00'           0, 1, 2, 3, 4, & 5            FOX04140
         0000 FE00               415  MASK     EQU    X'FE00'           0, 1, 2, 3, 4, 5, & 6         FOX04150
000C08                           416           ALIGN  8                                               FOX04160
                                 417  *-----------------------------------                           FOX04170
000C08   0000                    418  OPSW32   DCX    0                 OLD PSW & LOC STORAGE AREA    FOX04180
000C0A   0000                    419  OPSW     DCX    0                                             FOX04190
000C0C   0000                    420           DCX    0                                             FOX04200
000C0E   0000                    421  OLOC     DCX    0                                             FOX04210
                                 422  *-----------------------------------                           FOX04220
000C10   0000                    423  DEVSADR  DCX    0                 RECEIVE ADDRESS  (FDX)       FOX04230
000C12   0000                    424           DCX    0                 TRANSMIT ADDRESS (FDX)        FOX04240
000C14   FFFF FFFF               425           DC     -1                END OF TABLE                  FOX04250
                                 426  *                                                                FOX04260
000C18   0000                    427  INTLVL   DCX    0                 REC & SEND INTERRUPT LEVELS   FOX04270
000C1A   0000                    428  DEVINT   DCX    0                 INTERRUPT RETURN ADDRESSES - RECEIVE  FOX04280
000C1C   0000                    429           DCX    0                 INTERRUPT RETURN ADDRESSES -TRANSMIT  FOX04290
000C1E   0000                    430  INTPSW   DCX    0                 INTERRUPTING PSW              FOX04300
000C20   0000                    431  INTDEV   DCX    0                 INTERRUPTING DEV ADR          FOX04310
000C22   0000                    432  ERRDEV   DCX    0                 ERROR DEVICE #                FOX04320
000C24   00                      433  INTSTA   DB     0                 INTERRUPTING DEV STATUS       FOX04330
000C25   00                      434  ERRSTA   DB     0                 ERRONEOUS STATUS              FOX04340
```

EXEC - ERROR MESSAGES

```
000C26   0A0D                 436  ERRNOMSG DC     X'0A0D',C'ERROR 00',X'A0A0'                          FOX04360
000C28   4552524F
         52203030
000C30   A0A0
         0000 0C2E            437  ERRNO    EQU    ERRNOMSG+8          STORE ERRNO AS CHAR CONSTANT     FOX04370
000C32   0A0D                 438  DEVMSG   DC     X'0A0D',C'DEV 000 STA 00',X'A0A0'                    FOX04380
000C34   44455620
         30303020
         53544120
         3030
000C42   A0A0
         0000 0C38            439  ASCIDEV  EQU    DEVMSG+6                                             FOX04390
         0000 0C40            440  ASCISTA  EQU    DEVMSG+14                                            FOX04400
000C44   0A0D                 441  PSWMSG   DC     X'0A0D',C'PSW 0000  LOC 0000',X'A0A0'                FOX04410
000C46   50535720
         30303030
         20204C4F
         43203030
         3030
000C56   A0A0
         0000 0C4A            442  ASCIPSW  EQU    PSWMSG+6                                             FOX04420
         0000 0C54            443  ASCILOC  EQU    PSWMSG+16                                            FOX04430
```

EXEC - OPTIONS TABLE

```
                                 445  *-----------------------------------                                    FOX04450
                                 446  * OPTIONS TABLE                                                         FOX04460
                                 447  *                                                                        FOX04470
000C5A  0000                     448  NOMSG    DC     X'0',C'NOMSG '     0 = PRINT; 1 = NO PRINT; DEFAULT = 0  FOX04480
000C5C  4E4F4D53
        4720
000C62  FC00                     449  TEST     DC     Z(DFAULT),C'TEST  'TEST NUMBER(S); DFALT=0,1,2,3,4,5,86  FOX04490
000C64  54455354
        2020
000C6A  0000                     450  CONTIN   DC     X'0',C'CONTIN'     0=SINGLE PASS; 1=CONTINUOUS; DFALT=0  FOX04500
000C6C  434F4E54
        494E
000C72  0000                     451  PARITY   DC     X'0',C'PARITY'     0-SPACE;1-MARK;2-EVEN;3-ODD; DFALT=0  FOX04510
000C74  50415249
        5459
000C7A  001B                     452  MULCAR   DC     X'1B',C'MULCAR'    MULTICODE CHARACTER (ESC = X'1B')     FOX04520
000C7C  4D554C43
        4152
000C82  0000                     453  HEREIS   DC     X'0',C'HEREIS'     0=62 CHARS; 1=80 CHARS; DEFAULT = 0   FOX04530
000C84  48455245
        4953
000C8A  0000                     454  OPTION   DC     X'0',C'OPTION'     OPTION PRINTOUT COMMAND               FOX04540
000C8C  4F505449
        4F4E
000C92  0000                     455  RUN      DC     X'0',C'RUN   '     RUN COMMAND                           FOX04550
000C94  52554E20
        2020
000C9A  0000                     456           DC     X'0',-1            END OF OPTIONS TABLE                  FOX04560
000C9C  FFFF FFFF
```

```
EXEC

                                 *-----------------------------------                                  FOX04580
                                 * START COMMAND INPUT                                                 FOX04590
                                 *                                                                     FOX04600
000CA0   41F0 122E               CMDIN    BAL    LINK,SETUP          SET UP DEVSADR & INTLVL TABLES    FOX04610
000CA4   41F0 0A2E                        BAL    LINK,LCORE          SET UP LOW CORE                   FOX04620
000CA8   41F0 1260                        BAL    LINK,INITAL         INITIALIZE                        FOX04630
000CAC   2471                             LIS    DAT,1                                                 FOX04640
000CAE   917F                             SLHLS  DAT,15              DAT = X'8000'                     FOX04650
000CB0   4070 138C                        STH    DAT,CURSOR          FORCE TEST 0                      FOX04660
000CB4   4040 138A                        STH    ZERO,TESTNO         (PART OF MESSAGE)                 FOX04670
                                 *-----------------------------------                                  FOX04680
                                 * MAIN COMMAND INPUT                                                  FOX04690
                                 *                                                                     FOX04700
000CB8   C860 00F0               OPTIN    LHI    WORK,X'F0'          NO INTERRUPTS.                    FOX04710
000CBC   95A6                             EPSR   WORK2,WORK          REGISTER SET 15                   FOX04720
000CBE   2440                             LIS    ZERO,0                                                FOX04730
000CC0   2451                             LIS    ONE,1                                                 FOX04740
000CC2   4870 0C92                        LH     DAT,RUN             TEST RUN FLAG                     FOX04750
000CC6   4230 0F82                        BNZ    TSTSEL              START TESTING                     FOX04760
000CCA   DE10 139C                        OC     DEV1,TWRT           WRITE MODE                        FOX04770
000CCE   41F0 1078                        BAL    LINK,OUTPUT         MESSAGE                           FOX04780
000CD2   14F8                             DC     Z(MSG6)             "*"                               FOX04790
000CD4   C870 2020                        LHI    DAT,X'2020'         BLANK OUT CMD BUFFER              FOX04800
000CD8   4070 242E                        STH    DAT,CMDBUF          WHICH WILL                        FOX04810
000CDC   4070 2430                        STH    DAT,CMDBUF+2        CONTAIN                           FOX04820
000CE0   4070 2432                        STH    DAT,CMDBUF+4        OPTION NAME                       FOX04830
000CE4   2430                             LIS    FLAG,0              CHARACTER COUNT                   FOX04840
000CE6   9D19                    CMD1     SSR    DEV1,STAT           WAIT FOR LAST                     FOX04850
000CE8   9A59                             WDR    ONE,STAT            CHAR TO COMPLETE                  FOX04860
000CEA   C390 0001                        THI    STAT,1              DEVICE DU ?                       FOX04870
000CEE   2337                             BZS    CMD2                NO, BRANCH                        FOX04880
000CF0   40E0 13C6                        STH    LINK,DURTN                                            FOX04890
000CF4   41F0 2318                        BAL    LINK,DUPASS         YES, GO TO DU STATUS HANDLER      FOX04900
000CF8   48F0 13C6                        LH     LINK,DURTN                                            FOX04910
000CFC   C390 0008               CMD2     THI    STAT,8                                                FOX04920
000D00   203D                             BNZS   CMD1                WAIT FOR BUSY TO DROP             FOX04930
000D02   DE00 139D                        OC     DEV0,TREAD          DISABLE INTERRUPTS, READ MODE     FOX04940
000D06   9B0B                             RDR    DEV0,CHAR           DUMMY READ TO SET BSY             FOX04950
000D08   41F0 1184               RDCHAR   BAL    LINK,READ           READ CHARACTER                    FOX04960
000D0C   C5B0 0060                        CLHI   CHAR,X'60'          LOWER CASE ?                      FOX04970
000D10   2163                             BLS    RDCHAR1             NO, BRANCH                        FOX04980
000D12   CBB0 0020                        SHI    CHAR,X'20'          YES, CONVERT TO UPPER CASE        FOX04990
000D16   C5B0 005F               RDCHAR1  CLHI   CHAR,X'5F'          DELETE ?                          FOX05000
000D1A   213A                             BNES   GOTCHAR             NO, BRANCH                        FOX05010
000D1C   2731                             SIS    FLAG,1              YES                               FOX05020
000D1E   4210 0E9E                        BM     CMDERR                                                FOX05030
000D22   C8B0 0020                        LHI    CHAR,X'20'                                            FOX05040
000D26   D2B3 242F                        STB    CHAR,CMDBUF+1(FLAG)* DELETE LAST CHARACTER FROM BUFFER FOX05050
000D2A   4300 0D08                        B      RDCHAR              BRANCH (CONTINUE CMD INPUT)       FOX05060
                                 *                                                                     FOX05070
000D2E   C5B0 000D               GOTCHAR  CLHI   CHAR,X'0D'          CARRIAGE RETURN ?                 FOX05080
000D32   4330 0D56                        BE     OKIN                YES, TRY A MATCH                  FOX05090
000D36   C5B0 0020                        CLHI   CHAR,X'20'          SPACE ?                           FOX05100
000D3A   233E                             BES    OKIN                YES, TRY A MATCH                  FOX05110
```

```
EXEC

000D3C  C5B0 0023          512          CLHI   CHAR,X'23'          # ?                                  FOX05120
000D40  4330 0CB8          513          BE     OPTIN                                                      FOX05130
000D44  D2B3 242E          514          STB    CHAR,CMDBUF(FLAG)   STORE THE CHARACTER                    FOX05140
000D48  2631               515          AIS    FLAG,1              BUMP BUFFER INDEX                      FOX05150
000D4A  C530 0006          516          CLHI   FLAG,6              6 CHARACTERS INPUT ?                   FOX05160
000D4E  4280 0D08          517          BL     RDCHAR              NO, READ ANOTHER                       FOX05170
000D52  41F0 1184          518          BAL    LINK,READ           GET NEXT CHARACTER                     FOX05180
                           519  *                                                                          FOX05190
000D56  24C0               520  OKIN    LIS    POINT,0                                                    FOX05200
000D58  40B0 2434          521          STH    CHAR,CSAVE          SAVE LAST CHARACTER                    FOX05210
000D5C  C3C0 0007          522  OKIN1   THI    POINT,7                                                    FOX05220
000D60  2333               523          BZS    OKIN2                                                      FOX05230
000D62  26C2               524          AIS    POINT,2             SKIP OVER                              FOX05240
000D64  2204               525          BS     OKIN1               THIS OPTION                            FOX05250
000D66  2430               526  OKIN2   LIS    FLAG,0              CLEAR CMDBUF INDEX                     FOX05260
                           527  *                                                                          FOX05270
000D68  487C 0C5C          528  LOOKUP  LH     DAT,NOMSG+2(POINT)                                         FOX05280
000D6C  4210 0E9E          529          BM     CMDERR              NO MATCH                               FOX05290
000D70  26C2               530          AIS    POINT,2                                                    FOX05300
000D72  4573 242E          531          CLH    DAT,CMDBUF(FLAG)                                           FOX05310
000D76  203D               532          BNES   OKIN1                                                      FOX05320
000D78  2632               533          AIS    FLAG,2              EQUAL, TRY NEXT HW                     FOX05330
000D7A  C530 0006          534          CLHI   FLAG,6                                                     FOX05340
000D7E  203B               535          BNES   LOOKUP              NO, LOOP                               FOX05350
000D80  C4C0 0038          536          NHI    POINT,X'38'                                                FOX05360
000D84  087C               537          LDAR   DAT,POINT           POINTS TO OPTION WORD                  FOX05370
000D86  9072               538          SRHLS  DAT,2                                                      FOX05380
000D88  4877 0D8E          539          LH     DAT,TYPTAB(DAT)                                            FOX05390
000D8C  0307               540          BR     DAT                                                        FOX05400
                           541  *                                                                          FOX05410
000D8E  0D9E               542  TYPTAB  DC     Z(TYPE1),Z(TYPE3),Z(TYPE1),Z(TYPE1)                        FOX05420
000D90  0E2E
000D92  0D9E
000D94  0D9E
000D96  0D0E               543          DC     Z(TYPE2),Z(TYPE1),Z(TYPE5),Z(TYPE4)                        FOX05430
000D98  0D9E
000D9A  0ECE
000D9C  0EA8
                           544  *--------------------------------                                        FOX05440
                           545  * OPTION TYPE 1 IS ERRMSG, CONTIN, PARITY, & HEREIS.                      FOX05450
                           546  * ACCEPTABLE INPUTS ARE 0 AND 1 FOR ERRMSG, CONTIN, & HEREIS.            FOX05460
                           547  * ACCEPTABLE INPUTS FOR PARITY ARE 0, 1, 2, & 3.                          FOX05470
000D9E  C5B0 0020          548  TYPE1   CLHI   CHAR,X'20'          SPACE ?                                FOX05480
000DA2  4230 0E9E          549          BNE    CMDERR              NO, BRANCH TO ERROR                    FOX05490
000DA6  41F0 1184          550          BAL    LINK,READ           READ A CHARACTER                       FOX05500
000DAA  CBB0 0030          551          SHI    CHAR,X'30'          IS IT = ZERO ?                         FOX05510
000DAE  233E               552          BZS    TYPE11              YES, BRANCH                            FOX05520
000DB0  4210 0E9E          553          BM     CMDERR              NOT NUMERIC, BRANCH TO ERROR           FOX05530
000DB4  C5B0 0001          554          CLHI   CHAR,1              IS IT = ONE ?                          FOX05540
000DB8  2339               555          BES    TYPE11              YES, BRANCH                            FOX05550
000DBA  C5C0 0018          556          CLHI   POINT,PARITY-NOMSG  *  'PARITY' OPTION ?                    FOX05560
000DBE  4230 0E9E          557          BNE    CMDERR              NO, BRANCH TO ERROR                    FOX05570
000DC2  C5B0 0003          558          CLHI   CHAR,3              YES, IS IT = 2 OR 3 ?                  FOX05580
000DC6  4220 0E9E          559          BP     CMDERR              NO, BRANCH TO ERROR                    FOX05590
```

```
EXEC

000DCA  40BC 0C5A   TYPE11  STH    CHAR,NOMSG(POINT)  SET OPTION AS SELECTED          FOX05600
000DCE  41F0 1184           BAL    LINK,READ          GET NEXT CHARACTER              FOX05610
000DD2  C5B0 000D           CLHI   CHAR,X'0D'         CARRIAGE RETURN ?               FOX05620
000DD6  4230 0E9E           BNE    CMDERR             NO, BRANCH TO ERROR             FOX05630
000DDA  4300 0CB8           B      OPTIN              YES, RETURN                     FOX05640
                            *-----------------------------------                      FOX05650
                            * OPTION TYPE 2 IS MULCAR. ACCEPTS ANY                    FOX05660
                            * LAST 2 HEX CHARACTERS INPUT.                            FOX05670
000DDE  24C0        TYPE2   LIS    POINT,0            WAS LAST CHARACTER READ         FOX05680
000DE0  C5B0 0020           CLHI   CHAR,X'20'         A SPACE ?                       FOX05690
000DE4  4230 0E9E           BNE    CMDERR             NO, BRANCH TO ERROR             FOX05700
                            *                                                          FOX05710
000DE8  41F0 1184   TYPE2A  BAL    LINK,READ          READ A CHARACTER                FOX05720
000DEC  C5B0 000D           CLHI   CHAR,X'0D'         CR ?                            FOX05730
000DF0  4330 0E22           BE     TYPE2C             YES, USE LAST 2 CHARACTERS      FOX05740
000DF4  CBB0 0030           SHI    CHAR,X'30'         NO, CONVERT FROM ASCII          FOX05750
000DF8  C5B0 000A           CLHI   CHAR,10            TO HEX                          FOX05760
000DFC  218F                BLS    TYPE2B                                             FOX05770
000DFE  27B7                SIS    CHAR,7                                             FOX05780
000E00  4210 0E9E           BM     CMDERR                                             FOX05790
000E04  C5B0 0010           CLHI   CHAR,16            FINISHED CONVERSION ?           FOX05800
000E08  2189                BLS    TYPE2B             YES, HOLD THE CHARACTER         FOX05810
000E0A  CBB0 0020           SHI    CHAR,X'20'         NO, CONTINUE THE CONVERSION (L.C.) FOX05820
000E0E  4210 0E9E           BM     CMDERR                                             FOX05830
000E12  C5B0 0010           CLHI   CHAR,16            CONVERSION CORRECT ?            FOX05840
000E16  4380 0E9E           BNL    CMDERR             NO, BRANCH TO ERROR             FOX05850
000E1A  91C4        TYPE2B  SLHLS  POINT,4            YES, HOLD THE LAST              FOX05860
000E1C  06CB                OAR    POINT,CHAR         CHARACTER READ (IN HEX)         FOX05870
000E1E  4300 0DE8           B      TYPE2A             BRANCH & READ NEXT CHARACTER    FOX05880
                            *                                                          FOX05890
000E22  C4C0 00FF   TYPE2C  NHI    POINT,X'FF'        SAVE ONLY THE LAST 2            FOX05900
000E26  40C0 0C7A           STH    POINT,MULCAR       CHARACTERS IN MEMORY            FOX05910
000E2A  4300 0CB8           B      OPTIN              RETURN TO COMMAND MODE          FOX05920
                            *-----------------------------------                      FOX05930
                            * OPTION TYPE 3 IS TEST.  ACCEPTS NUMBERS                  FOX05940
                            * 0 THRU 6, SEPARATED BY COMMAS.                          FOX05950
000E2E  48B0 2434   TYPE3   LH     CHAR,CSAVE         TEST LAST CHARACTER             FOX05960
000E32  C5B0 000D           CLHI   CHAR,X'0D'         CR ?                            FOX05970
000E36  2137                BNES   TYPE3A             NO, BRANCH                      FOX05980
000E38  C870 FC00           LHI    DAT,DFAULT         YES,                            FOX05990
000E3C  4070 0C62           STH    DAT,TEST           ESTABLISH DEFAULT TESTS         FOX06000
000E40  4300 0CB8           B      OPTIN              RETURN                          FOX06010
                            *                                                          FOX06020
000E44  C5B0 0020   TYPE3A  CLHI   CHAR,X'20'         SPACE ?                         FOX06030
000E48  4230 0E9E           BNE    CMDERR             NO, BRANCH TO ERROR             FOX06040
000E4C  48E0 0C62           LH     RET,TEST           YES,                            FOX06050
000E50  4040 0C62           STH    ZERO,TEST          CLEAR OPTION CELL               FOX06060
000E54  41F0 1184   TYPE3L  BAL    LINK,READ          READ A CHARACTER                FOX06070
000E58  CBB0 0030           SHI    CHAR,X'30'                                         FOX06080
000E5C  4210 0E9A           BM     TCMDERR            NOT NUMERIC, BRANCH TO ERROR    FOX06090
000E60  C5B0 0007           CLHI   CHAR,BYTETAB-TSTTAB/2                              FOX06100
000E64  4380 0E9A           BNL    TCMDERR            NOT NUMERIC, BRANCH TO ERROR    FOX06110
000E68  C870 4000           LHI    DAT,X'4000'                                        FOX06120
000E6C  9171                SLHLS  DAT,1              DAT = X'8000'                   FOX06130
```

```
EXEC

000E6E  CC7B 0000          614          SRHL   DAT,0(CHAR)                                  FOX06140
000E72  4670 0C62          615          OH     DAT,TEST          OR IN TEST BIT             FOX06150
000E76  4070 0C62          616          STH    DAT,TEST                                     FOX06160
000E7A  41F0 1184          617          BAL    LINK,READ         READ NEXT CHARACTER        FOX06170
000E7E  C5B0 000D          618          CLHI   CHAR,X'0D'        CARRIAGE RETURN            FOX06180
000E82  2336               619          BES    TYPE31            YES                        FOX06190
000E84  C5B0 002C          620          CLHI   CHAR,X'2C'        COMMA ?                    FOX06200
000E88  2139               621          BNES   TCMDERR           NO, BRANCH TO COMMAND ERROR FOX06210
000E8A  4300 0E54          622          B      TYPE3L            YES, LOOP                  FOX06220
                           623  *                                                            FOX06230
000E8E  4870 0C62          624  TYPE31  LH     DAT,TEST                                     FOX06240
000E92  C470 FE00          625          NHI    DAT,MASK          ARE SELECTED TESTS VALID ? FOX06250
000E96  4230 0CB8          626          BNZ    OPTIN             YES, RETURN                FOX06260
000E9A  40E0 0C62          627  TCMDERR STH    RET,TEST          NO, RESTORE ORIGINAL TESTS FOX06270
                           628  *                                                            FOX06280
000E9E  41F0 1078          629  CMDERR BAL    LINK,OUTPUT       OUTPUT MESSAGE             FOX06290
000EA2  14FC               630          DC     Z(MSG7)           "?"                        FOX06300
000EA4  4300 0CB8          631          B      OPTIN             RETURN                     FOX06310
                           632  *-----------------------------------                        FOX06320
                           633  * OPTION TYPE 4 IS RUN, FOLLOWED BY A                        FOX06330
                           634  * CARRIAGE RETURN                                            FOX06340
000EA8  48B0 2434          635  TYPE4   LH     CHAR,CSAVE        TEST LAST CHARACTER        FOX06350
000EAC  C5B0 000D          636          CLHI   CHAR,X'0D'        CARRIAGE RETURN ?          FOX06360
000EB0  2039               637          BNES   CMDERR            NO, BRANCH                 FOX06370
000EB2  C850 8000          638          LHI    ONE,X'8000'       YES                        FOX06380
000EB6  4050 138C          639          STH    ONE,CURSOR        RESET TO START AT TEST 0   FOX06390
000EBA  2440               640          LIS    ZERO,0                                       FOX06400
000EBC  4040 138A          641          STH    ZERO,TESTNO                                  FOX06410
000EC0  41F0 12FA          642          BAL    LINK,INIT2        ZERO OUT INCURRED ERROR TOTALS FOX06420
000EC4  2451               643          LIS    ONE,1                                        FOX06430
000EC6  4050 0C92          644          STH    ONE,RUN           SET RUN FLAG               FOX06440
000ECA  4300 0CB8          645          B      OPTIN             LOOK AT SWITCHES           FOX06450
                           646  *-----------------------------------                        FOX06460
                           647  * OPTION TYPE 5 IS (PRINTOUT) "OPTION", FOLLOWED BY A CARRIAGE RETURN.  FOX06470
000ECE  48B0 2434          648  TYPE5   LH     CHAR,CSAVE                                   FOX06480
000ED2  C5B0 000D          649          CLHI   CHAR,X'0D'        WAS LAST CHARACTER CR ?    FOX06490
000ED6  4230 0E9E          650          BNE    CMDERR            NO, BRANCH TO COMMAND ERROR FOX06500
000EDA  DE10 139C          651          OC     DEV1,TWRT         YES, PUT CONSOLE DEV IN WRITE MODE FOX06510
000EDE  C8C0 0C5A          652          LHI    POINT,NOMSG       INITIALIZE OPTION INDEX REGISTER FOX06520
000EE2  C5C0 0C8A          653  TYPE5B  CLHI   POINT,OPTION      FINISHED PRINTING OPTIONS ? FOX06530
000EE6  4380 0CB8          654          BNL    OPTIN             YES, RETURN                FOX06540
000EEA  41F0 1078          655          BAL    LINK,OUTPUT       NO, PRINT                  FOX06550
000EEE  13FA               656          DC     Z(MSG0)           CR & LF                    FOX06560
000EF0  2476               657          LIS    DAT,6             LOAD MAX NO. LETTERS IN OPTION NAME FOX06570
000EF2  D3BC 0002          658  TYPE5A  LB     CHAR,2(POINT)     GET CHARACTER OF OPTION NAME FOX06580
000EF6  4120 10B0          659          BAL    RET2,OUTCHR       OUTPUT CHARACTER           FOX06590
000EFA  26C1               660          AIS    POINT,1           INDEX CHARACTER POINTER    FOX06600
000EFC  2771               661          SIS    DAT,1             DECREMENT LETTER COUNTER   FOX06610
000EFE  2036               662          BNZS   TYPE5A            BRANCH IF NOT DONE & CONTINUE PRINT FOX06620
000F00  26C2               663          AIS    POINT,2           INCREM POINTER TO NEXT OPTION NAME FOX06630
000F02  C8B0 0020          664          LHI    CHAR,C' '                                    FOX06640
000F06  4120 10B0          665          BAL    RET2,OUTCHR       OUTPUT A SPACE CHARACTER (X'20') FOX06650
000F0A  487C 40FF FFF8     666          LH     DAT,-8(POINT)     GET OPTION VALUE           FOX06660
000F10  C5C0 0C6A          667          CLHI   POINT,TEST+8      IS THIS THE "TEST" OPTION ? FOX06670
```

```
EXEC

000F14  4330 0F34          BE      TESTOUT          YES, BRANCH TO HANDLER                FOX06680
000F18  243C               LIS     FLAG,12          NO, LOAD SHIFTER VALUE                FOX06690
000F1A  08B7       TYPE5C  LDAR    CHAR,DAT         LOAD OPTION VALUE                     FOX06700
000F1C  CCB3 0000          SRHL    CHAR,0(FLAG)     SHIFT TO DIGIT WINDOW                 FOX06710
000F20  C4B0 000F          NHI     CHAR,X'F'        ISOLATE ONE DIGIT                     FOX06720
000F24  D3BB 13CC          LB      CHAR,HEXTAB(CHAR) GET ASCII FOR HEX DIGIT              FOX06730
000F28  4120 10B0          BAL     RET2,OUTCHR      OUTPUT THE CHARACTER                  FOX06740
000F2C  2734               SIS     FLAG,4           DECREMENT SHIFTER VALUE               FOX06750
000F2E  221A               BNMS    TYPE5C           BRANCH IF VALID VALUE TO CONTINUE     FOX06760
000F30  4300 0EE2          B       TYPE5B           OTHERWISE GO TO NEXT OPTION           FOX06770
                   *                                                                      FOX06780
000F34  2430       TESTOUT LIS     FLAG,0           INITIALIZE BINARY TEST NUMBER         FOX06790
000F36  C850 4000          LHI     ONE,X'4000'                                            FOX06800
000F3A  9151               SLHLS   ONE,1            INITIALIZE MASK "TEST NUMBER"         FOX06810
000F3C  C375 0000  TESTOUT1 THI    DAT,0(ONE)       IS PRESENT BINARY TEST NO. SELECTED?  FOX06820
000F40  233C               BZS     TESTOUT2         NO, BRANCH TO CONTINUE                FOX06830
000F42  D3B3 13CC          LB      CHAR,HEXTAB(FLAG) YES, GET ASCII FOR BINARY TEST NO.   FOX06840
000F46  4120 10B0          BAL     RET2,OUTCHR      OUTPUT TEST NUMBER                    FOX06850
000F4A  0775               XAR     DAT,ONE          RESET PRINTED (MASKED) "TEST NUMBER"  FOX06860
000F4C  0877               LDAR    DAT,DAT          ANY MORE TESTS ?                      FOX06870
000F4E  233A               BZS     TESTOUT3         NO, RETURN TO PRINT NEXT OPTION       FOX06880
000F50  C8B0 002C          LHI     CHAR,C','                                              FOX06890
000F54  4120 10B0          BAL     RET2,OUTCHR      YES, OUTPUT A COMMA                   FOX06900
000F58  2631       TESTOUT2 AIS    FLAG,1           INCREMENT BINARY TEST NUMBER          FOX06910
000F5A  9051               SRHLS   ONE,1            SHIFT MASK "TEST NUMBER"              FOX06920
000F5C  0855               LDAR    ONE,ONE          ANY MORE TESTS TO BE CHECKED ?        FOX06930
000F5E  4230 0F3C          BNZ     TESTOUT1         YES, GO & PRINT REMAINING TEST NOS.   FOX06940
000F62  2451       TESTOUT3 LIS    ONE,1            NO, RESTORE ONE                       FOX06950
000F64  4300 0EE2          B       TYPE5B           RETURN TO PRINT NEXT OPTION           FOX06960
                   *-----------------------------------                                   FOX06970
                   * ROUTINE IS COMMON EXIT FOR EACH TEST MODULE                          FOX06980
                   * ADVANCE TO NEXT TEST MODULE                                          FOX06990
                   *                                                                      FOX07000
000F68  48F0 0A0E  TSTEXT  LH      LINK,PSW2        DISABLE INTERRUPTS                    FOX07010
000F6C  959F               EPSR    STAT,LINK                                              FOX07020
000F6E  4870 138C          LH      DAT,CURSOR       SHIFT CURSOR                          FOX07030
000F72  9071               SRHLS   DAT,1            TO TEST FOR                           FOX07040
000F74  4070 138C          STH     DAT,CURSOR       NEXT TEST MODULE                      FOX07050
000F78  2451               LIS     ONE,1                                                  FOX07060
000F7A  6150 138A          AHM     ONE,TESTNO       INCREMENT TEST NUMBER                 FOX07070
000F7E  4300 0CB8          B       OPTIN                                                  FOX07080
                   *-----------------------------------                                   FOX07090
                   *  ROUTINE SELECTS NEXT TEST MODULE TO EXECUTE                         FOX07100
                   *                                                                      FOX07110
000F82  48B0 0C62  TSTSEL  LH      CHAR,TEST        PICK UP TEST WORD                     FOX07120
000F86  4870 138C          LH      DAT,CURSOR       AND MASK                              FOX07130
000F8A  C3B7 0000  SELOOP  THI     CHAR,0(DAT)      SEE IF SELECTED                       FOX07140
000F8E  213D               BNZS    GO               YES                                   FOX07150
                   *                                                                      FOX07160
                   *TEST NOT SELECTED, CONTINUE SCAN                                      FOX07170
                   *                                                                      FOX07180
000F90  48C0 138A          LH      POINT,TESTNO     PICK UP TEST NUMBER                   FOX07190
000F94  26C1               AIS     POINT,1          INCREMENT TEST                        FOX07200
000F96  40C0 138A          STH     POINT,TESTNO                                           FOX07210
```

```
EXEC

000F9A  9071                 722          SRHLS  DAT,1              MOVE CURSOR                          FOX07220
000F9C  4070 138C            723          STH    DAT,CURSOR                                              FOX07230
000FA0  C370 FE00            724          THI    DAT,MASK           LAST TEST ?                          FOX07240
000FA4  2330                 725          BZS    LAST               YES, BRANCH                          FOX07250
000FA6  220E                 726          BS     SELOOP             NO, BRANCH                           FOX07260
                             727  *                                                                        FOX07270
000FA8  4860 0A0E            728  GO      LH     WORK,PSW2                                               FOX07280
000FAC  95A6                 729          EPSR   WORK2,WORK         DISABLE INT AT PROCESSOR LEVEL       FOX07290
000FAE  48C0 138A            730          LH     POINT,TESTNO       PICK UP TEST NUMBER                  FOX07300
000FB2  0ACC                 731          AAR    POINT,POINT        2X TESTNO                            FOX07310
000FB4  C4C0 000E            732          NHI    POINT,X'E'         MASK INDEX INTO TEST TABLE      ***  FOX07320
000FB8  48CC 13DC            733          LH     POINT,TSTTAB(POINT)GET TEST ADDRESS                     FOX07330
000FBC  030C                 734          BR     POINT              GO TO TEST MODULE                    FOX07340
                             735  *--------------------------------                                      FOX07350
                             736  * SELECTED TESTS ARE RUN                                               FOX07360
                             737  *                                                                        FOX07370
000FBE  C870 8000            738  LAST    LHI    DAT,X'8000'        RE-CYCLE TO TEST 0                   FOX07380
000FC2  4070 138C            739          STH    DAT,CURSOR                                              FOX07390
000FC6  2440                 740          LIS    ZERO,0                                                  FOX07400
000FC8  4040 138A            741          STH    ZERO,TESTNO        CLEAR TEST NUMBER                    FOX07410
000FCC  4870 0C6A            742          LH     DAT,CONTIN         CONTIN SET ?                         FOX07420
000FD0  4230 0F82            743          BNZ    TSTSEL             YES, BRANCH. NO, CONTINUE.           FOX07430
000FD4  24F0                 744  LAST1   LIS    LINK,0                                                  FOX07440
000FD6  40F0 0C92            745          STH    LINK,RUN           RESET RUN FLAG                       FOX07450
000FDA  41F0 1078            746          BAL    LINK,OUTPUT        OUTPUT MESSAGE                       FOX07460
000FDE  1534                 747          DC     Z(MSG12)           "END OF TEST"                        FOX07470
                             748  *--------------------------------                                      FOX07480
                             749  * OUTPUT ACCUMULATED ERROR TALLYS IF ANY                               FOX07490
                             750  *                                                                        FOX07500
000FE0  C8C0 1752            751          LHI    POINT,ERROR0       INITIALIZE ERROR POINTER             FOX07510
000FE4  487C 0000            752  ERRORL  LH     DAT,0(POINT)                                            FOX07520
000FE8  4330 102C            753          BZ     NXTERR             NO ERROR, BRANCH                     FOX07530
000FEC  2402                 754          LIS    R0,2                                                    FOX07540
000FEE  081C                 755          LDAR   R1,POINT           CALCULATE ERROR NUMBER               FOX07550
000FF0  C810 1752            756          SHI    R1,ERROR0                                               FOX07560
000FF4  9011                 757          SRHLS  R1,1                                                    FOX07570
000FF6  C820 0C2E            758          LHI    R2,ERRNO                                                FOX07580
000FFA  41F0 0BDC            759          BAL    LINK,HEXASC        YES, PUT ERROR NUMBER IN MESSAGE     FOX07590
000FFE  41F0 1078            760          BAL    LINK,OUTPUT        OUTPUT MESSAGE                       FOX07600
001002  0C26                 761          DC     Z(ERRNOMSG)        "ERROR XX"                           FOX07610
001004  487C 0000            762          LH     DAT,0(POINT)       GET ERROR COUNT                      FOX07620
001008  C8B0 002D            763          LHI    CHAR,C'-'                                               FOX07630
00100C  4120 10B0            764          BAL    RET2,OUTCHR        OUTPUT "-"                           FOX07640
001010  C8B0 0020            765          LHI    CHAR,C' '                                               FOX07650
001014  4120 10B0            766          BAL    RET2,OUTCHR        OUTPUT " "                           FOX07660
001018  24A4                 767          LIS    WORK2,4                                                 FOX07670
00101A  08B7                 768  TALLY   LDAR   CHAR,DAT           GET NEXT DIGIT                       FOX07680
00101C  9174                 769          SLHLS  DAT,4                                                   FOX07690
00101E  90BC                 770          SRHLS  CHAR,12            ISOLATE ONE HEX DIGIT                FOX07700
001020  D3BB 13CC            771          LB     CHAR,HEXTAB(CHAR)                                       FOX07710
001024  4120 10B0            772          BAL    RET2,OUTCHR        OUTPUT HEX ERROR TALLY               FOX07720
001028  27A1                 773          SIS    WORK2,1            ONE DIGIT AT A TIME                  FOX07730
00102A  2038                 774          BNZS   TALLY              (4 HEX DIGITS TOTAL)                 FOX07740
00102C  C5C0 1764            775  NXTERR  CLHI   POINT,ERROR9       DONE ?                               FOX07750
```

```
EXEC

001030  4330 0CB8          776          BE     OPTIN              YES, RETURN                          FOX07760
001034  26C2               777          AIS    POINT,2                                                 FOX07770
001036  4300 0FE4          778          B      ERRORL             NO, CHECK NEXT ERROR NUMBER          FOX07780
                           779  * * * * * * * * * * * * * * * * * * * * * * * *                        FOX07790
                           780  *                                                 *                    FOX07800
                           781  * SUBROUTINE PRINTS OR TALLYS ERROR MESSAGES     *                    FOX07810
                           782  * CALLING SEQUENCE IS :                           *                    FOX07820
                           783  *        BAL    LINK,ERROR                         *                    FOX07830
                           784  *        DC     Z(ERROR NUMBER TALLY LOCATION)     *                    FOX07840
                           785  *                                                 *                    FOX07850
                           786  * * * * * * * * * * * * * * * * * * * * * * * *                        FOX07860
00103A  D000 2480          787  ERROR  STM    R0,IORSAVE         SAVE REGISTERS 0-F                   FOX07870
00103E  487F 0000          788          LH     DAT,0(LINK)        MESSAGE ADDRESS                      FOX07880
001042  2451               789          LIS    ONE,1                                                   FOX07890
001044  6157 0000          790          AHM    ONE,0(DAT)         INCREMENT APPROPRIATE ERROR COUNTER  FOX07900
001048  48B0 0C5A          791          LH     CHAR,NOMSG         TEST NOMSG  OPTION                   FOX07910
00104C  423F 0002          792          BNZ    2(LINK)            OPTION SET - RETURN                  FOX07920
                           793  *                                                                      FOX07930
                           794  * NOMSG NOT SET, SO PRINT-OUT ERRORS !                                 FOX07940
                           795  *                                                                      FOX07950
001050  CB70 1752          796          SHI    DAT,ERROR0         CONVERT ERROR NO. TO ASCII           FOX07960
001054  9071               797          SRHLS  DAT,1                                                   FOX07970
001056  2402               798          LIS    R0,2                                                    FOX07980
001058  0817               799          LDAR   R1,DAT                                                  FOX07990
00105A  C820 0C2E          800          LHI    R2,ERRNO                                                FOX08000
00105E  41F0 0BDC          801          BAL    LINK,HEXASC        PUT ASCII IN ERRNO                   FOX08010
001062  D100 2480          802          LM     R0,IORSAVE         RESTORE REGISTERS                    FOX08020
001066  40F0 13BE          803          STH    LINK,RETURN                                             FOX08030
00106A  41F0 1078          804          BAL    LINK,OUTPUT        PRINT MESSAGE                        FOX08040
00106E  0C26               805          DC     Z(ERRNOMSG)        "ERROR XX"                           FOX08050
001070  48F0 13BE          806          LH     LINK,RETURN                                             FOX08060
001074  430F 0002          807          B      2(LINK)            RETURN                               FOX08070
                           808  * * * * * * * * * * * * * * * * * * * * * * * *                        FOX08080
                           809  *                                                 *                    FOX08090
                           810  * GENERAL MESSAGE OUTPUT ROUTINE                  *                    FOX08100
                           811  * CALLING SEQUENCE IS:                            *                    FOX08110
                           812  *        BAL    LINK,OUTPUT                        *                    FOX08120
                           813  *        DC     Z(START ADDRESS OF MESSAGE)        *                    FOX08130
                           814  *                                                 *                    FOX08140
                           815  * * * * * * * * * * * * * * * * * * * * * * * *                        FOX08150
001078  D000 2480          816  OUTPUT STM    R0,IORSAVE         SAVE USER'S REGISTERS                FOX08160
00107C  4810 0C12          817          LH     DEV1,DEVSADR+2     GET TRANSMIT DEVICE ADDRESS          FOX08170
001080  4800 0C10          818          LH     DEV0,DEVSADR                                            FOX08180
001084  2451               819          LIS    ONE,1                                                   FOX08190
001086  487F 0000          820          LH     DAT,0(LINK)        MESSAGE START                        FOX08200
00108A  DE10 139C          821          OC     DEV1,TWRT                                               FOX08210
00108E  25B1               822          LCS    CHAR,1             SEND DELETE                          FOX08220
001090  4120 10B0          823          BAL    RET2,OUTCHR                                             FOX08230
001094  D3B7 0000          824  OUTP1    LB     CHAR,0(DAT)        GET CHARACTER                        FOX08240
001098  4120 10B0          825          BAL    RET2,OUTCHR        OUTPUT IT                            FOX08250
00109C  D3B7 0000          826          LB     CHAR,0(DAT)                                             FOX08260
0010A0  2671               827          AIS    DAT,1                                                   FOX08270
0010A2  C3B0 0080          828          THI    CHAR,X'80'         DONE?                                FOX08280
0010A6  2239               829          BZS    OUTP1              NO,LOOP                              FOX08290
```

```
EXEC

0010A8   D100 2480          830          LM     R0,IORSAVE        RESTORE USER'S REGISTERS          FOX08300
0010AC   430F 0002          831          B      2(LINK)           RETURN                            FOX08310
                            832  *-----------------------------------                              FOX08320
                            833  * SUBROUTINE OUTPUTS (CHAR) TO MODEL-1100 DISPLAY TERMINAL.        FOX08330
                            834  * PARITY IS APPENDED IF REQUIRED.                                  FOX08340
                            835  *   CALLING SEQUENCE IS:                                           FOX08350
                            836  *        OC     DEV1,TWRT         (IF NEEDED)                       FOX08360
                            837  *        BAL    RET2,OUTCHR                                         FOX08370
                            838  *-----------------------------------                              FOX08380
0010B0   4800 0C10          839  OUTCHR  LH     DEV0,DEVSADR                                        FOX08390
0010B4   4810 0C12          840          LH     DEV1,DEVSADR+2                                      FOX08400
0010B6   0501               841          CLAR   DEV0,DEV1         HDX DEVICE ?                      FOX08410
0010BA   4330 1110          842          BE     OUTCHR2           YES, BRANCH                       FOX08420
0010BE   9D09               843          SSR    DEV0,STAT                                           FOX08430
0010C0   C390 0001          844          THI    STAT,1            DEVICE DU ?                       FOX08440
0010C4   2337               845          BZS    OUTCHR4           NO, BRANCH                        FOX08450
0010C6   40F0 13C6          846          STH    LINK,DURTN                                          FOX08460
0010CA   41F0 2318          847          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX08470
0010CE   48F0 13C6          848          LH     LINK,DURTN                                          FOX08480
0010D2   C390 0008          849  OUTCHR4 THI    STAT,8            DEVICE BUSY ?                     FOX08490
0010D6   4230 1110          850          BNZ    OUTCHR2           YES, BRANCH                       FOX08500
0010DA   DE50 13C0          851          OC     ONE,INCR                                            FOX08510
0010DE   9A59               852          WDR    ONE,STAT          DISPLAY RECV DEVICE STATUS        FOX08520
0010E0   9B09               853          RDR    DEV0,STAT                                           FOX08530
0010E2   4090 13C2          854          STH    STAT,RCHAR                                          FOX08540
0010E6   9A59               855          WDR    ONE,STAT          DISPLAY CHARACTER READ            FOX08550
0010E8   DE50 13A4          856          OC     ONE,NORM                                            FOX08560
0010EC   9D09               857  OUTCHR1 SSR    DEV0,STAT                                           FOX08570
0010EE   9A59               858          WDR    ONE,STAT          DISPLAY RECV DEVICE STATUS        FOX08580
0010F0   C390 0001          859          THI    STAT,1            DEVICE DU ?                       FOX08590
0010F4   2337               860          BZS    OUTCHR5           NO, BRANCH                        FOX08600
0010F6   40F0 13C6          861          STH    LINK,DURTN                                          FOX08610
0010FA   41F0 2318          862          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX08620
0010FE   48F0 13C6          863          LH     LINK,DURTN                                          FOX08630
001102   C390 0008          864  OUTCHR5 THI    STAT,8                                              FOX08640
001106   223D               865          BZS    OUTCHR1           WAIT FOR BUSY TO RISE        ***  FOX08650
001108   C590 002C          866          CLHI   STAT,X'2C'        BREAK ?                           FOX08660
00110C   4330 0FD4          867          BE     LAST1             YES, BRANCH                       FOX08670
001110   40B0 13A6          868  OUTCHR2 STH    CHAR,TEMP                                           FOX08680
001114   41F0 1150          869          BAL    LINK,PARGEN       GENERATE CORRECT PARITY           FOX08690
001118   9D19               870  OUTCHR3 SSR    DEV1,STAT                                           FOX08700
00111A   9A59               871          WDR    ONE,STAT          DISPLAY SEND DEVICE STATUS        FOX08710
00111C   C390 0001          872          THI    STAT,1            DEVICE  DU ?                      FOX08720
001120   2337               873          BZS    OUTCHR6           NO, BRANCH                        FOX08730
001122   40F0 13C6          874          STH    LINK,DURTN                                          FOX08740
001126   41F0 2318          875          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX08750
00112A   48F0 13C6          876          LH     LINK,DURTN                                          FOX08760
00112E   C390 0009          877  OUTCHR6 THI    STAT,9                                              FOX08770
001132   203D               878          BNZS   OUTCHR3           LOOP ON BUSY OR DU OR RING(ON MODEM) FOX08780
001134   9A1B               879          WDR    DEV1,CHAR         OUTPUT CHARACTER                  FOX08790
001136   48B0 13A6          880          LH     CHAR,TEMP                                           FOX08800
00113A   C3B0 0080          881          THI    CHAR,X'80'        LAST CHARACTER IN MESSAGE ?       FOX08810
00113E   0332               882          BZR    RET2              NO, RETURN.                       FOX08820
001140   C4B0 007F          883          NHI    CHAR,X'7F'                                          FOX08830
```

```
EXEC

001144  C5B0 007F          884          CLHI   CHAR,X'7F'        YES, WAS LAST CHARACTER DELETE ?     FOX08840
001148  0332               885          BER    RET2              YES, RETURN                          FOX08850
00114A  25B1               886          LCS    CHAR,1            NO, FOLLOW WITH                      FOX08860
00114C  4300 1110          887          B      OUTCHR2           A DELETE CHARACTER                   FOX08870
                           888  *-----------------------------                                        FOX08880
                           889  * SUBROUTINE GENERATES CORRECT PARITY BASED ON PARITY OPTION.          FOX08890
                           890  *   CALLING SEQUENCE IS:                                               FOX08900
                           891  *        BAL    LINK,PARGEN                                            FOX08910
                           892  *                                                                      FOX08920
001150  C4B0 007F          893  PARGEN  NHI    CHAR,X'7F'        MASK CHARACTER TO 7 BITS &           FOX08930
001154  089B               894          LDAR   STAT,CHAR                                              FOX08940
001156  9094               895          SRHLS  STAT,4                                                 FOX08950
001158  079B               896          XAR    STAT,CHAR         CREATE AN EVEN PARITY CHARACTER      FOX08960
00115A  C490 000F          897          NHI    STAT,15                                               FOX08970
00115E  D399 13EA          898          LB     STAT,BYTETAB(STAT)                                    FOX08980
001162  06B9               899          OAR    CHAR,STAT                                             FOX08990
001164  4890 0C72          900          LH     STAT,PARITY       CHECK THE PARITY OPTION.             FOX09000
001168  2338               901          BZS    OUTSPA            SPACE (0) ? - YES, BRANCH            FOX09010
00116A  2791               902          SIS    STAT,1                                                FOX09020
00116C  2339               903          BZS    OUTMRK            MARK (1) ? - YES, BRANCH             FOX09030
00116E  2791               904          SIS    STAT,1                                                FOX09040
001170  2339               905          BZS    OUTOK             NO,OUTPUT EVEN PARITY(2)?-YES,BRANCH FOX09050
001172  C7B0 0080          906  OUTODD  XHI    CHAR,X'80'        NO, OUTPUT ODD PARITY (3) !          FOX09060
001176  2306               907          BS     OUTOK                                                 FOX09070
                           908  *                                                                      FOX09080
001178  C4B0 007F          909  OUTSPA  NHI    CHAR,X'7F'        OUTPUT ALWAYS SPACE (0)              FOX09090
00117C  2303               910          BS     OUTOK                                                 FOX09100
                           911  *                                                                      FOX09110
00117E  C6B0 0080          912  OUTMRK  OHI    CHAR,X'80'        OUTPUT ALWAYS MARK (1)               FOX09120
                           913  *                                                                      FOX09130
001182  030F               914  OUTOK   BR     LINK              RETURN                               FOX09140
                           915  *-----------------------------                                        FOX09150
                           916  * SUBROUTINE READS ONE BYTE FROM MODEL-1100 DISPLAY TERMINAL.         FOX09160
                           917  * CALLING ROUTINE IS:                                                 FOX09170
                           918  *        OC     DEV0,TREAD        (IF NEEDED)                          FOX09180
                           919  *        BAL    LINK,READ                                              FOX09190
                           920  *   CHARACTER IS RETURNED IN REGISTER 'CHAR'                          FOX09200
                           921  *-----------------------------                                        FOX09210
001184  9D09               922  READ    SSR    DEV0,STAT                                             FOX09220
001186  9A59               923          WDR    ONE,STAT          WRITE STATUS TO DISPLAY              FOX09230
001188  C390 0001          924          THI    STAT,1            DEVICE DU ?                          FOX09240
00118C  2337               925          BZS    READ5             NO, BRANCH                           FOX09250
00118E  40F0 13C6          926          STH    LINK,DURTN                                             FOX09260
001192  41F0 2318          927          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER         FOX09270
001196  48F0 13C6          928          LH     LINK,DURTN                                             FOX09280
00119A  C390 0006          929  READ5   THI    STAT,6            IS EXAMINE SET ?                     FOX09290
00119E  4230 11C8          930          BNZ    BSTAT             YES, BAD STATUS                      FOX09300
0011A2  C390 0009          931          THI    STAT,9            IS DEVICE BUSY OR DU ?               FOX09310
0011A6  4230 1184          932          BNZ    READ              YES, WAIT FOR BUSY OR DU TO DROP     FOX09320
0011AA  9B0B               933          RDR    DEV0,CHAR         NO, READ A CHARACTER                 FOX09330
0011AC  4890 0A0A          934          LH     STAT,PASFLG       WHAT IS THE DEVICE INTERFACE ?       FOX09340
0011B0  2114               935          BMS    READ0             MICROBUS ? - YES, BRANCH             FOX09350
0011B2  2134               936          BNZS   READ1             PASLA HDX ? - YES, BRANCH            FOX09360
0011B4  0501               937          CLAR   DEV0,DEV1                                              FOX09370
```

```
EXEC

0011B6   2332                938          BES    READ1              CLI ? - YES, BRANCH                FOX09380
0011B8   9A1B                939  READO   WDR    DEV1,CHAR          ECHO CHAR ON FDX OR MICROBUS ONLY!!!  FOX09390
                             940  *                                                                      FOX09400
0011BA   4120 130C           941  READ1   BAL    RET2,PARCHK        TEST PARITY                        FOX09410
0011BE   C4B0 007F           942          NHI    CHAR,X'7F'         MASK CHARACTER TO 7 BITS           FOX09420
0011C2   4040 1396           943          STH    ZERO,BRKFLG                                           FOX09430
0011C6   030F                944          BR     LINK               RETURN                             FOX09440
                             945  *--------------------------------                                    FOX09450
                             946  *                BAD STATUS ON READ                                   FOX09460
0011C8   C390 0008           947  BSTAT   THI    STAT,8             BUSY STATUS ?                      FOX09470
0011CC   4330 11EE           948          BZ     BSTAT1             NO, BRANCH                         FOX09480
0011D0   C390 0020           949          THI    STAT,X'20'         YES, BREAK STATUS ?                FOX09490
0011D4   2338                950          BZS    BSTAT2             NO, BRANCH                         FOX09500
0011D6   48B0 1396           951          LH     CHAR,BRKFLG        YES, TEST BRKFLG                   FOX09510
0011DA   4230 1184           952          BNZ    READ               IF SET, LOOP ON BUSY               FOX09520
0011DE   4050 1396           953          STH    ONE,BRKFLG         OTHERWISE SET BRKFLG               FOX09530
0011E2   230D                954          BS     BSTAT3             AND CONTINUE                       FOX09540
                             955  *                                                                      FOX09550
0011E4   C390 00F3           956  BSTAT2  THI    STAT,X'F3'         TEST OTHER BITS                    FOX09560
0011E8   4330 1184           957          BZ     READ               BUSY & EX = DU, LOOP               FOX09570
0011EC   2305                958          BS     BSTAT5             BAD STATUS !                       FOX09580
                             959  *                                                                      FOX09590
0011EE   C390 0020           960  BSTAT1  THI    STAT,X'20'         LINE BREAK?                        FOX09600
0011F2   2135                961          BNZS   BSTAT3             YES, BRANCH                        FOX09610
0011F4   9B0B                962          RDR    DEV0,CHAR                                             FOX09620
                             963  *                                                                      FOX09630
0011F6   4120 1352           964  BSTAT5  BAL    RET2,STATER        NO, BAD STATUS                     FOX09640
0011FA   030F                965          BR     LINK                                                  FOX09650
                             966  *                                                                      FOX09660
                             967  * NOT BUSY, BUT LINE BREAK                                            FOX09670
                             968  *                                                                      FOX09680
0011FC   9B0B                969  BSTAT3  RDR    DEV0,CHAR          READ CHARACTER                     FOX09690
0011FE   9D09                970  BSTAT9  SSR    DEV0,STAT          DEVICE DU ?                        FOX09700
001200   2317                971          BFFS   1,BSTAT8           NO, BRANCH                         FOX09710
001202   40F0 13C6           972          STH    LINK,DURTN                                            FOX09720
001206   41F0 2318           973          BAL    LINK,DUPASS        YES, GO TO DU STATUS HANDLER       FOX09730
00120A   48F0 13C6           974          LH     LINK,DURTN                                            FOX09740
00120E   C390 0008           975  BSTAT8  THI    STAT,8             WAIT FOR BUSY TO DROP              FOX09750
001212   203A                976          BNZS   BSTAT9                                                FOX09760
001214   C390 0020           977          THI    STAT,X'20'         BREAK?                             FOX09770
001218   4330 11BA           978          BZ     READ1              NO, IT WENT AWAY                   FOX09780
00121C   08BB                979          LDAR   CHAR,CHAR          TEST CHARACTER                     FOX09790
00121E   2334                980          BZS    BSTAT6             IT IS LINE BREAK                   FOX09800
001220   41F0 103A           981          BAL    LINK,ERROR         OUTPUT MESSAGE                     FOX09810
001224   1758                982          DC     Z(ERROR3)          "ERROR 03"                         FOX09820
001226   4040 0C92           983  BSTAT6  STH    ZERO,RUN           RESET THE RUN FLAG                 FOX09830
00122A   4300 0CB8           984          B      OPTIN              RETURN TO TEST COMMAND MODE        FOX09840
                             985  *--------------------------------                                    FOX09850
                             986  * TO SET UP DEVSADR & INTLVL TABLES.                                  FOX09860
00122E   4860 0A04           987  SETUP   LH     WORK,RECADR        GET REC ADDR OPERAND               FOX09870
001232   08A6                988          LDAR   WORK2,WORK                                            FOX09880
001234   C460 03FF           989          NHI    WORK,X'3FF'        EXTRACT INTERFACE ADDRESS (REC)    FOX09890
001238   4060 0C10           990          STH    WORK,DEVSADR       SET UP RECEIVE ADDRESS             FOX09900
00123C   90AC                991          SRHLS  WORK2,12                                              FOX09910
```

```
EXEC

00123E  C4A0 000F          NHI    WORK2,15            ISOLATE LAST DIGIT                FOX09920
001242  D2A0 0C18          STB    WORK2,INTLVL                                          FOX09930
001246  4860 0A06          LH     WORK,SNDADR         GET SEND ADDR OPERAND             FOX09940
00124A  08A6               LDAR   WORK2,WORK                                            FOX09950
00124C  C460 03FF          NHI    WORK,X'3FF'         EXTRACT INTERFACE ADDRESS (SND)   FOX09960
001250  4060 0C12          STH    WORK,DEVSADR+2      SET UP TRANSMIT ADDRESS           FOX09970
001254  90AC               SRHLS  WORK2,12                                              FOX09980
001256  C4A0 000F          NHI    WORK2,15            ISOLATE LAST DIGIT                FOX09990
00125A  D2A0 0C19          STB    WORK2,INTLVL+1      SET UP INTERRUPT LEVELS           FOX10000
00125E  030F               BR     LINK                RETURN                            FOX10010
                      *-----------------------------------                              FOX10020
                      * TO INITIALIZE REGISTERS, OPTION CELLS, AND ERROR TALLYS         FOX10030
001260  2440          INITAL LIS    ZERO,0              INITIALIZE REGISTERS              FOX10040
001262  2451               LIS    ONE,1               'ZERO' & 'ONE'                    FOX10050
001264  C870 ABA9          LHI    DAT,X'ABA9'         LOAD PASLA (FDX) OC'S             FOX10060
                      *                                                                 FOX10070
                      * IF PASLA, TWRT = DISABLE, DATA TERMINAL READY,                  FOX10080
                      * REVERSE CHANNEL MARK, AND WRITE                                 FOX10090
                      * TREAD = DISABLE, DATA TERMINAL READY, REVERSE                   FOX10100
                      * CHANNEL MARK, AND READ.                                         FOX10110
                      *                                                                 FOX10120
001268  4070 139C          STH    DAT,TWRT            ESTABLISH PASLA (FDX) OC'S        FOX10130
00126C  4070 139E          STH    DAT,TWRTB                                             FOX10140
001270  C870 6B69          LHI    DAT,X'6B69'                                           FOX10150
001274  4070 13A0          STH    DAT,EBLWRT          ESTABLISH PASLA (FDX) ENABLE OC'S FOX10160
001278  C870 2323          LHI    DAT,X'2323'                                           FOX10170
00127C  4070 13A2          STH    DAT,RQ2S            ESTABLISH PASLA (FDX) RQ2S OC'S   FOX10180
001280  4050 139A          STH    ONE,PASLA           SET PASLA INF FLAG                FOX10190
001284  4800 0C10          LH     DEV0,DEVSADR        LOAD DEVICE ADDRESSES             FOX10200
001288  4810 0C12          LH     DEV1,DEVSADR+2                                        FOX10210
                      *                                                                 FOX10220
                      * DEVICE NUMBERS DIFFER : PASLA (FDX) CONTROLLER                  FOX10230
                      *                                                                 FOX10240
00128C  0501               CLAR   DEV0,DEV1           DEVICE ADDRESSES THE SAME ?       FOX10250
00128E  4230 12F6          BNE    INIT1               NO, IT IS PASLA (FDX) CONTROLLER  FOX10260
                      *                                                                 FOX10270
                      * DEVICE NUMBERS ALIKE MEANS CLI/PASLA (HDX) CONTROLLER           FOX10280
                      *                                                                 FOX10290
001292  4860 0A0A          LH     WORK,PASFLG         YES, IS HDX FLAG SET ?            FOX10300
001296  4210 12D4          BM     MICBUS              NEGATIVE = MICRO I/O BUS DEVICE   FOX10310
00129A  C560 000F          CLHI   WORK,X'0F'          IS IT PASLA HDX ?                 FOX10320
00129E  2137               BNES   TTY                 NO, TTY CONTROLLER - BRANCH       FOX10330
0012A0  C870 6969          LHI    DAT,X'6969'                                           FOX10340
0012A4  4070 13A2          STH    DAT,RQ2S            ESTABLISH PASLA (HDX) RQ2S OC'S   FOX10350
0012A8  4300 12F6          B      INIT1                                                 FOX10360
                      *                                                                 FOX10370
                      * 'HDX' FLAG RESET MEANS CLI CONTROLLER                           FOX10380
                      *                                                                 FOX10390
0012AC  4040 139A     TTY  STH    ZERO,PASLA          CLEAR PASLA FLAG                  FOX10400
0012B0  C870 9894          LHI    DAT,X'9894'         AND LOAD                          FOX10410
0012B4  4070 139C          STH    DAT,TWRT            OC'S FOR                          FOX10420
0012B8  C870 9894          LHI    DAT,X'9894'         TTY CONTROLLER                    FOX10430
0012BC  4070 139E          STH    DAT,TWRTB                                             FOX10440
0012C0  C870 5A66          LHI    DAT,X'5A66'                                           FOX10450
```

```
EXEC

0012C4  4070 13A0          STH    DAT,EBLWRT                                  FOX10460
0012C8  C870 6666          LHI    DAT,X'6666'                                 FOX10470
0012CC  4070 13A2          STH    DAT,RQ2S                                    FOX10480
0012D0  4300 12FA          B      INIT2                                       FOX10490
                     *                                                         FOX10500
                     * MICRO I/O BUS CONTROLLER                                FOX10510
                     *                                                         FOX10520
0012D4  4040 139A    MICBUS STH    ZERO,PASLA        RESET PASLA FLAG          FOX10530
0012D8  C870 1292          LHI    DAT,X'1292'       ESTABLISH MICRO I/O BUS OC'S FOX10540
0012DC  4070 139C          STH    DAT,TWRT                                    FOX10550
0012E0  4070 139E          STH    DAT,TWRTB                                   FOX10560
0012E4  C870 3292          LHI    DAT,X'3292'                                 FOX10570
0012E8  4070 13A0          STH    DAT,EBLWRT                                  FOX10580
0012EC  C870 9292          LHI    DAT,X'9292'                                 FOX10590
0012F0  4070 13A2          STH    DAT,RQ2S                                    FOX10600
0012F4  2303               BS     INIT2             SKIP SPEED SET-UP & STOP BIT(S) OC FOX10610
0012F6  DE00 0A09    INIT1 OC     DEV0,SECOND       SET UP PASLA SPEED & STOP BIT(S) FOX10620
                     *                                                         FOX10630
0012FA  2499         INIT2 LIS    STAT,9            CLEAR ALL ERROR TALLYS    FOX10640
0012FC  9191               SLHLS  STAT,1                                      FOX10650
0012FE  4049 1752    INIT3 STH    ZERO,ERRORO(STAT)                           FOX10660
001302  2792               SIS    STAT,2                                      FOX10670
001304  2213               BNMS   INIT3                                       FOX10680
001306  4040 0C92          STH    ZERO,RUN          CLEAR RUN FLAG            FOX10690
00130A  030F               BR     LINK                                        FOX10700
                     * * * * * * * * * * * * * * * * * * * * * * *             FOX10710
                     *                                           *             FOX10720
                     * SUBROUTINE TESTS (CHAR) FOR CORRECT PARITY *           FOX10730
                     *    CALL IS:                               *             FOX10740
                     *        BAL    RET2,PARCHK                 *             FOX10750
                     *                                           *             FOX10760
                     * * * * * * * * * * * * * * * * * * * * * * *             FOX10770
00130C  40B0 13A8    PARCHK STH    CHAR,TEMPO        SAVE ORIGINAL CHARACTER   FOX10780
001310  40F0 13A6          STH    LINK,TEMP         SAVE LINK                 FOX10790
001314  41F0 1150          BAL    LINK,PARGEN       GENERATE NEW CHARACTER W/PARITY FOX10800
001318  48F0 13A6          LH     LINK,TEMP         RESTORE LINK              FOX10810
00131C  45B0 13A8          CLH    CHAR,TEMPO        IS PARITY OK ?            FOX10820
001320  0332               BER    RET2              YES, RETURN (OK)          FOX10830
                     *                                                         FOX10840
                     * INCORRECT PARITY                                        FOX10850
                     *                                                         FOX10860
001322  48B0 13A8    PARNG LH     CHAR,TEMPO        RESTORE ORIGINAL CHARACTER FOX10870
001326  2451               LIS    ONE,1             RESTORE REGISTER ONE      FOX10880
001328  6150 175A          AHM    ONE,ERROR4        INCREMENT PARITY ERROR TOTAL FOX10890
00132C  4890 0C5A          LH     STAT,NOMSG        TEST ERROR MESSAGE OPTION FOX10900
001330  0232               BNZR   RET2              NO OUTPUT IF SET          FOX10910
                     *                                                         FOX10920
001332  41F0 1078          BAL    LINK,OUTPUT       OUTPUT MESSAGE            FOX10930
001336  1500               DC     Z(MSG8)           "PARITY ERROR"            FOX10940
001338  0302               BR     RET2              RETURN                    FOX10950
                     *-----------------------------------                     FOX10960
                     * 50 MILLISECOND TIME OUT ROUTINE  (MINIMUM TIME OUT)    FOX10970
00133A  D000 24C0    TMER  STM    R0,RSAVE          SAVE CALLING REGISTER SET FOX10980
00133E  C860 1000          LHI    WORK,X'1000'      LOAD TIME-OUT VALUE       FOX10990
```

```
EXEC

001342  24AF                1100  TME1     LIS    WORK2,15          LOAD MINOR LOOP COUNT                FOX11000
                            1101  *                                                                     FOX11010
001344  27A1                1102  TME2     SIS    WORK2,1           DECREMENT MINOR LOOP COUNT           FOX11020
001346  2021                1103           BPS    TME2              BRANCH UNTIL VALUE IS ZERO           FOX11030
001348  2761                1104           SIS    WORK,1            DECREMENT TIME-OUT VALUE             FOX11040
00134A  2024                1105           BPS    TME1              BRANCH UNTIL VALUE IS ZERO           FOX11050
00134C  D100 24C0           1106           LM     R0,RSAVE          RESTORE CALLING REGISTERS            FOX11060
001350  030F                1107           BR     LINK              RETURN                               FOX11070
                            1108  *--------------------------------                                    FOX11080
                            1109  * SUBROUTINE CONVERTS RECEIVED STATUS (STAT)                          FOX11090
                            1110  * TO HEX & OUTPUTS MESSAGE 'STATUS = XX'                             FOX11100
                            1111  *     CALL IS:                                                        FOX11110
                            1112  *        BAL    RET2,STATER                                           FOX11120
                            1113  *--------------------------------                                    FOX11130
001352  2451                1114  STATER  LIS    ONE,1                                                  FOX11140
001354  6150 175C           1115           AHM    ONE,ERROR5        INCREMENT STATUS ERROR TALLY         FOX11150
001358  48B0 0C5A           1116           LH     CHAR,NOMSG        TEST ERROR MESSAGE OPTION            FOX11160
00135C  0232                1117           BNZR   RET2              NO OUTPUT IF SET                     FOX11170
                            1118  *                                                                     FOX11180
00135E  08B9                1119           LDAR   CHAR,STAT                                            FOX11190
001360  90B4                1120           SRHLS  CHAR,4            CONVERT RECEIVED                     FOX11200
001362  C480 000F           1121           NHI    CHAR,15           STATUS BYTE                          FOX11210
001366  D3BB 13CC           1122           LB     CHAR,HEXTAB(CHAR) INTO TWO HEX                         FOX11220
00136A  D280 151C           1123           STB    CHAR,STATMSG      DIGITS IN MSG10                      FOX11230
00136E  C490 000F           1124           NHI    STAT,X'0F'                                             FOX11240
001372  D3B9 13CC           1125           LB     CHAR,HEXTAB(STAT)                                      FOX11250
001376  D2B0 151D           1126           STB    CHAR,STATMSG+1                                         FOX11260
00137A  40F0 13AC           1127           STH    LINK,TEMP2        SAVE LINK                            FOX11270
00137E  41F0 1078           1128           BAL    LINK,OUTPUT       OUTPUT MESSAGE                       FOX11280
001382  1510                1129           DC     Z(MSG10)          "STATUS = XX"                        FOX11290
001384  48F0 13AC           1130           LH     LINK,TEMP2        RESTORE LINK                         FOX11300
001388  0302                1131           BR     RET2              RETURN                               FOX11310
                            1132  * * * * * * * * * * * * * * * * * * * * * * * *                       FOX11320
                            1133  *                                                 *                   FOX11330
                            1134  * PROGRAM CONSTANTS                               *                   FOX11340
                            1135  *                                                 *                   FOX11350
                            1136  * * * * * * * * * * * * * * * * * * * * * * * *                       FOX11360
00138A  0000                1137  TESTNO   DCX    0                                                    FOX11370
00138C  0000                1138  CURSOR   DCX    0                                                    FOX11380
00138E  0000                1139  FIRSTF   DCX    0                                                    FOX11390
001390  0000                1140  INPFLG   DCX    0                                                    FOX11400
001392  0000                1141  OUTFLG   DCX    0                                                    FOX11410
001394  0000                1142  WAIT     DCX    0                                                    FOX11420
001396  0000                1143  BRKFLG   DCX    0                                                    FOX11430
001398  8000                1144  TIME     DC     X'8000'                                              FOX11440
00139A  0001                1145  PASLA    DCX    1                                                    FOX11450
00139C  ABA9                1146  TWRT     DC     X'ABA9'                                              FOX11460
        0000 139D           1147  TREAD    EQU    TWRT+1                                               FOX11470
00139E  ABA9                1148  TWRTB    DC     X'ABA9'                                              FOX11480
        0000 139F           1149  TREADB   EQU    TWRTB+1                                              FOX11490
0013A0  6B69                1150  EBLWRT   DC     X'6B69'                                              FOX11500
        0000 13A1           1151  EBLRED   EQU    EBLWRT+1                                             FOX11510
0013A2  2323                1152  RQ2S     DC     X'2323'                                              FOX11520
0013A4  80A9                1153  NORM     DCX    80A9                                                 FOX11530
```

```
EXEC

          0000 13A5          1154  NEREAD   EQU   NORM+1                                                  FOX11540
0013A6    0000               1155  TEMP     DCX   0                  TEMPORARY STORRAGE LOCATIONS         FOX11550
0013A8    0000               1156  TEMP0    DCX   0                  FOR RETURN ADDRESS AND               FOX11560
0013AA    0000               1157  TEMP1    DCX   0                  CHARACTER SAVE LOCATIONS             FOX11570
0013AC    0000               1158  TEMP2    DCX   0                                                       FOX11580
0013AE    0000               1159  TEMP3    DCX   0                                                       FOX11590
0013B0    0000               1160  TEMP4    DCX   0                                                       FOX11600
0013B2    0000               1161  TEMP5    DCX   0                                                       FOX11610
0013B4    0000               1162  TEMP6    DCX   0                                                       FOX11620
0013B6    0000               1163  TEMP7    DCX   0                                                       FOX11630
0013B8    0000               1164  TEMP8    DCX   0                                                       FOX11640
0013BA    0000               1165  CURSLINE DCX   0                  CURSOR LINE NO.   (FROM CURSREAD)    FOX11650
0013BC    0000               1166  CURSCOLM DCX   0                  CURSOR COLUMN NO. (FROM CURSREAD)    FOX11660
0013BE    0000               1167  RETURN   DCX   0                                                       FOX11670
0013C0    4003               1168  INCR     DCX   4003                                                    FOX11680
          0000 13C1          1169  MBRSET   EQU   INCR+1                                                  FOX11690
0013C2    0000               1170  RCHAR    DCX   0                  TEMP READ CHARACTER SAVE LOCATION    FOX11700
0013C4    0000               1171  DUSAVE   DCX   0                  DU RETURN ADDRESS SAVE LOCATION      FOX11710
0013C6    0000               1172  DURTN    DCX   0                  LINK INITIAL DU VALUE                FOX11720
0013C8    0000               1173  DU       DCX   0                  DU FLAG                              FOX11730
0013CA    0000               1174  DUSTAT   DCX   0                  DU HANDLER CALLING STATUS            FOX11740
                             1175  ***********************************************                        FOX11750
0013CC    30313233           1176  HEXTAB   DC    C'0123456789ABCDEF'                                    FOX11760
          34353637
          38394142
          43444546
0013DC    17D2               1177  TSTTAB   DC    Z(TEST00),Z(TEST01),Z(TEST02),Z(TEST03)                FOX11770
0013DE    1946
0013E0    19F2
0013E2    1A0E
0013E4    1D52               1178           DC    Z(TEST04),Z(TEST05),Z(TEST06)                          FOX11780
0013E6    2092
0013E8    2288
0013EA    00808000           1179  BYTETAB  DB    0,X'80',X'80',0    16 EVEN PARITY BYTES FOR GENERATION FOX11790
0013EE    80000080           1180           DB    X'80',0,0,X'80'                                        FOX11800
0013F2    80000080           1181           DB    X'80',0,0,X'80'                                        FOX11810
0013F6    00808000           1182           DB    0,X'80',X'80',0                                        FOX11820
                             1183  * * * * * * * * * * * * * * * * * * * * * * * * * *                   FOX11830
                             1184  *                                                 *                   FOX11840
                             1185  *  M E S S A G E S                                *                   FOX11850
                             1186  *                                                 *                   FOX11860
                             1187  * * * * * * * * * * * * * * * * * * * * * * * * * *                   FOX11870
0013FA    0A8D               1188  MSG0     DC    X'0A8D'                                                FOX11880
0013FC    0D8A               1189  MSG0.5   DC    X'0D8A'                                                FOX11890
0013FE    0A0D               1190  MSG1     DC    X'0A0D',C'MODEL-1100 DISPLAY TERMINAL TEST PROGRAM'    FOX11900
001400    4D4F4445
          4C2D3131
          30302044
          4953504C
          41592054
          45524D49
          4E414C20
          54455354
          2050524F
```

```
EXEC
            4752414D
001428      20303620      1191          DC     C' 06-217R01'                                  FOX11910
            32313752
            3031
                          1194          ELSE                                                  FOX11940
001432      20463032      1195          DC     C' F02'                                        FOX11950
001436                    1196          ENDC                                                  FOX11960
001436      0A8D          1197          DC     X'0A8D'                                        FOX11970
001438      44455052      1198  MSG2    DC     C'DEPRESS KEYS 1,2,3',X'0A8D'                  FOX11980
            45535320
            4B455953
            20312C32
            2C33
00144A      0A8D
00144C      20202020      1199  MSG3    DC     C'                                  '          FOX11990
            20202020
            20202020
            20202020
            20202020
            20202020
            20202020
            2020
00146A      5B20          1200          DC     X'5B20',C'T E S T   0 4 ',X'5D20'              FOX12000
00146C      54204520
            53205420
            20203020
            3420
00147A      5D20
00147C      20202020      1201          DC     C'                                  ',X'0D8A'  FOX12010
            20202020
            20202020
            20202020
            20202020
            20202020
            20202020
            2020
00149A      0D8A
00149C      42414420      1202  MSG4    DC     C'BAD LINE NUMBER = ',X'5827'*   "X'"         FOX12020
            4C494E45
            204E554D
            42455220
            3D20
0014AE      5827
0014B0      2A2A          1203  ERR07M1 DC     C'**',X'2720'      "**' "                     FOX12030
0014B2      2720
0014B4      53484F55      1204          DC     C'SHOULD BE = ',X'5827'*     "X'"              FOX12040
            4C442042
            45203D20
0014C0      5827
0014C2      2A2A          1205  ERR07M2 DC     C'**',X'2720'      "**' "                     FOX12050
0014C4      2720
0014C6      0D8A          1206          DC     X'0D8A'            CR, LF                     FOX12060
0014C8      42414420      1207  MSG5    DC     C'BAD COLUMN POSITION = ',X'5827'*   "X'"       FOX12070
            434F4C55
```

```
EXEC

            4D4E2050
            4F534954
            494F4E20
            3D20
0014DE      5827
0014E0      2A2A          1208  ERR08M1  DC    C'**',X'2720'      "**' "                          FOX12080
0014E2      2720
0014E4      53464F55      1209           DC    C'SHOULD BE = ',X'5827'*     "X'"                  FOX12090
            4C442042
            45203D20
0014F0      5827
0014F2      2A2A          1210  ERR08M2  DC    C'**',X'2720'      "**' "                          FOX12100
0014F4      2720
0014F6      0D8A          1211           DC    X'0D8A'            CR, LF                          FOX12110
0014F8      0D0A          1212  MSG6     DC    X'0D0A',X'2AA0'    *      CRLF, * SPACE            FOX12120
0014FA      2AA0
0014FC      0A0D          1213  MSG7     DC    X'0A0D',X'3FA0'    *      CRLF, ? SPACE            FOX12130
0014FE      3FA0
001500      20205041      1214  MSG8     DC    C'  PARITY ERROR',X'20A0'                           FOX12140
            52495459
            20455252
            4F52
00150E      20A0
001510      20202053      1215  MSG10    DC    C'   STATUS = '                                     FOX12150
            54415455
            53203D20
00151C      2A2A2020      1216  STATMSG  DC    C'**  ',X'20A0'                                     FOX12160
001520      20A0
001522      0A0D          1217  MSG11    DC    X'0A0D',C'DEPRESS BREAK',X'20A0'                    FOX12170
001524      44455052
            45535320
            42524541
            4B20
001532      20A0
001534      0A0D          1218  MSG12    DC    X'0A0D',C'END OF TEST',X'20A0'                      FOX12180
001536      454E4420
            4F462054
            45535420
001542      20A0
001544      54455354      1219  MSG15    DC    C'TEST 05 ',X'0A0D'                                 FOX12190
            20303520
00154C      0A0D
00154E      484F4D45      1220           DC    C'HOME CURSOR & CLEAR SCREEN HAVE BEEN OUTPUT '     FOX12200
            20435552
            534F5220
            2620434C
            45415220
            53435245
            454E2048
            41564520
            4245454E
            204F5554
            50555420
00157A      0D8A          1221           DC    X'0D8A'                                             FOX12210
```

```
EXEC

                                1222  *                                                                    FOX12220
00157C  20204252                1223  MSG16   DC    C'  BREAK OK',X'0A8D'                                 FOX12230
        45414B20
        4F4B
001586  0A8D
001588  0A0D                    1224  MSG17   DC    X'0A0D',C'TEST 00 ',X'0A0D'                           FOX12240
00158A  54455354
        20303020
001592  0A0D
001594  4B455942                1225          DC    C'KEYBOARD TEST ',X'0A8D'                             FOX12250
        4F415244
        20544553
        5420
0015A2  0A8D
0015A4  54455354                1226  MSG18   DC    C'TEST 01 ',X'0A8D'                                   FOX12260
        20303120
0015AC  0A8D
0015AE  0A0D                    1227  MSG19   DC    X'0A0D',C'TEST 02 ',X'0A8D'                           FOX12270
0015B0  54455354
        20303220
0015B8  0A8D
0015BA  0A0D                    1228  MSG20   DC    X'0A0D',C'TEST 03 ',X'0A8D'                           FOX12280
0015BC  54455354
        20303320
0015C4  0A8D
0015C6  000A                    1229  MSG21   DC    X'000A',C'TEST 06 ',X'0A0D'                           FOX12290
0015C8  54455354
        20303620
0015D0  0A0D
0015D2  44455052                1230          DC    C'DEPRESS "HERE-IS" ',X'0D8A'                         FOX12300
        45535320
        22484552
        452D4953
        2220
0015E4  0D8A
0015E6  2C204C46                1231  MSG23   DC    C', LF TO EXIT',X'0D8A'                               FOX12310
        20544F20
        45584954
0015F2  0D8A
0015F4  2C204C46                1232  MSG24   DC    C', LF ON ERROR ',X'0D8A'                             FOX12320
        204F4E20
        4552524F
        5220
001602  0D8A
001604  22544553                1233  MSG26   DC    C'"TEST 5" HAS NOW BEEN DELETED',X'0A8D'              FOX12330
        54203522
        20484153
        204E4F57
        20424545
        4E204445
        4C455445
        4420
001622  0A8D
001624  4D554C54                1234  MSG27   DC    C'MULTICODE - '                                       FOX12340
```

```
EXEC
                49434F44
                45202020
001630          2A2A2053        1235  ERR9CHAR DC     C'** SEQUENCE DID NOT EXECUTE PROPERLY',X'0D8A'        FOX12350
                45515545
                4E434520
                44494420
                4E4F5420
                45584543
                55544520
                50524F50
                45524C59
001654          0D8A
001656          434C4541        1236  MSG28    DC     C'CLEAR ALL HAS NOW BEEN OUTPUT ',X'0D0A'              FOX12360
                5220414C
                4C204841
                53204E4F
                57204245
                454E204F
                55545055
                5420
001674          0D0A
001676          48495420        1237  MSG22    DC     C'HIT CR TO CONTINUE',X'FFFF'                          FOX12370
                43522054
                4F20434F
                4E54494E
                5545
001688          FFFF
00168A          4D454348        1238  MSG30    DC     C'MECHANICAL RESTRAINTS MAY CAUSE THIS COPY TO'        FOX12380
                414E4943
                414C2052
                45535452
                41494E54
                53204D41
                59204341
                55534520
                54484953
                20434F50
                5920544E
0016B6          20474152        1239           DC     C' GARBLE ON SOME PRINTER PORT DEVICES',X'0D8A'        FOX12390
                424C4520
                4E4E2053
                4F4D4520
                5052494E
                54455220
                504F5254
                20444556
                49434553
0016DA          0D8A
0016DC          0D0A            1240  MSG32    DC     X'0D0A',C'DU DETECTED ',X'FFFF'                        FOX12400
0016DE          44552044
                45544543
                54454420
0016EA          FFFF
0016EC          494E2045        1241  MSG33    DC     C'IN EXEC ',X'0D8A'                                    FOX12410
```

```
EXEC

          58454320
0016F4    0D8A
0016F6    494E2054          1242  MSG34    DC     C'IN TEST **',X'0D8A'                          FOX12420
          45535420
          2A2A
001700    0D8A
          0000 16FE         1243  DUMSG    EQU    MSG34+8                                        FOX12430
001702    54484953          1244  MSG40    DC     C'THIS IS A TEST OF THE INTERDATA, INC. MODEL-1100'  FOX12440
          20495320
          41205445
          5354204F
          46205448
          4520494E
          54455244
          4154412C
          20494E43
          2E204D4F
          44454C2D
          31313030
001732    20435254          1245           DC     C' CRT TERMINAL CURSOR POSITIONING'            FOX12450
          20544552
          4D494E41
          4C204355
          52534F52
          20504F53
          49544994F
          4E494E47
```

```
                                 EXEC

                                 *-------------------------------------
                                 * ERROR TOTALS
                                 *
                                 * ERROR 00 = INCORRECT CHARACTER
                                 *
001752   0000                    ERROR0   DCX    0
                                 *
                                 * ERROR 01 = BAD CURSOR POSITION
                                 *
001754   0000                    ERROR1   DCX    0
                                 *
                                 * ERROR 02 = NO XMIT CHARACTER
                                 *
001756   0000                    ERROR2   DCX    0
                                 *
                                 * ERROR 03 = ILLEGAL CHARACTER
                                 *
001758   0000                    ERROR3   DCX    0
                                 *
                                 * ERROR 04 = PARITY ERROR
                                 *
00175A   0000                    ERROR4   DCX    0
                                 *
                                 * ERROR 05 = STATUS ERROR
                                 *
00175C   0000                    ERROR5   DCX    0
                                 *
                                 * ERROR 06 = INTERRUPT ERROR
                                 *
00175E   0000                    ERROR6   DCX    0
                                 *
                                 * ERROR 07 = BAD CURSOR LINE POSITIONING
                                 *
001760   0000                    ERROR7   DCX    0
                                 *
                                 * ERROR 08 = BAD CURSOR COLUMN POSITIONING
                                 *
001762   0000                    ERROR8   DCX    0
                                 *
                                 * ERROR 09 = MULITCODE SEQUENCE FAILURE
                                 *
001764   0000                    ERROR9   DCX    0
```

```
                                 1290  *--------------------------------                                  FOX12900
                                 1291  * TO INITIALIZE & DISPLAY TEST TITLE                              FOX12910
                                 1292  *                                                                  FOX12920
001766  24F0                     1293  START    LIS    LINK,0                                            FOX12930
001768  40F0 13C8                1294          STH    LINK,DU          RESET THE DU FLAG                FOX12940
00176C  41F0 122E                1295          BAL    LINK,SETUP       SET UP DEVSADR & INTLVL TABLES   FOX12950
001770  41F0 0A2E                1296          BAL    LINK,LCORE       SET UP LOW CORE                  FOX12960
001774  41F0 1260                1297          BAL    LINK,INITAL      INITIALIZE                       FOX12970
001778  41F0 1078                1298          BAL    LINK,OUTPUT      OUTPUT MESSAGE                   FOX12980
00177C  13FE                     1299          DC     Z(MSG1)          "MODEL-1100 TEST PROGRAM" (TITLE) FOX12990
00177E  2430                     1300          LIS    FLAG,0                                            FOX13000
                                 1301  * * * * * * * * * * * * * * * * * * * * * * *                    FOX13010
                                 1302  *                                                 *                FOX13020
                                 1303  * OUTPUT 4-48 CHARACTER LINES OF THE             *                FOX13030
                                 1304  * 96 DISPLAYABLE CHARACTERS.                     *                FOX13040
                                 1305  *                                                 *                FOX13050
                                 1306  * * * * * * * * * * * * * * * * * * * * * * *                    FOX13060
001780  2480                     1307  TESTA0   LIS    TAB,0            PATRN1 INDEX                     FOX13070
                                 1308  *                                                                  FOX13080
001782  C8B8 0020                1309  TESTA1   LHI    CHAR,X'20'(TAB)  GET A CHARACTER                  FOX13090
001786  4120 10B0                1310          BAL    RET2,OUTCHR      OUTPUT IT                        FOX13100
00178A  2681                     1311          AIS    TAB,1            INCREMENT PATRN1 INDEX           FOX13110
00178C  C580 0030                1312          CLHI   TAB,48           48 CHARACTERS DONE ?             FOX13120
001790  2087                     1313          BLS    TESTA1           NOT YET, LOOP                    FOX13130
001792  24B7                     1314          LIS    CHAR,X'07'       BELL CODE                        FOX13140
001794  4120 10B0                1315          BAL    RET2,OUTCHR                                       FOX13150
001798  24BA                     1316          LIS    CHAR,X'0A'                                        FOX13160
00179A  4120 10B0                1317          BAL    RET2,OUTCHR      LINE FEED                        FOX13170
00179E  24BD                     1318          LIS    CHAR,X'0D'                                        FOX13180
0017A0  4120 10B0                1319          BAL    RET2,OUTCHR      CARRIAGE RETURN                  FOX13190
                                 1320  *                                                                  FOX13200
0017A4  C8B8 0020                1321  TESTA2   LHI    CHAR,X'20'(TAB)  GET A CHARACTER                  FOX13210
0017A8  4120 10B0                1322          BAL    RET2,OUTCHR      OUTPUT IT                        FOX13220
0017AC  2681                     1323          AIS    TAB,1            INCREMENT PATRN1 INDEX           FOX13230
0017AE  C580 0060                1324          CLHI   TAB,96           96 CHARACTERS DONE ?             FOX13240
0017B2  2087                     1325          BLS    TESTA2           NO, LOOP                         FOX13250
                                 1326  *                                                                  FOX13260
                                 1327  * AT END OF EACH LINE, RING BELL THEN                             FOX13270
                                 1328  * OUTPUT CARRIAGE RETURN, LINE-FEED                              FOX13280
                                 1329  *                                                                  FOX13290
0017B4  24B7                     1330          LIS    CHAR,X'07'       BELL CODE                        FOX13300
0017B6  4120 10B0                1331          BAL    RET2,OUTCHR                                       FOX13310
0017BA  24BA                     1332          LIS    CHAR,X'0A'       LINE FEED                        FOX13320
0017BC  4120 10B0                1333          BAL    RET2,OUTCHR                                       FOX13330
0017C0  C8B0 008D                1334          LHI    CHAR,X'8D'       CARRIAGE RETURN                  FOX13340
0017C4  4120 10B0                1335          BAL    RET2,OUTCHR                                       FOX13350
0017C8  0735                     1336          XAR    FLAG,ONE         COMPLEMENT LINE COUNT            FOX13360
0017CA  4230 1780                1337          BNZ    TESTA0           DO SECOND LINE                   FOX13370
0017CE  4300 0CB8                1338          B      OPTIN            ENTER COMMAND MODE               FOX13380
                                 1339  * ALL PRINTABLE CHARACTERS HAVE NOW BEEN OUTPUT.                  FOX13390
                                 1340  *--------------------------------                                  FOX13400
```

```
                                 1342  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX13420
                                 1343  *                                               *                    FOX13430
                                 1344  *          T E S T   M O D U L E   0            *                    FOX13440
                                 1345  *                                               *                    FOX13450
                                 1346  * NEXT SECTION REQUIRES THAT THE OPERATOR       *                    FOX13460
                                 1347  * DEPRESS THE KEYBOARD KEYS THAT CORRESPOND TO  *                    FOX13470
                                 1348  * THE DISPLAYABLE CHARACTERS OR THE NON-        *                    FOX13480
                                 1349  * DISPLAYABLE FUNCTIONS.  THE DATA WILL BE READ *                    FOX13490
                                 1350  * IN THE ECHO-PLEX MODE SO THAT THE KEY         *                    FOX13500
                                 1351  * DEPRESSED IS IMMEDIATELY DISPLAYED.  THE      *                    FOX13510
                                 1352  * PROGRAM THEN SENDS THE RECEIVED CHARACTERS    *                    FOX13520
                                 1353  * BACK TO THE MODEL-1100. A SPACE CHARACTER IS  *                    FOX13530
                                 1354  * THEN OUTPUT, FOLLOWED BY THE TWO DIGIT HEX    *                    FOX13540
                                 1355  * VALUE OF THE RECEIVED CHARACTER.              *                    FOX13550
                                 1356  *                                               *                    FOX13560
                                 1357  * THE PARITY OF THE RECEIVED BYTE IS TESTED.    *                    FOX13570
                                 1358  * IF INCORRECT, AN ERROR MESSAGE IS OUTPUT.     *                    FOX13580
                                 1359  *                                               *                    FOX13590
                                 1360  * A CARRIAGE RETURN & LINEFEED IS OUTPUT,       *                    FOX13600
                                 1361  * CLOSING THE LOOP.  THIS TEST CAN BE           *                    FOX13610
                                 1362  * TERMINATED BY DEPRESSING THE LINE BREAK KEY   *                    FOX13620
                                 1363  *                                               *                    FOX13630
                                 1364  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX13640
0017D2   DE00 139D               1365  TEST00   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED    FOX13650
0017D6   9B0B                    1366            RDR    DEV0,CHAR         FORCE BUSY SET                    FOX13660
0017D8   DE10 139C               1367            OC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED   FOX13670
0017DC   41F0 1078               1368            BAL    LINK,OUTPUT       "TEST 00"                         FOX13680
0017E0   1588                    1369            DC     Z(MSG17)          "KEYBOARD TEST"                   FOX13690
0017E2   9D19                    1370  TESTB0   SSR    DEV1,STAT         WAIT FOR LAST                     FOX13700
0017E4   9A59                    1371            WDR    ONE,STAT          WRITE DEVICE STATUS TO DISPLAY    FOX13710
0017E6   C390 0001               1372            THI    STAT,1            DEVICE DU ?                       FOX13720
0017EA   2337                    1373            BZS    TESTB8            NO, BRANCH                        FOX13730
0017EC   40F0 13C6               1374            STH    LINK,DURTN                                          FOX13740
0017F0   41F0 2318               1375            BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX13750
0017F4   48F0 13C6               1376            LH     LINK,DURTN                                          FOX13760
0017F8   C390 0008               1377  TESTB8   THI    STAT,8            BUSY ?                            FOX13770
0017FC   203D                    1378            BNZS   TESTB0            YES, WAIT                         FOX13780
0017FE   DE00 139D               1379            OC     DEV0,TREAD        SELECT READ MODE                  FOX13790
001802   9D09                    1380  TESTB1   SSR    DEV0,STAT                                           FOX13800
001804   9A59                    1381            WDR    ONE,STAT          WRITE STATUS TO DISPLAY           FOX13810
001806   C390 0001               1382            THI    STAT,1            DEVICE DU ?                       FOX13820
00180A   2337                    1383            BZS    TESTB9            NO, BRANCH                        FOX13830
00180C   40F0 13C6               1384            STH    LINK,DURTN                                          FOX13840
001810   41F0 2318               1385            BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX13850
001814   48F0 13C6               1386            LH     LINK,DURTN                                          FOX13860
001818   C390 0008               1387  TESTB9   THI    STAT,8            DEVICE BUSY ?                     FOX13870
00181C   203D                    1388            BNZS   TESTB1            YES, WAIT                         FOX13880
00181E   C390 0020               1389            THI    STAT,X'20'        LINE BREAK ?                      FOX13890
001822   2336                    1390            BZS    TESTB2            NO, BRANCH                        FOX13900
001824   9B0B                    1391            RDR    DEV0,CHAR         YES, READ A CHARACTER             FOX13910
001826   087B                    1392            LDAR   DAT,CHAR          TEST IF ZERO CHARACTER            FOX13920
001828   4330 18D4               1393            BZ     BRKWT             EXIT IF 'BREAK' DEPRESSED.        FOX13930
00182C   2302                    1394            BS     TSTB2A                                              FOX13940
00182E   9B07                    1395  TESTB2   RDR    DEV0,DAT          READ                              FOX13950
```

TEST 0

```
                          1396  *                                                                  FOX13960
001830  08B7              1397  TSTB2A  LDAR   CHAR,DAT          CHARACTER                         FOX13970
001832  DE10 139C         1398          OC     DEV1,TWRT                                          FOX13980
001836  C4B0 007F         1399          NHI    CHAR,X'7F'        REMOVE PARITY BIT                 FOX13990
00183A  24C0              1400          LIS    POINT,0           CLEAR PATRN1 INDEX                FOX14000
00183C  C86C 0020         1401  TESTB3  LHI    WORK,X'20'(POINT)                                   FOX14010
001840  C460 007F         1402          NHI    WORK,X'7F'                                          FOX14020
001844  056B              1403          CLAR   WORK,CHAR         MATCH ?                           FOX14030
001846  2337              1404          BES    TESTB4            YES, BRANCH                       FOX14040
001848  26C1              1405          AIS    POINT,1           NO, INCREMENT &                   FOX14050
00184A  C5C0 0060         1406          CLHI   POINT,96          SEARCH THROUGH PATRN1             FOX14060
00184E  2089              1407          BLS    TESTB3                                              FOX14070
001850  4300 16A0         1408          B      TESTB5            ILLEGAL CHARACTER                 FOX14080
                          1409  *                                                                  FOX14090
001854  9D19              1410  TESTB4  SSR    DEV1,STAT                                           FOX14100
001856  DE50 13C0         1411          OC     ONE,INCR          DISPLAY IN INCREMENTAL MODE       FOX14110
00185A  9A59              1412          WDR    ONE,STAT          WRITE STATUS TO D1                FOX14120
00185C  9A57              1413          WDR    ONE,DAT           WRITE CHARACTER TO D2 (AS READ)   FOX14130
00185E  DE50 13A4         1414          OC     ONE,NORM          DISPLAY IN NORMAL MODE            FOX14140
001862  C390 0001         1415          THI    STAT,1            DEVICE DU ?                       FOX14150
001866  2337              1416          BZS    TESTB10           NO, BRANCH                        FOX14160
001868  40F0 13C6         1417          STH    LINK,DURTN                                          FOX14170
00186C  41F0 2318         1418          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER      FOX14180
001870  48F0 13C6         1419          LH     LINK,DURTN                                          FOX14190
001874  C390 0008         1420  TESTB10 THI    STAT,8            DEVICE BUSY ?                     FOX14200
001878  4230 1654         1421          BNZ    TESTB4            YES, LOOP ON BUSY                 FOX14210
00187C  9A17              1422          WDR    DEV1,DAT          OUTPUT CHARACTER AS RECEIVED      FOX14220
00187E  48B0 0A0A         1423          LH     CHAR,PASFLG       PASLA/HDX FLAG = 0 ?              FOX14230
001882  213F              1424          BNZS   TESTB5            NO, BRANCH                        FOX14240
001884  0501              1425          CLAR   DEV0,DEV1         YES, CLI ?                        FOX14250
001886  2330              1426          BES    TESTB5            YES, BRANCH                       FOX14260
001888  9D19              1427  TESTB12 SSR    DEV1,STAT         NO, PASLA FDX                     FOX14270
00188A  2317              1428          BFFS   1,TESTB11        BRANCH IF DEVICE NOT DU           FOX14280
00188C  40F0 13C6         1429          STH    LINK,DURTN                                          FOX14290
001890  41F0 2318         1430          BAL    LINK,DUPASS       OTHERWISE GO TO DU STATUS HANDLER FOX14300
001894  48F0 13C6         1431          LH     LINK,DURTN                                          FOX14310
001898  C390 0008         1432  TESTB11 THI    STAT,8                                              FOX14320
00189C  203A              1433          BNZS   TESTB12           WAIT FOR BUSY TO DROP             FOX14330
00189E  9A17              1434          WDR    DEV1,DAT          ECHO CHARACTER (PASLA FDX ONLY)   FOX14340
0018A0  C8B0 0020         1435  TESTB5  LHI    CHAR,X'20'        SPACE                             FOX14350
0018A4  4120 10B0         1436          BAL    RET2,OUTCHR                                         FOX14360
0018A8  08B7              1437          LDAR   CHAR,DAT          CONVERT                           FOX14370
0018AA  90B4              1438          SRHLS  CHAR,4            RECEIVED                          FOX14380
0018AC  D3BB 13CC         1439          LB     CHAR,HEXTAB(CHAR) CHARACTER                         FOX14390
0018B0  4120 10B0         1440          BAL    RET2,OUTCHR       TO TWO HEX                        FOX14400
0018B4  08B7              1441          LDAR   CHAR,DAT          DIGITS AND                        FOX14410
0018B6  C4B0 000F         1442          NHI    CHAR,X'F'         OUTPUT                            FOX14420
0018BA  D3BB 13CC         1443          LB     CHAR,HEXTAB(CHAR)                                   FOX14430
0018BE  4120 10B0         1444          BAL    RET2,OUTCHR                                         FOX14440
0018C2  08B7              1445          LDAR   CHAR,DAT                                            FOX14450
0018C4  4120 130C         1446          BAL    RET2,PARCHK       CHECK CHARACTER PARITY            FOX14460
0018C8  087B              1447          LDAR   DAT,CHAR                                            FOX14470
0018CA  41F0 1078         1448          BAL    LINK,OUTPUT       CARRIAGE RETURN                   FOX14480
0018CE  13FA              1449          DC     Z(MSG0)           AND LINE FEED                     FOX14490
```

TEST 0

```
0018D0   4300 17E2          B      TESTB0          LOOP                                FOX14500
                            *-----------------------------------                       FOX14510
                            * 'BREAK' IS SENSED.                                       FOX14520
                            *                                                          FOX14530
0018D4   48B0 0A0A   BRKWT  LH     CHAR,PASFLG     DEVICE ON PASLA ?                   FOX14540
0018D8   4210 1926          BM     BRKMIC          BRANCH ON MICRO-BUS                 FOX14550
0018DC   4330 1904          BZ     BRKWT1          YES, BRANCH                         FOX14560
0018E0   C390 0008          THI    STAT,8          NO, IS BUSY SET ?                   FOX14570
0018E4   4230 191E          BNZ    BRKWT2          YES, BRANCH                         FOX14580
0018E8   9B0B               RDR    DEVO,CHAR       NO, FORCE BUSY SET                  FOX14590
0018EA   9D09       BRKWTA3 SSR    DEVO,STAT       DEVICE DU ?                         FOX14600
0018EC   2317               BFFS   1,BRKWTA1      NO, BRANCH                          FOX14610
0018EE   40F0 13C6          STH    LINK,DURTN                                          FOX14620
0018F2   41F0 2318          BAL    LINK,DUPASS     YES, GO TO DU STATUS HANDLER        FOX14630
0018F6   48F0 13C6          LH     LINK,DURTN                                          FOX14640
0018FA   C390 0008  BRKWTA1 THI    STAT,8                                              FOX14650
0018FE   223A               BZS    BRKWTA3         WAIT FOR BUSY TO RISE               FOX14660
001900   08BB               LDAR   CHAR,CHAR       CHARACTER READ = 0 ?                FOX14670
001902   213E               BNZS   BRKWT2          NO, BRANCH                          FOX14680
001904   9D09       BRKWT1  SSR    DEVO,STAT       YES, WAIT FOR BREAK STATUS          FOX14690
001906   C390 0001          THI    STAT,1          DEVICE DU ?                         FOX14700
00190A   2337               BZS    BRKWTA2         NO, BRANCH                          FOX14710
00190C   40F0 13C6          STH    LINK,DURTN                                          FOX14720
001910   41F0 2318          BAL    LINK,DUPASS     YES, GO TO DU STATUS HANDLER        FOX14730
001914   48F0 13C6          LH     LINK,DURTN                                          FOX14740
001918   C390 0020  BRKWTA2 THI    STAT,X'20'                                          FOX14750
00191C   203C               BNZS   BRKWT1          WAIT FOR BREAK STATUS TO APPEAR     FOX14760
00191E   4050 1396  BRKWT2  STH    ONE,BRKFLG      SET BREAK FLAG                      FOX14770
001922   4300 0F68          B      TSTEXT          END OF TEST MODULE                  FOX14780
                            *-----------------------------------                       FOX14790
                            *                                                          FOX14800
         0000 1926  BRKMIC  EQU    *                                                   FOX14810
001926   9B0B               RDR    DEVO,CHAR                                           FOX14820
001928   9D09               SSR    DEVO,STAT                                           FOX14830
00192A   C390 0001          THI    STAT,1          DEVICE DU ?                         FOX14840
00192E   2337               BZS    BRKMIC2         NO, BRANCH                          FOX14850
001930   40F0 13C6          STH    LINK,DURTN                                          FOX14860
001934   41F0 2318          BAL    LINK,DUPASS     YES, GO TO DU STATUS HANDLER        FOX14870
001938   48F0 13C6          LH     LINK,DURTN                                          FOX14880
00193C   C390 0020  BRKMIC2 THI    STAT,X'20'      BREAK STATUS ?                      FOX14890
001940   203D               BNZS   BRKMIC          YES, WAIT TILL BREAK DROPS          FOX14900
001942   4300 191E          B      BRKWT2          RETURN                              FOX14910
```

TEST 1

```
                                  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX14930
                                  *                                               *                    FOX14940
                                  *          T E S T   M O D U L E   0 1          *                    FOX14950
                                  *                                               *                    FOX14960
                                  * A PRINTER PORT WARNING MESSAGE AND THEN       *                    FOX14970
                                  * U'S AND *'S ARE OUTPUT TO THE MODEL-1100      *                    FOX14980
                                  * SCREEN.  23 LINES OF 80 CHARACTERS EACH ARE   *                    FOX14990
                                  * OUTPUT.  EACH LINE IS TERMINATED BY A         *                    FOX15000
                                  * CARRIAGE RETURN AND A LINE FEED.  THE         *                    FOX15010
                                  * OPERATOR MAY DEPRESS THE CARRIAGE RETURN KEY  *                    FOX15020
                                  * TO REPEAT THE TEST, OR THE LINE FEED KEY TO   *                    FOX15030
                                  * TERMINATE.                                    *                    FOX15040
                                  *                                               *                    FOX15050
                                  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX15060
001946   DE00 139D                TEST01   OC     DEV0,TREAD          READ MODE                      FOX15070
00194A   9B0B                              RDR    DEV0,CHAR           FORCE BUSY SET                 FOX15080
00194C   DE10 139C                         OC     DEV1,TWRT           WRITE MODE                     FOX15090
001950   41F0 1E8A                         BAL    LINK,CLRSCRN        CLEAR THE SCREEN               FOX15100
001954   41F0 1078                         BAL    LINK,OUTPUT         OUTPUT MESSAGE                 FOX15110
001958   168A                              DC     Z(MSG30)            "MECHANICAL RESTRAINTS MAY....."  FOX15120
00195A   41F0 1078                         BAL    LINK,OUTPUT         OUTPUT MESSAGE                 FOX15130
00195E   15A4                              DC     Z(MSG18)            "TEST 01"                      FOX15140
001960   2430                              LIS    FLAG,0              CLEAR INVERT FLAG              FOX15150
001962   2480                              TESTOC LIS    TAB,0               LINE COUNT                     FOX15160
001964   2400                              LIS    COUNT,0             CHARACTER COUNT                FOX15170
001966   DE10 139C                         OC     DEV1,TWRT           WRITE MODE                     FOX15180
00196A   C8B0 002A                         TESTOA LHI    CHAR,C'*'                                  FOX15190
00196E   07B3                              XAR    CHAR,FLAG           INVERT OR NOT                  FOX15200
001970   4120 10B0                         TESTOD BAL    RET2,OUTCHR         OUTPUT * OR U                  FOX15210
001974   C7B0 007F                         XHI    CHAR,X'7F'          INVERT CHARACTER               FOX15220
001978   2601                              AIS    COUNT,1             FOR EIGHTY                     FOX15230
00197A   C500 0050                         CLHI   COUNT,80            CHARACTERS                     FOX15240
00197E   2087                              BLS    TESTOD              LOOP TILL DONE                 FOX15250
001980   C380 0001                         THI    TAB,1               OUTPUT CR-LF OR LF-CR BASED ON FOX15260
001984   2335                              BZS    TESTOE              CURRENT LINE NUMBER            FOX15270
001986   41F0 1078                         BAL    LINK,OUTPUT         (TEST BOTH WAYS)               FOX15280
00198A   13FA                              DC     Z(MSG0)             LF-CR                          FOX15290
00198C   2304                              BS     TESTOF                                             FOX15300
00198E   41F0 1078                         TESTOE BAL    LINK,OUTPUT                                FOX15310
001992   13FC                              DC     Z(MSG0,5)           CR-LF                          FOX15320
001994   2400                              TESTOF LIS    COUNT,0                                    FOX15330
001996   2681                              AIS    TAB,1                                              FOX15340
001998   C580 0016                         CLHI   TAB,22              DONE ?                         FOX15350
00199C   2135                              BNES   TESTOG              NO, CONTINUE                   FOX15360
00199E   41F0 1078                         BAL    LINK,OUTPUT         YES, PRINT                     FOX15370
0019A2   13FA                              DC     Z(MSG0)             CR & LF                        FOX15380
0019A4   2681                              AIS    TAB,1               INCREMENT NUMBER OF LINES      FOX15390
0019A6   C580 0018                         TESTOG CLHI   TAB,24               TWENTY-THREE LINES ?           FOX15400
                                  *                                               FOX15410
                                  *  CHANGE NEXT HALFWORD TO X'4300' TO LOOP ON ALTERNATING U'S & *'S.  FOX15420
                                  *                                               FOX15430
0019AA   4200 196E                         NOP    TESTOA+4                                           FOX15440
                                  *                                               FOX15450
                                  *  CHANGE NEXT HALFWORD TO X'4300' TO CONTINUOUSLY LOOP ON TESTOA.  FOX15460
```

TEST 1

```
                                  *                                                                  FOX15470
0019AE   4280 196A                DEBUG0   BL      TEST0A          TOTAL                            FOX15480
0019B2   25B1                               LCS     CHAR,1                                           FOX15490
0019B4   4120 1CB0                          BAL     RET2,OUTCHR     OUTPUT DELETE CHARACTER          FOX15500
0019B8   9D19                     TEST0H   SSR     DEV1,STAT       DEVICE DU ?                      FOX15510
0019BA   2317                               BFFS    1,TESTB203      NO, BRANCH                       FOX15520
0019BC   40F0 13C6                          STH     LINK,DURTN                                       FOX15530
0019C0   41F0 2318                          BAL     LINK,DUPASS     YES, GO TO DU STATUS HANDLER     FOX15540
0019C4   48F0 13C6                          LH      LINK,DURTN                                       FOX15550
0019C8   C390 0008                TESTB203 THI     STAT,8                                           FOX15560
0019CC   203A                               BNZS    TEST0H          LAST CHARACTER                   FOX15570
0019CE   DE00 139D                          OC      DEV0,TREAD      OC READ MODE                     FOX15580
0019D2   9B0R                               RDR     DEV0,CHAR       DUMMY READ TO CLEAR STATUS       FOX15590
0019D4   41F0 1184                TEST0B   BAL     LINK,READ       READ A CHARACTER                 FOX15600
0019D8   C730 007F                          XHI     FLAG,X'7F'      FLIP PAGE FLAG                   FOX15610
0019DC   C5B0 000D                          CLHI    CHAR,X'0D'      CARRIAGE RETURN ?                FOX15620
0019E0   4330 1962                          BE      TEST0C          YES,REPEAT                       FOX15630
0019E4   C730 007F                          XHI     FLAG,X'7F'      RESTORE FLAG                     FOX15640
0019E8   C5B0 000A                          CLHI    CHAR,X'0A'      LINE FEED ?                      FOX15650
0019EC   203C                               BNES    TEST0B          NO, READ A NEW CHARACTER         FOX15660
0019EE   4300 0F68                          B       TSTEXT          YES, EXIT TEST MODULE            FOX15670
```

```
                                 * * * * * * * * * * * * * * * * * * * * * * *                    FOX15690
                                 *                                           *                    FOX15700
                                 *          T E S T   M O D U L E   0 2      *                    FOX15710
                                 *                                           *                    FOX15720
                                 * LINE 1 IS TESTED WITH U & * AS IN TEST 1. *                    FOX15730
                                 * THE CRT SCREEN IS THEN CLEARED AND THE 32  *                    FOX15740
                                 * NON-DISPLAYABLE CHARACTERS ARE OUTPUT.     *                    FOX15750
                                 * NOTHING SHOULD APPEAR ON THE SCREEN.  THE  *                    FOX15760
                                 * OPERATOR MAY DEPRESS CARRIAGE RETURN TO    *                    FOX15770
                                 * REPEAT THIS TEST OR LINE-FEED TO TERMINATE. *                   FOX15780
                                 *                                           *                    FOX15790
                                 * * * * * * * * * * * * * * * * * * * * * * *                    FOX15800
0019F2   2430                    TEST02   LIS    FLAG,0            CLEAR INVERT FLAG              FOX15810
                                 *                                                                FOX15820
0019F4   DE00 139D               TEST2I   OC     DEV0,TREAD        READ MODE                      FOX15830
0019F8   9B06                             RDR    DEV0,CHAR         CLEAR THE STATUS               FOX15840
0019FA   DE10 139C                        OC     DEV1,TWRT         WRITE MODE                     FOX15850
0019FE   41F0 1E8A                        BAL    LINK,CLRSCRN      CLEAR THE SCREEN               FOX15860
001A02   2480                             LIS    TAB,0             INITIALIZE THE LINE COUNTER    FOX15870
001A04   2400                             LIS    COUNT,0           INITIALIZE THE CHARACTER COUNTER FOX15880
001A06   C8B0 002A                        LHI    CHAR,C'*'         LOAD THE CHARACTER             FOX15890
001A0A   0783                             XAR    CHAR,FLAG         INVERT THE INITIAL CHARACTER   FOX15900
001A0C   4120 10B0               TEST2G   BAL    RET2,OUTCHR       OUTPUT PATTERN ON FIRST LINE   FOX15910
001A10   C7B0 007F                        XHI    CHAR,X'7F'        INVERT THE NEXT CHARACTER      FOX15920
001A14   2601                             AIS    COUNT,1                                          FOX15930
001A16   C500 0050                        CLHI   COUNT,80          DONE 80 CHARACTERS ?           FOX15940
001A1A   2087                             BLS    TEST2G            NO, BRANCH TILL DONE           FOX15950
001A1C   41F0 1078                        BAL    LINK,OUTPUT       OUTPUT MESSAGE                 FOX15960
001A20   13FA                             DC     Z(MSG0)           CRLF                           FOX15970
001A22   41F0 1078                        BAL    LINK,OUTPUT       OUTPUT MESSAGE                 FOX15980
001A26   1676                             DC     Z(MSG22)          "HIT CR TO CONTINUE"           FOX15990
001A28   9019                    TEST2A   SSR    DEV1,STAT         DEVICE DU ?                    FOX16000
001A2A   2317                             BFFS   1,TEST2AA         NO, BRANCH                     FOX16010
001A2C   40F0 13C6                        STH    LINK,DURTN                                       FOX16020
001A30   41F0 2318                        BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER   FOX16030
001A34   48F0 13C6                        LH     LINK,DURTN                                       FOX16040
001A38   C390 0008               TEST2AA  THI    STAT,8            DEVICE BUSY ?                  FOX16050
001A3C   203A                             BNZS   TEST2A            YES, WAIT FOR BUSY TO DROP     FOX16060
001A3E   DE00 139D                        OC     DEV0,TREAD        READ MODE                      FOX16070
001A42   9B0B                             RDR    DEV0,CHAR         CLEAR THE STATUS               FOX16080
001A44   41F0 1184               TEST2H   BAL    LINK,READ         READ A CHARACTER               FOX16090
001A48   C5B0 000A                        CLHI   CHAR,X'0A'                                       FOX16100
001A4C   4330 0F68                        BE     TSTEXT            EXIT TEST MODULE IF LF         FOX16110
001A50   C5B0 000D                        CLHI   CHAR,X'0D'        IF CR, CONTINUE TESTING        FOX16120
001A54   2038                             BNES   TEST2H            OTHERWISE READ AGAIN           FOX16130
001A56   C730 007F                        XHI    FLAG,X'7F'        INVERT PATTERN FLAG            FOX16140
001A5A   0833                             LDAR   FLAG,FLAG         IF SECOND INVERSION, CONTINUE  FOX16150
001A5C   4230 19F4               TEST2I   BNZ    TEST2I            OTHERWISE, REPEAT FIRST LINE TEST FOX16160
001A60   DE10 139C                        OC     DEV1,TWRT         WRITE MODE                     FOX16170
001A64   41F0 1E8A                        BAL    LINK,CLRSCRN      CLEAR THE SCREEN               FOX16180
001A68   41F0 1078                        BAL    LINK,OUTPUT       OUTPUT MESSAGE                 FOX16190
001A6C   15AE                             DC     Z(MSG19)          "TEST 02"                      FOX16200
001A6E   2480                             LIS    TAB,0             INITIALIZE THE LINE COUNT      FOX16210
001A70   DE10 139C               TEST2I   OC     DEV1,TWRT         WRITE MODE                     FOX16220
```

TEST 2

```
001A74  248A                1623  TEST1A   LIS    CHAR,X'A'          OUTPUT CHARACTER                    FOX16230
001A76  4120 10B0           1624           BAL    RET2,OUTCHR        LF                                  FOX16240
001A7A  248D                1625           LIS    CHAR,X'D'          OUTPUT CHARACTER                    FOX16250
001A7C  4120 10B0           1626           BAL    RET2,OUTCHR        CR                                  FOX16260
001A80  2681                1627           AIS    TAB,1              INCREMENT LINE COUNTER              FOX16270
001A82  C580 0018           1628           CLHI   TAB,24             DONE 24 LINES TOTAL ?               FOX16280
001A86  2089                1629           BLS    TEST1A             NO, LOOP                            FOX16290
                            1630  *                                                                      FOX16300
                            1631  * SCREEN IS BLANK                                                      FOX16310
                            1632  *                                                                      FOX16320
001A88  2480                1633           LIS    TAB,0              YES, CONTINUE                       FOX16330
001A8A  24D0                1634  TEST1D   LIS    COUNT,0                                                FOX16340
001A8C  088D                1635  TEST1C   LDAR   CHAR,COUNT         PICK-UP NON-PRINTING CHARACTER      FOX16350
001A8E  C5B0 0005           1636           CLHI   CHAR,X'05'         (SKIP "ENQ")                        FOX16360
001A92  2333                1637           BES    TEST1F                                                 FOX16370
001A94  4120 10B0           1638           BAL    RET2,OUTCHR        OUTPUT THIRTY-TWO                   FOX16380
001A98  26D1                1639  TEST1F   AIS    COUNT,1                                                FOX16390
001A9A  C5D0 0020           1640           CLHI   COUNT,32           CHARACTERS PER LINE                 FOX16400
001A9E  2089                1641           BLS    TEST1C                                                 FOX16410
                            1642  *                                                                      FOX16420
                            1643  * LAST TWO CHARACTERS OUT WERE CARRIAGE RETURN, LINE-FEED.             FOX16430
                            1644  *                                                                      FOX16440
001AA0  0785                1645           XAR    TAB,ONE            COMPLEMENT LINE COUNT               FOX16450
                            1646  *                                                                      FOX16460
                            1647  * CHANGE NEXT HALFWORD TO X'4300' TO CONTINOUSLY LOOP ON TEST1D.       FOX16470
                            1648  *                                                                      FOX16480
001AA2  4230 1A8A           1649  DEBUG1   BNZ    TEST1D             BRANCH TO DO SECOND LINE            FOX16490
001AA6  25B1                1650           LCS    CHAR,1                                                 FOX16500
001AA8  4120 10B0           1651           BAL    RET2,OUTCHR        OUTPUT PAD CHARACTER                FOX16510
001AAC  9D19                1652  TEST2B   SSR    DEV1,STAT          DEVICE DU ?                         FOX16520
001AAE  2317                1653           BFFS   1,TEST2AB          NO, BRANCH                          FOX16530
001AB0  40F0 13C6           1654           STH    LINK,DURTN                                             FOX16540
001AB4  41F0 2318           1655           BAL    LINK,DUPASS        YES, GO TO DU STATUS HANDLER        FOX16550
001AB8  48F0 13C6           1656           LH     LINK,DURTN                                             FOX16560
001ABC  C390 0008           1657  TEST2AB  THI    STAT,8             DEVICE BUSY ?                       FOX16570
001AC0  203A                1658           BNZS   TEST2B             YES, WAIT FOR BUSY TO DROP          FOX16580
001AC2  DE00 139D           1659           OC     DEV0,TREAD         NO, SELECT READ MODE                FOX16590
001AC6  9B0B                1660           ROR    DEV0,CHAR          CLEAR THE STATUS (FORCE BUSY SET)   FOX16600
001AC8  41F0 1184           1661  TEST1E   BAL    LINK,READ          READ A CHARACTER                    FOX16610
001ACC  C5B0 000D           1662           CLHI   CHAR,X'0D'         CHARRIAGE RETURN ?                  FOX16620
001AD0  4330 19F2           1663           BE     TEST02             YES, REPEAT                         FOX16630
001AD4  C5B0 000A           1664           CLHI   CHAR,X'0A'         LINE FEED ?                         FOX16640
001AD8  2038                1665           BNES   TEST1E             NO, READ A NEW CHARACTER            FOX16650
001ADA  4300 0F68           1666           B      TSTEXT             YES, EXIT THE TEST MODULE           FOX16660
```

```
                                  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX16680
                                  *                                             *                    FOX16690
                                  *          T E S T   M O D U L E   0 3        *                    FOX16700
                                  *                                             *                    FOX16710
                                  * THE MESSAGE  " DEPRESS KEYS 1,2,3 "         *                    FOX16720
                                  * IS OUTPUT UNDER INTERRUPT CONTROL.          *                    FOX16730
                                  *                                             *                    FOX16740
                                  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX16750
                                                ELSE                                                   FOX16810
001ADE   C8F0 0B60                TEST03  LHI     LINK,PSWRTN        SET UP TO CLEAR PENDING         FOX16820
001AE2   48B0 0A04                        LH      CHAR,RECADR        DEVICE INTERRUPTS               FOX16830
001AE6   C4B0 003F                        NHI     CHAR,X'3F'                                         FOX16840
001AEA   0ABB                             AAR     CHAR,CHAR                                          FOX16850
001AEC   40FB 00D0                        STH     LINK,X'D0'(CHAR)                                   FOX16860
001AF0                                    ENDC                                                       FOX16870
001AF0   48F0 0A0C                        LH      LINK,PSW1          ENABLE PENDING INTERRUPTS       FOX16880
001AF4   959F                             EPSR    STAT,LINK          (IF ANY)                        FOX16890
                                          ELSE                                                       FOX16950
001AF6   C890 0A9A                        LHI     STAT,XI32          RESTORE INTERRUPT POINTERS TO   FOX16960
001AFA   48F0 0C10                        LH      LINK,DEVSADR       PROGRAM INTERRUPT HANDLER ADDRESS FOX16970
001AFE   0AFF                             AAR     LINK,LINK                                          FOX16980
001B00   409F 00D0                        STH     STAT,X'D0'(LINK)                                   FOX16990
001B04   48F0 0C12                        LH      LINK,DEVSADR+2                                     FOX17000
001B08   0AFF                             AAR     LINK,LINK                                          FOX17010
001B0A   409F 00D0                        STH     STAT,X'D0'(LINK)                                   FOX17020
001B0E                                    ENDC                                                       FOX17030
001B0E   41F0 1078                        BAL     LINK,OUTPUT        OUTPUT MESSAGE                  FOX17040
001B12   15BA                             DC      Z(MSG20)           "TEST 03"                       FOX17050
001B14   4040 1390                        STH     ZERO,INPFLG        CLEAR INPUT FLAG                FOX17060
001B18   4040 1392                        STH     ZERO,OUTFLG        CLEAR OUTPUT FLAG               FOX17070
001B1C   4040 1396                        STH     ZERO,BRKFLG                                        FOX17080
001B20   C870 1BC8                        LHI     DAT,INTRPT                                         FOX17090
001B24   4070 0C1A                        STH     DAT,DEVINT         SET UP FOR COMMON INT. HANDLER  FOX17100
001B28   4070 0C1C                        STH     DAT,DEVINT+2                                       FOX17110
001B2C   C8C0 1438                        LHI     POINT,MSG2                                         FOX17120
001B30   41F0 1B94                        BAL     LINK,STRTOT        START OUTPUT                    FOX17130
                                  *                                                                  FOX17140
                                  * RETURN WHEN OUTPUT FINISHED.  NOW GET READY FOR INPUT.           FOX17150
                                  *                                                                  FOX17160
001B34   DE00 13A1                        OC      DEV0,EBLRED        ENABLE                          FOX17170
001B38   4040 1392                        STH     ZERO,OUTFLG        CLEAR OUTPUT FLAG               FOX17180
001B3C   4040 1394                        STH     ZERO,WAIT                                          FOX17190
001B40   DE10 139C                        OC      DEV1,TWRT                                          FOX17200
001B44   24C0                             LIS     POINT,0            CLEAR BUFFER INDEX              FOX17210
001B46   4040 138E                        STH     ZERO,FIRSTF                                        FOX17220
001B4A   4050 1390                        STH     ONE,INPFLG                                         FOX17230
001B4E   DE00 13A2                        OC      DEV0,RQ2S                                          FOX17240
001B52   C860 0C0F                        LHI     WORK,X'C0F'                                        FOX17250
001B56   9164                             SLHLS   WORK,4             WORK = X'C0F0'                  FOX17260
001B58   95A6                             EPSR    WORK2,WORK         ENABLE INTERRUPTS & HALT        FOX17270
001B5A   4300 0CB8                        B       OPTIN                                              FOX17280
                                  *                                                                  FOX17290
                                  * RETURN WHEN INPUT FINISHED. NOW MESSAGE "DEPRESS BREAK" IS OUTPUT. FOX17300
                                  *                                                                  FOX17310
```

TEST 3

```
001B5E  C8C0 1522   TST03A  LHI    POINT,MSG11      POINT TO MESSAGE
001B62  41F0 1B94           BAL    LINK,STRTOT      START OUTPUT
                    *
                    * RETURN WHEN MESSAGE OUTPUT IS FINISHED
                    *
001B66  DE00 13A1           OC     DEV0,EBLRED      ENABLE  (READ MODE)
001B6A  4040 1392           STH    ZERO,OUTFLG      CLEAR OUTPUT FLAG
001B6E  4040 1394           STH    ZERO,WAIT
001B72  DE10 139C           OC     DEV1,TWRT        DISABLE  (WRITE MODE)
001B76  24C0                LIS    POINT,0          CLEAR BUFFER INDEX
001B78  4040 138E           STH    ZERO,FIRSTF
001B7C  4050 1390           STH    ONE,INPFLG       SET INPUT MODE
001B80  4050 1396           STH    ONE,BRKFLG       SET BREAK TEST
001B84  DE00 13A2           OC     DEV0,RQ2S
001B88  C860 0C0F           LHI    WORK,X'C0F'
001B8C  9154                SLHLS  WORK,4           WORK = X'C0F0'
001B8E  95A6                EPSR   WORK2,WORK       ENABLE INTERRUPTS & HALT
001B90  4300 0CA0           B      CMDIN
                    *
                    * SUBROUTINE STARTS OUTPUTTING DATA TO MODEL-1100 IN INTERRUPT MODE
                    *
001B94  4050 1392   STRTOT  STH    ONE,OUTFLG       SET OUTPUT FLAG
001B98  4040 1394           STH    ZERO,WAIT        CLEAR WAIT
001B9C  4040 138E           STH    ZERO,FIRSTF
001BA0  DE00 139D           OC     DEV0,TREAD       DISABLE INTERRUPTS, READ MODE
001BA4  DE10 13A0           OC     DEV1,EBLWRT      ENABLE INTERRUPTS, WRITE MODE
001BA8  4860 0A0C   NXTINT  LH     WORK,PSW1
001BAC  95A6                EPSR   WORK2,WORK       ENABLE INTERRUPTS & WAIT
                    * * * * * * * * * * * * * * * * * * * * * * * *
                    *                                             *
                    * SUBROUTINE WAITS ON INTERRUPT.  IF NO       *
                    * INTERRUPT BEFORE TIMEOUT, ERROR 06 OCCURS.   *
                    *                                             *
                    * * * * * * * * * * * * * * * * * * * * * * * *
001BAE  4050 1398   DELAY   STH    ONE,TIME         SET COUNTER
                    *
001BB2  6150 1398   DELAYL  AHM    ONE,TIME         INCREMENT
001BB6  2032                BNZS   DELAYL           TEST
001BB8  C860 00F0           LHI    WORK,X'F0'
001BBC  95A6                EPSR   WORK2,WORK       NO INTERRUPTS, REG SET 15
001BBE  41F0 103A   NOINT   BAL    LINK,ERROR       OUTPUT MESSAGE
001BC2  175E                DC     Z(ERROR6)        "ERROR 06"
001BC4  4300 0CA0           B      CMDIN
                    *
                    * I/O INTERRUPT RECEIVED
                    *
001BC8  4870 0C20   INTRPT  LH     DAT,INTDEV       GET INTERRUPTING DEV ADR & STATUS
001BCC  D390 0C24           LB     STAT,INTSTA
001BD0  C390 0008           THI    STAT,8
001BD4  233D                BZS    NTRUPT           NOT BUSY
001BD6  48B0 138E           LH     CHAR,FIRSTF      IGNORE
001BDA  213A                BNZS   NTRUPT           IF STATUS JUST BUSY
001BDC  C390 00F7           THI    STAT,X'F7'
001BE0  2137                BNZS   NTRUPT           BAD STATUS
```

TEST 3

```
001BE2   4870 1392   1786          LH     DAT,OUTFLG                          FOX17860
001BE6   4230 1BA8   1787          BNZ    NXTINT                              FOX17870
001BEA   4300 1D38   1788          B      GOBACK                              FOX17880
                     1789  *                                                  FOX17890
001BEE   4050 138E   1790  NTRUPT  STH    ONE,FIRSTF                          FOX17900
001BF2   4880 1392   1791          LH     CHAR,OUTFLG      SEE IF OUTPUT      FOX17910
001BF6   2335        1792          BZS    TINP             NO                 FOX17920
001BF8   4570 0C12   1793          CLH    DAT,DEVSADR+2    TRANSMIT DEVICE ?  FOX17930
001BFC   4330 1C32   1794          BE     TRYOUT                              FOX17940
001C00   4880 1390   1795  TINP    LH     CHAR,INPFLG      TEST INPUT FLAG    FOX17950
001C04   2335        1796          BZS    BADINT           NO                 FOX17960
001C06   4570 0C10   1797          CLH    DAT,DEVSADR      RECEIVER ?         FOX17970
001C0A   4330 1C62   1798          BE     TRYIN                               FOX17980
                     1799  *                                                  FOX17990
                     1800  * UNSOLICITED INTERRUPT                            FOX18000
                     1801  *                                                  FOX18010
001C0E   4070 0C22   1802  BADINT  STH    DAT,ERRDEV       ESTABLISH INTERRUPT ERROR FOX18020
001C12   D290 0C25   1803          STB    STAT,ERRSTA      MESSAGE DATA       FOX18030
001C16   C860 4634   1804          LHI    WORK,C'F4'                          FOX18040
001C1A   4060 0C2E   1805          STH    WORK,ERRNO                          FOX18050
001C1E   2451        1806          LIS    ONE,1                               FOX18060
001C20   6150 175E   1807          AHM    ONE,ERROR6                          FOX18070
001C24   41F0 0B78   1808          BAL    LINK,ERRALL      PRINT "ERROR F4"   FOX18080
                     1809  *                                  "DEV DDD STA SS" FOX18090
                     1810  *                                  "PSW PPPP LOC LLLL" FOX18100
001C28   2440        1811          LIS    ZERO,0                              FOX18110
001C2A   4040 0C92   1812          STH    ZERO,RUN         RESET RUN FLAG     FOX18120
001C2E   4300 0CB8   1813          B      OPTIN                               FOX18130
                     1814  *                                                  FOX18140
001C32   0899        1815  TRYOUT  LDAR   STAT,STAT        TEST STATUS        FOX18150
001C34   2335        1816          BZS    OKOUT                               FOX18160
                     1817  *                                                  FOX18170
                     1818  * BAD STATUS                                       FOX18180
                     1819  *                                                  FOX18190
001C36   4120 1352   1820          BAL    RET2,STATER      "STATUS ERROR !"   FOX18200
001C3A   4300 1BA8   1821          B      NXTINT                              FOX18210
                     1822  *                                                  FOX18220
001C3E   4870 1394   1823  OKOUT   LH     DAT,WAIT         RETURN IF LAS CHAR. FOX18230
001C42   023F        1824          BNZR   LINK             HAS BEEN OUTPUT    FOX18240
001C44   D37C 0000   1825          LB     DAT,0(POINT)     GET BYTE TO OUTPUT FOX18250
001C48   26C1        1826          AIS    POINT,1          BUMP POINTER       FOX18260
001C4A   08B7        1827          LDAR   CHAR,DAT                            FOX18270
001C4C   086F        1828          LDAR   WORK,LINK        SAVE RETURN ADDRESS FOX18280
001C4E   41F0 1150   1829          BAL    LINK,PARGEN      GENERATE CORRECT PARITY FOX18290
001C52   08F6        1830          LDAR   LINK,WORK        RESTORE RETURN ADDRESS FOX18300
001C54   9A1B        1831          WDR    DEV1,CHAR        OUTPUT BYTE        FOX18310
001C56   C470 0080   1832          NHI    DAT,X'80'        COPY BIT 0         FOX18320
001C5A   4070 1394   1833          STH    DAT,WAIT         TO WAIT FLAG       FOX18330
001C5E   4300 1BA8   1834          B      NXTINT           WAIT FOR NEXT INTERRUPT FOX18340
                     1835  *                                                  FOX18350
001C62   0899        1836  TRYIN   LDAR   STAT,STAT        TEST STATUS        FOX18360
001C64   4330 1CD8   1837          BZ     OKINP            OK                 FOX18370
001C68   4870 1396   1838          LH     DAT,BRKFLG       TEST LINEBREAK     FOX18380
001C6C   2135        1839          BNZS   TSTBRK                              FOX18390
```

```
001C6E   4120 1352          BAL    RET2,STATER                                    FOX18400
001C72   4300 1D38          B      GOBACK                                         FOX18410
                            *                                                     FOX18420
001C76   9B07               RDR    DEV0,DAT          INPUT DATA                   FOX18430
001C78   0877               LDAR   DAT,DAT           DATA = 0 ?                   FOX18440
001C7A   2336               BZS    BRKOK             YES, BRANCH - OK             FOX18450
                            *                                                     FOX18460
                            * BAD CHARACTER                                      FOX18470
                            *                                                     FOX18480
001C7C   41F0 103A          BAL    LINK,ERROR        NO, OUTPUT MESSAGE           FOX18490
001C80   1756               DC     Z(ERROR3)         "ERROR 3"                    FOX18500
001C82   4300 0C00          B      CMDIN             RETURN TO EXEC               FOX18510
                            *                                                     FOX18520
001C86   9D09               SSR    DEV0,STAT         DEVICE DU ?                  FOX18530
001C88   2317               BFFS   1,TEST3AA         NO, BRANCH                   FOX18540
001C8A   40F0 13C6          STH    LINK,DURTN                                     FOX18550
001C8E   41F0 2318          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER FOX18560
001C92   48F0 13C6          LH     LINK,DURTN                                     FOX18570
001C96   C390 0008          THI    STAT,8                                         FOX18580
001C9A   223A               BZS    BRKOK             WAIT FOR BUSY TO APPEAR      FOX18590
001C9C   C860 7FFF          LHI    WORK,X'7FFF'      LINE SETTLE DELAY        ***FOX18600
001CA0   2761               SIS    WORK,1                                         FOX18610
001CA2   2031               BNZS   BRKOK1                                         FOX18620
001CA4   41F0 1C78          BAL    LINK,OUTPUT       OUTPUT MESSAGE               FOX18630
001CA8   157C               DC     Z(MSG16)          "BREAK OK"                   FOX18640
                            *                                                     FOX18650
001CAA   48F0 0A0E          LH     LINK,PSW2                                      FOX18660
001CAE   959F               EPSR   STAT,LINK         PSW = X'30F0'                FOX18670
001CB0   DE00 139D          OC     DEV0,TREAD        OC READ MODE                 FOX18680
001CB4   9B0B               RDR    DEV0,CHAR         DUMMY READ TO CLEAR STATUS   FOX18690
001CB6   DE10 139C          OC     DEV1,TWRT         OC WRITE MODE                FOX18700
001CBA   41F0 1C78          BAL    LINK,OUTPUT       OUTPUT MESSAGE               FOX18710
001CBE   1676               DC     Z(MSG22)          "HIT CR TO CONTINUE"         FOX18720
001CC0   DE00 139D          OC     DEV0,TREAD        OC READ MODE                 FOX18730
001CC4   9B0B               RDR    DEV0,CHAR         DUMMY READ TO CLEAR STATUS   FOX18740
001CC6   41F0 1184          BAL    LINK,READ         READ A CHARACTER             FOX18750
001CCA   C5B0 000D          CLHI   CHAR,X'0D'                                     FOX18760
001CCE   2034               BNES   T3END1            WAIT FOR CR                  FOX18770
001CD0   DE10 139C          OC     DEV1,TWRT         WRITE MODE                   FOX18780
001CD4   4300 0F68          B      TSTEXT            END OF TEST MODULE           FOX18790
                            *                                                     FOX18800
001CD8   9B07               RDR    DEV0,DAT          INPUT CHARACTER              FOX18810
001CDA   48F0 0A0A          LH     LINK,PASFLG       WHICH DEVICE INTERFACE ?     FOX18820
001CDE   2116               BMS    OKINP2            MICROBUS ADAPTER ? - YES, BRANCH FOX18830
001CE0   4230 1D24          BNZ    OKINP3            PASLA HDX ? - YES, BRANCH    FOX18840
001CE4   0501               CLAR   DEV0,DEV1                                      FOX18850
001CE6   4330 1D24          BE     OKINP3            CLI ? - YES, BRANCH          FOX18860
001CEA   DE10 139C          OC     DEV1,TWRT         SET INTERFACE UP TO WRITE    FOX18870
                            *                                                     FOX18880
001CEE   9D19               SSR    DEV1,STAT         DEVICE DU ?                  FOX18890
001CF0   2317               BFFS   1,TEST3AB         NO, BRANCH                   FOX18900
001CF2   40F0 13C6          STH    LINK,DURTN                                     FOX18910
001CF6   41F0 2318          BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER FOX18920
001CFA   48F0 13C6          LH     LINK,DURTN                                     FOX18930
```

TEST 3

```
001CFE  C390 0008   1894  TEST3AB  THI    STAT,8                                  FOX18940
001D02  203A        1895            BNZS   TEST3AC          WAIT FOR BUSY TO DROP  FOX18950
001D04  9A17        1896            WDR    DEV1,DAT          WRITE CHARACTER AS RECEIVED  FOX18960
001D06  9D19        1897  TEST3AD   SSR    DEV1,STAT         DEVICE DU ?            FOX18970
001D08  2317        1898            BFFS   1,TEST3AE         NO, BRANCH             FOX18980
001D0A  40F0 13C6   1899            STH    LINK,DURTN                               FOX18990
001D0E  41F0 2318   1900            BAL    LINK,DUPASS       YES, GO TO DU STATUS HANDLER  FOX19000
001D12  48F0 13C6   1901            LH     LINK,DURTN                               FOX19010
001D16  C390 0008   1902  TEST3AE   THI    STAT,8                                  FOX19020
001D1A  203A        1903            BNZS   TEST3AD           WAIT FOR BUSY TO DROP  FOX19030
001D1C  DE00 139D   1904            OC     DEV0,TREAD        OC DISABLE INTERRUPTS, READ MODE  FOX19040
001D20  DE00 13A1   1905            OC     DEV0,EBLRED       OC INTERFACE TO ENABLE & READ  FOX19050
001D24  C470 007F   1906  OKINP3    NHI    DAT,X'7F'         MASK THE CHARACTER TO 7 BITS  FOX19060
001D28  26C1        1907            AIS    POINT,1                                  FOX19070
001D2A  D47C 1444   1908            CLB    DAT,MSG2+12(POINT) CORRECT CHARACTER (U.C.) ?  FOX19080
001D2E  2138        1909            BNES   RECHK             NO, CONTINUE CHECKING  FOX19090
001D30  C5C0 0005   1910  OKINP1    CLHI   POINT,5           5 CHARACTERS           FOX19100
001D34  4330 1B5E   1911            BE     TST03A            YES, RETURN            FOX19110
                    1912  *                                                          FOX19120
                    1915            ELSE                                             FOX19150
001D38  2440        1916  GOBACK    LIS    ZERO,0                                   FOX19160
001D3A  C200 0C08   1917            LPSW   OPSW32            RETURN (32-BIT)        FOX19170
001D3E              1918            ENDC                                             FOX19180
                    1919  *                                                          FOX19190
001D3E  CB70 0020   1920  RECHK     SHI    DAT,X'20'         CONVERT TO LOWER CASE  FOX19200
001D42  D47C 1444   1921            CLB    DAT,MSG2+12(POINT) CORRECT CHARACTER (U.C.) ?  FOX19210
001D46  223B        1922            BES    OKINP1            YES, OK                FOX19220
001D48  41F0 103A   1923  BADCHAR   BAL    LINK,ERROR        NO, OUTPUT MESSAGE     FOX19230
001D4C  1752        1924            DC     Z(ERROR0)         "ERROR 00"             FOX19240
001D4E  4300 1ADE   1925            B      TEST03            RESTART TEST MODULE    FOX19250
```

```
                                  * * * * * * * * * * * * * * * * * * * * * * * *                  FOX19270
                                  *                                               *                  FOX19280
                                  *          T E S T   M O D U L E   0 4          *                  FOX19290
                                  *                                               *                  FOX19300
                                  * THE CRT SCREEN IS CLEARED AND A MESSAGE IS    *                  FOX19310
                                  * OUTPUT TO FILL THE SCREEN USING CURSOR        *                  FOX19320
                                  * POSITIONING & READING OF THE CURSOR POSITION  *                  FOX19330
                                  * TO VERIFY PROPER OPERATION.                    *                  FOX19340
                                  *                                               *                  FOX19350
                                  * * * * * * * * * * * * * * * * * * * * * * * *                  FOX19360
001D52   DE00 139D                TEST04   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED   FOX19370
001D56   9B0B                               RDR    DEV0,CHAR         FORCE BUSY SET                   FOX19380
001D58   DE10 139C                          OC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED  FOX19390
001D5C   41F0 1E8A                          BAL    LINK,CLRSCRN      CLEAR THE SCREEN                 FOX19400
001D60   C8D0 0037                          LHI    COUNT,X'37'                                        FOX19410
001D64   41F0 1F3E                          BAL    LINK,LPOS         POSITION CURSOR TO LAST LINE     FOX19420
001D68   2460                               LIS    R6,0                                               FOX19430
001D6A   41F0 1F66                          BAL    LINK,T4CPOS       POSITION CURSOR TO FIRST COLUMN  FOX19440
001D6E   C8F0 7FFF                          LHI    LINK,X'7FFF'                                       FOX19450
001D72   27F1                     TST4A0    SIS    LINK,1            WAIT                             FOX19460
001D74   2031                               BNZS   TST4A0                                             FOX19470
001D76   41F0 1078                          BAL    LINK,OUTPUT       OUTPUT MESSAGE                   FOX19480
001D7A   144C                               DC     Z(MSG3)           "TEST 04"                        FOX19490
001D7C   C8D0 001F                          LHI    COUNT,X'1F'       INITIALIZE LINE COUNTER          FOX19500
                                  *                                                                   FOX19510
001D80   26D1                     TST4A     AIS    COUNT,1           INCREMENT LINE COUNTER           FOX19520
001D82   41F0 1F3E                          BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE   FOX19530
001D86   2460                               LIS    R6,0              START AT COLUMN 1 (L TO R)       FOX19540
001D88   2471                               LIS    R7,1              FOR                              FOX19550
001D8A   C880 004F                          LHI    R8,79             80 POSITIONS                     FOX19560
001D8E   41F0 1EAE                TST4B     BAL    LINK,CHARPOS      POSITION CURSOR & WRITE CHARACTER FOX19570
001D92   C160 1D8E                          BXLE   R6,TST4B          DO ENTIRE LINE (L TO R)          FOX19580
                                  *                                                                   FOX19590
001D96   26D1                     TST4C     AIS    COUNT,1           INCREMENT LINE COUNTER           FOX19600
001D98   41F0 1F3E                          BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE   FOX19610
001D9C   2430                               LIS    R3,0              START AT COLUMN 80 (R TO L)      FOX19620
001D9E   2441                               LIS    R4,1                                               FOX19630
001DA0   C850 004F                          LHI    R5,79                                              FOX19640
001DA4   C860 004F                TST4D     LHI    R6,79                                              FOX19650
001DA8   0B63                               SAR    R6,R3                                              FOX19660
001DAA   41F0 1EAE                          BAL    LINK,CHARPOS      POSITION CURSOR & WRITE CHARACTER FOX19670
001DAE   C130 1DA4                          BXLE   R3,TST4D          DO ENTIRE LINE (R TO L)          FOX19680
                                  *                                                                   FOX19690
001DB2   26D1                     TST4E     AIS    COUNT,1           INCREMENT LINE COUNT             FOX19700
001DB4   41F0 1F3E                          BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE   FOX19710
001DB8   2430                               LIS    R3,0              START AT POSITIONS 1 & 80        FOX19720
001DBA   2441                               LIS    R4,1              WORK TOWARD CENTER               FOX19730
001DBC   C850 0027                          LHI    R5,39                                              FOX19740
001DC0   C870 004F                          LHI    R7,79                                              FOX19750
001DC4   2581                               LCS    R8,1                                               FOX19760
001DC6   41F0 1E4A                          BAL    LINK,TSTSUB4A     (DOUBLE) CURSOR POSITION &       FOX19770
                                  *                                  WRITE CHARACTERS                 FOX19780
                                  *                                                                   FOX19790
001DCA   26D1                     TST4F     AIS    COUNT,1           INCREMENT LINE COUNTER           FOX19800
```

TEST 4

```
001DCC  41F0 1F3E   1981          BAL   LINK,LPOS        POSITION CURSOR TO PROPER LINE   FOX19810
001DD0  C830 0028   1982          LHI   R3,40            START FMOM CENTER                FOX19820
001DD4  2441        1983          LIS   R4,1             AND WORK OUTWARD                 FOX19830
001DD6  C850 004F   1984          LHI   R5,79                                             FOX19840
001DDA  C870 0027   1985          LHI   R7,39                                             FOX19850
001DDE  2581        1986          LCS   R8,1                                              FOX19860
001DE0  41F0 1E4A   1987          BAL   LINK,TSTSUB4A    (DOUBLE) CURSOR POSITION &       FOX19870
                    1988  *                              WRITE CHARACTERS                 FOX19880
                    1989  *                                                               FOX19890
001DE4  26D1        1990  TST4G   AIS   COUNT,1          INCREMENT LINE COUNT             FOX19900
001DE6  41F0 1F3E   1991          BAL   LINK,LPOS        POSITION CURSOR TO PROPER LINE   FOX19910
001DEA  2430        1992          LIS   R3,0             START FROM 1 & 40 POSITION       FOX19920
001DEC  2441        1993          LIS   R4,1             & WRITE (L TO R)                 FOX19930
001DEE  C850 0027   1994          LHI   R5,39                                             FOX19940
001DF2  C870 0028   1995          LHI   R7,40                                             FOX19950
001DF6  2481        1996          LIS   R8,1                                              FOX19960
001DF8  41F0 1E4A   1997          BAL   LINK,TSTSUB4A    DUAL CURSOR POSITION &           FOX19970
                    1998  *                              WRITE CHARACTERS                 FOX19980
                    1999  *                                                               FOX19990
001DFC  26D1        2000  TST4H   AIS   COUNT,1          INCREMENT LINE COUNT             FOX20000
001DFE  41F0 1F3E   2001          BAL   LINK,LPOS        POSITION CURSOR TO PROPER LINE   FOX20010
001E02  C830 0028   2002          LHI   R3,40            START FROM COLUMNS 80 & 40       FOX20020
001E06  2441        2003          LIS   R4,1             POSITION & WRITE (R TO L)        FOX20030
001E08  C850 004F   2004          LHI   R5,79                                             FOX20040
001E0C  2470        2005          LIS   R7,0                                              FOX20050
001E0E  2481        2006          LIS   R8,1                                              FOX20060
001E10  41F0 1E66   2007          BAL   LINK,TSTSUB4C    DUAL CURSOR POSITION &           FOX20070
                    2008  *                              WRITE CHARACTERS                 FOX20080
                    2009  *                                                               FOX20090
001E14  C5D0 0025   2010          CLHI  COUNT,X'25'      RETURN TO PROPER SECTION         FOX20100
001E18  2134        2011          BNES  TST4I            OF TEST & FILL                   FOX20110
001E1A  26DB        2012          AIS   COUNT,11         ENTIRE SCREEN                    FOX20120
001E1C  4300 1D80   2013          B     TST4A                                              FOX20130
001E20  C5D0 0036   2014  TST4I   CLHI  COUNT,X'36'                                        FOX20140
001E24  2135        2015          BNES  TST4J                                              FOX20150
001E26  CBD0 0011   2016          SHI   COUNT,17                                           FOX20160
001E2A  4300 1D80   2017          B     TST4A                                              FOX20170
001E2E  C5D0 002B   2018  TST4J   CLHI  COUNT,X'2B'                                        FOX20180
001E32  4330 1D96   2019          BE    TST4C                                              FOX20190
001E36  C5D0 0030   2020  TST4K   CLHI  COUNT,X'30'      FINISHED ?                       FOX20200
001E3A  2134        2021          BNES  TST4Z            YES, BRANCH TO EXIT              FOX20210
001E3C  26D6        2022          AIS   COUNT,6          NO, CONTINUE                     FOX20220
001E3E  4300 1DFC   2023          B     TST4H                                              FOX20230
                    2024  *                                                               FOX20240
001E42  2440        2025  TST4Z   LIS   ZERO,0                                            FOX20250
001E44  2451        2026          LIS   ONE,1                                              FOX20260
001E46  4300 0F68   2027          B     TSTEXT           END OF TEST MODULE               FOX20270
```

```
                                 *-----------------------------------                    FOX20290
                                 *  OUTPUT CHARACTERS - ASCENDING ORDER                  FOX20300
001E4A   40F0 13AA               TSTSUB4A STH    LINK,TEMP1          SAVE RETURN ADDRESS  FOX20310
                                 *                                                        FOX20320
001E4E   0863                    TSTSUB4B LDAR   R6,R3                                    FOX20330
001E50   41F0 1EAE                        BAL    LINK,CHARPOS        WRITE (IN DIRECTION 1) FOX20340
001E54   0667                             LDAR   R6,R7                                    FOX20350
001E56   41F0 1EAE                        BAL    LINK,CHARPOS        WRITE (IN DIRECTION 2) FOX20360
001E5A   0A78                             AAR    R7,R8                                    FOX20370
001E5C   C130 1E4E                        BXLE   R3,TSTSUB4B         DO ENTIRE LINE AS FORMATTED FOX20380
001E60   48F0 13AA                        LH     LINK,TEMP1          RESTORE RETURN ADDRESS FOX20390
001E64   030F                             BR     LINK                RETURN               FOX20400
                                 *-----------------------------------                    FOX20410
                                 *   OUTPUT CHARACTERS - DECENDING ORDER                  FOX20420
001E66   40F0 13AA               TSTSUB4C STH    LINK,TEMP1          SAVE RETURN ADDRESS  FOX20430
                                 *                                                        FOX20440
001E6A   C3[illegible]           TSTSUB4D LHI    R6,79                                    FOX20450
001E6E   0B63                             SAR    R6,R3               CHAR POS = 80 - (R3) FOX20460
001E70   41F0 1EAE                        BAL    LINK,CHARPOS        WRITE (R TO L)       FOX20470
001E74   C860 004F                        LHI    R6,79                                    FOX20480
001E78   0667                             SAR    R6,R7                                    FOX20490
001E7A   41F0 1EAE                        BAL    LINK,CHARPOS                             FOX20500
001E7E   0A78                             AAR    R7,R8                                    FOX20510
001E80   C130 1E6A                        BXLE   R3,TSTSUB4D         DO THE COMPLETE LINE FOX20520
001E84   48F0 13AA                        LH     LINK,TEMP1          RESTORE RETURN ADDRESS FOX20530
001E88   030F                             BR     LINK                RETURN               FOX20540
                                 *-----------------------------------                    FOX20550
                                 *   CLEAR THE TERMINAL SCREEN                            FOX20560
001E8A   40F0 13B0               CLRSCRN  STH    LINK,TEMP4          SAVE CALLING REGISTERS FOX20570
001E8E   C8B0 0048                        LHI    CHAR,C'H'                                FOX20580
001E92   41E0 204E                        BAL    RET,MULOUT1         HOME CURSOR          FOX20590
001E96   C8B0 004A                        LHI    CHAR,C'J'                                FOX20600
001E9A   41E0 204E                        BAL    RET,MULOUT1         CLEAR SCREEN         FOX20610
001E9E   25B1                             LCS    CHAR,1                                   FOX20620
001EA0   4120 10B0                        BAL    RET2,OUTCHR         OUTPUT PAD CHARACTER (DEL) FOX20630
001EA4   41F0 133A                        BAL    LINK,TMER           WAIT FOR OPERATION TO FINISH FOX20640
001EA8   48F0 13B0                        LH     LINK,TEMP4          RESTORE REGISTERS    FOX20650
001EAC   030F                             BR     LINK                RETURN               FOX20660
                                 *-----------------------------------                    FOX20670
                                 *   POSITION CURSOR, CHECK POSITION, & WRITE A CHARACTER FOX20680
001EAE   40F0 13AE               CHARPOS  STH    LINK,TEMP3          SAVE RETURN ADDRESS  FOX20690
001EB2   41F0 1F66                        BAL    LINK,T4CPOS                              FOX20700
001EB6   41F0 1F8E                        BAL    LINK,CURSREAD       READ CURSOR ADDRESS  FOX20710
001EBA   45D0 13BA                        CLH    COUNT,CURSLINE      IS LINE NUMBER CORRECT ? FOX20720
001EBE   213E                             BNES   BADLPOS             NO, BRANCH TO ERROR  FOX20730
001EC0   C8B6 0020                        LHI    CHAR,X'20'(R6)      YES, GET CHARACTER POSITION FOX20740
001EC4   45B0 13BC                        CLH    CHAR,CURSCOLM       IS CHARACTER POSITION CORRECT ? FOX20750
001EC8   4230 1F0A                        BNE    BADCP04             NO, BRANCH TO ERROR  FOX20760
001ECC   D3B6 1702                        LB     CHAR,MSG40(R6)      GET APPROPRIATE CHARACTER FOX20770
001ED0   4120 10B0                        BAL    RET2,OUTCHR         & OUTPUT IT          FOX20780
001ED4   48F0 13AE                        LH     LINK,TEMP3          RESTORE RETURN ADDRESS FOX20790
001ED8   030F                             BR     LINK                RETURN               FOX20800
                                 *-----------------------------------                    FOX20810
                                 *   BAD LINE NUMBER - PRINT ERROR & EXIT TEST MODULE     FOX20820
```

```
001EDA  D000 2440          BADLPOS  STM   R0,ERRSAVE        SAVE CALLING REGISTERS          FOX20830
001EDE  2402                        LIS   R0,2                                              FOX20840
001EE0  4810 13BA                   LH    R1,CURSLINE                                       FOX20850
001EE4  C820 14B0                   LHI   R2,ERR07M1                                        FOX20860
001EE8  41F0 0BDC                   BAL   LINK,HEXASC       PUT CURRENT LINE NUMBER         FOX20870
                                    *                       IN ERROR DESCRIPTOR             FOX20880
001EEC  081D                        LDAR  R1,COUNT                                          FOX20890
001EEE  C820 14C2                   LHI   R2,ERR07M2                                        FOX20900
001EF2  41F0 0BDC                   BAL   LINK,HEXASC       PUT EXPECTED LINE NUMBER        FOX20910
                                    *                       IN ERROR DESCRIPTOR             FOX20920
001EF6  41F0 103A                   BAL   LINK,ERROR        PRINT THE ERROR NUMBER          FOX20930
001EFA  1760                        DC    Z(ERROR7)                                         FOX20940
001EFC  41F0 1078                   BAL   LINK,OUTPUT       PRINT THE ERROR DESCRIPTOR      FOX20950
001F00  149C                        DC    Z(MSG4)                                           FOX20960
001F02  D100 2440                   LM    R0,ERRSAVE        RESTORE REGISTERS               FOX20970
001F06  4300 1E42                   B     TST4Z             EXIT TEST MODULE                FOX20980
                                    *-----------------------------------                   FOX20990
                                    *   BAD COLUMN NUMBER - PRINT ERROR & EXIT TEST MODULE    FOX21000
                                    *                                                         FOX21010
001F0A  CA60 0020          BADCP04  AHI   R6,X'20'                                          FOX21020
                                    *                                                         FOX21030
001F0E  D000 2440          BADCPOS  STM   R0,ERRSAVE        SAVE CALLING REGISTERS          FOX21040
001F12  2402                        LIS   R0,2                                              FOX21050
001F14  4810 13BC                   LH    R1,CURSCOLM                                       FOX21060
001F18  C820 14E0                   LHI   R2,ERR08M1                                        FOX21070
001F1C  41F0 0BDC                   BAL   LINK,HEXASC       PUT CURRENT CURSOR COLUMN       FOX21080
                                    *                       IN ERROR DESCRIPTOR             FOX21090
001F20  0816                        LDAR  R1,R6                                             FOX21100
001F22  C820 14F2                   LHI   R2,ERR08M2                                        FOX21110
001F26  41F0 0BDC                   BAL   LINK,HEXASC       PUT EXPECTED CURSOR COLUMN      FOX21120
                                    *                       IN ERROR DESCRIPTOR             FOX21130
001F2A  41F0 103A                   BAL   LINK,ERROR        PRINT THE ERROR NUMBER          FOX21140
001F2E  1762                        DC    Z(ERROR8)                                         FOX21150
001F30  41F0 1078                   BAL   LINK,OUTPUT       PRINT THE ERROR DESCRIPTOR      FOX21160
001F34  14C8                        DC    Z(MSG5)                                           FOX21170
001F36  D100 2440                   LM    R0,ERRSAVE        RESTORE REGISTERS               FOX21180
001F3A  4300 1E42                   B     TST4Z             EXIT TEST MODULE                FOX21190
                                    *-----------------------------------                   FOX21200
                                    *   POSITION CURSOR TO LINE NUMBER IN REGISTER "COUNT".   FOX21210
001F3E  40F0 13B0          LPOS     STH   LINK,TEMP4        SAVE RETURN ADDRESS             FOX21220
001F42  C8B0 0058                   LHI   CHAR,C'X'                                         FOX21230
001F46  41E0 204E                   BAL   RET,MULOUT1                                       FOX21240
001F4A  08BD                        LDAR  CHAR,COUNT                                        FOX21250
001F4C  4120 10B0                   BAL   RET2,OUTCHR       OUTPUT LINE NUMBER              FOX21260
001F50  4890 0A0A                   LH    STAT,PASFLG       PASLA ?                         FOX21270
001F54  2136                        BNZS  LPOS2             IF HDX DEVICE, BRANCH           FOX21280
001F56  0501                        CLAR  DEV0,DEV1         CL1 ?                           FOX21290
001F58  2334                        BES   LPOS2             YES, BRANCH                     FOX21300
001F5A  25B1                        LCS   CHAR,1                                            FOX21310
001F5C  4120 10B0                   BAL   RET2,OUTCHR       OUTPUT PAD CHARACTER (DEL)      FOX21320
001F60  48F0 13B0          LPOS2    LH    LINK,TEMP4        RESTORE RETURN ADDRESS          FOX21330
001F64  030F                        BR    LINK              RETURN                          FOX21340
                                    *-----------------------------------                   FOX21350
                                    * T4CPOS - POSITION CURSOR TO COLUMN NUMBER  X'20'(R6).  FOX21360
```

```
                                 *                                                                  FOX21370
                                 * CPOS  -  POSITION CURSOR TO COLUMN NUMBER IN R6.                 FOX21380
                                 *                                                                  FOX21390
001F66  C8B6 0020                T4CPOS   LHI    CHAR,X'20'(R6)     ESTABLISH CURSOR COLUMN         FOX21400
001F6A  40B0 13B6                         STH    CHAR,TEMP7         ADDRESS CHARACTER               FOX21410
001F6E  2303                             BS     CPOS1                                              FOX21420
                                 *                                                                  FOX21430
001F70  4060 13B6                CPOS     STH    R6,TEMP7           SAVE COLUMN ADDRESS CHARACTER   FOX21440
                                 *                                                                  FOX21450
001F74  40F0 13B0                CPOS1    STH    LINK,TEMP4         SAVE RETURN ADDRESS             FOX21460
001F78  C8B0 0059                         LHI    CHAR,C'Y'                                          FOX21470
001F7C  41E0 204E                         BAL    RET,MULOUT1                                        FOX21480
001F80  48B0 13B6                         LH     CHAR,TEMP7         GET THE CHARACTER POSITION      FOX21490
001F84  4120 10B0                         BAL    RET2,OUTCHR        DIRECT CURSOR CHARACTER POSITION FOX21500
001F88  48F0 13B0                         LH     LINK,TEMP4         RESTORE RETURN ADDRESS          FOX21510
001F8C  030F                             BR     LINK               RETURN (PAD CHAR NOT NEEDED)    FOX21520
                                 *-----------------------------------                               FOX21530
                                 *   READ CURRENT CURSOR POSITION & STORE IN 'CURSLINE' & 'CURSCOLM'. FOX21540
001F8E  40F0 13B0                CURSREAD STH    LINK,TEMP4         SAVE RETURN ADDRESS             FOX21550
001F92  C8B0 005A                         LHI    CHAR,C'Z'                                          FOX21560
001F96  41E0 204E                         BAL    RET,MULOUT1        SET TO READ CURSOR POSITION     FOX21570
001F9A  4890 0A0A                         LH     STAT,PASFLG        PASLA - FDX ?                   FOX21580
001F9E  2116                             BMS    CURSRED2           NO.  IF MICROBUS, BRANCH        FOX21590
001FA0  2133                             BNZS   CURSRED1           IF PASLA HDX, BRANCH            FOX21600
001FA2  0501                             CLAR   DEV0,DEV1          CLI ?                           FOX21610
001FA4  2335                             BES    CURSRED2           YES, BRANCH                     FOX21620
001FA6  C8B0 007F                CURSRED1 LHI    CHAR,X'7F'                                          FOX21630
001FAA  4120 10B0                         BAL    RET2,OUTCHR        SEND PAD CHARACTER (DEL)        FOX21640
001FAE  9D19                     CURSRED2 SSR    DEV1,STAT          DEVICE DU ?                     FOX21650
001FB0  2317                             BFFS   1,CURSRED9         NO, BRANCH                      FOX21660
001FB2  40F0 13C6                         STH    LINK,DURTN                                         FOX21670
001FB6  41F0 2318                         BAL    LINK,DUPASS        YES, GO TO DU STATUS HANDLER    FOX21680
001FBA  48F0 13C6                         LH     LINK,DURTN                                         FOX21690
001FBE  C390 0008                CURSRED9 THI    STAT,8                                              FOX21700
001FC2  203A                             BNZS   CURSRED2           WAIT FOR BUSY TO DROP           FOX21710
001FC4  4890 0A0A                         LH     STAT,PASFLG        CLI OR PASLA FDX ?              FOX21720
001FC8  2133                             BNZS   CURSRED3           NO, BRANCH                      FOX21730
001FCA  0501                             CLAR   DEV0,DEV1          CLI ?                           FOX21740
001FCC  2134                             BNES   CURSRED4           NO, PASLA FDX - SO BRANCH       FOX21750
001FCE  DE00 139F                CURSRED3 OC     DEV0,TREADB        INTERFACE IN READ MODE (BLOCKED) FOX21760
001FD2  9B0B                             RDR    DEV0,CHAR          FORCE BUSY SET                  FOX21770
001FD4  9D09                     CURSRED4 SSR    DEV0,STAT                                          FOX21780
001FD6  9A59                             WDR    ONE,STAT           WRITE THE STATUS TO DISPLAY     FOX21790
001FD8  C390 0001                         THI    STAT,1             DEVICE DU ?                     FOX21800
001FDC  2337                             BZS    CURSREDC           NO, BRANCH                      FOX21810
001FDE  40F0 13C6                         STH    LINK,DURTN                                         FOX21820
001FE2  41F0 2318                         BAL    LINK,DUPASS        YES, GO TO DU STATUS HANDLER    FOX21830
001FE6  48F0 13C6                         LH     LINK,DURTN                                         FOX21840
001FEA  C390 0006                CURSREDC THI    STAT,6                                              FOX21850
001FEE  4230 11C8                         BNZ    BSTAT              BRANCH ON BAD DEVICE STATUS     FOX21860
001FF2  C390 0008                         THI    STAT,8                                              FOX21870
001FF6  4230 1FD4                         BNZ    CURSRED4           WAIT FOR BUSY TO DROP           FOX21880
001FFA  9B0B                             RDR    DEV0,CHAR          READ CURSOR LINE CHARACTER      FOX21890
001FFC  C4B0 007F                         NHI    CHAR,X'7F'         MASK CHARACTER TO 7 BITS        FOX21900
```

```
002000  4330 0F68   2191          BZ     TSTEXT          EXIT ON LINE BREAK                FOX21910
002004  40B0 13BA   2192          STH    CHAR,CURSLINE   SAVE CURSOR LINE POSITION         FOX21920
002008  9D09        2193  CURSRED5 SSR    DEV0,STAT                                         FOX21930
00200A  9A59        2194          WDR    ONE,STAT        WRITE THE STATUS TO DISPLAY       FOX21940
00200C  C390 0001   2195          THI    STAT,1          DEVICE DU ?                       FOX21950
002010  2337        2196          BZS    CURSRED8        NO, BRANCH                        FOX21960
002012  40F0 13C6   2197          STH    LINK,DURTN                                        FOX21970
002016  41F0 2318   2198          BAL    LINK,DUPASS     YES, GO TO DU STATUS HANDLER      FOX21980
00201A  48F0 13C6   2199          LH     LINK,DURTN                                        FOX21990
00201E  C390 0008   2200  CURSRED8 THI    STAT,8                                            FOX22000
002022  203D        2201          BNZS   CURSRED5        WAIT FOR BUSY TO DROP             FOX22010
002024  9B0B        2202          RDR    DEV0,CHAR       READ CURSOR COLUMN CHARACTER      FOX22020
002026  4890 0A0A   2203          LH     STAT,PASFLG     CLI OR PASLA FDX ?                FOX22030
00202A  2133        2204          BNZS   CURSRED6        NO, BRANCH                        FOX22040
00202C  0501        2205          CLAR   DEV0,DEV1       CLI ?                             FOX22050
00202E  2133        2206          BNES   CURSRED7        NO, PASLA FDX                     FOX22060
002030  DE10 139C   2207  CURSRED6 OC     DEV1,TWRT       TURN LINE AROUND (HDX DEV ONLY)   FOX22070
002034  C4B0 007F   2208  CURSRED7 NHI    CHAR,X'7F'      MASK CHARACTER TO 7 BITS          FOX22080
002038  4330 0F68   2209          BZ     TSTEXT          EXIT ON LINE BREAK                FOX22090
00203C  40B0 13BC   2210          STH    CHAR,CURSCOLM   SAVE CURSOR COLUMN POSITION       FOX22100
002040  4040 1396   2211          STH    ZERO,BRKFLG                                       FOX22110
002044  48F0 13B0   2212  CURSRED8 LH     LINK,TEMP4      RESTORE RETURN ADDRESS            FOX22120
002048  030F        2213          BR     LINK            RETURN                            FOX22130
                    2214  *-----------------------------------                             FOX22140
                    2215  *   ISSUE A MULTICODE SEQUENCE FROM REGISTER "CHAR".               FOX22150
                    2216  *   SAVE CHARACTER OUTPUT AT "TEMP6".                              FOX22160
                    2217  *     CALLING SEQUENCE IS:                                        FOX22170
                    2218  *        BAL    RET,MULOUT                                        FOX22180
                    2219  *                                                                  FOX22190
00204A  40B0 13B4   2220  MULOUT   STH    CHAR,TEMP6      SAVE CHAR FOR ERROR MESSAGE USE   FOX22200
                    2221  *                                                                  FOX22210
00204E  40E0 13B8   2222  MULOUT1  STH    RET,TEMP8       SAVE THE RETURN ADDRESS           FOX22220
002052  40B0 13B2   2223          STH    CHAR,TEMP5      SAVE CHARACTER TO BE OUTPUT       FOX22230
002056  48B0 0C7A   2224          LH     CHAR,MULCAR     GET MULTICODE CHARACTER OPTION    FOX22240
00205A  4120 10B0   2225          BAL    RET2,OUTCHR     OUTPUT IT                         FOX22250
00205E  48B0 13B2   2226          LH     CHAR,TEMP5      RETRIVE CHARACTER                 FOX22260
002062  4120 10B0   2227          BAL    RET2,OUTCHR     OUTPUT IT                         FOX22270
002066  48E0 13B8   2228          LH     RET,TEMP8       RESTORE RETURN ADDRESS            FOX22280
00206A  030E        2229          BR     RET             RETURN                            FOX22290
                    2230  *-----------------------------------                             FOX22300
                    2231  *   MULTICODE SEQUENCE FAILURE - (FAILING CHARACTER IS IN TEMP6)  FOX22310
                    2232  *                                                                  FOX22320
00206C  D000 2440   2233  ERROR09 STM    R0,ERRSAVE      SAVE CALLING REGISTERS            FOX22330
002070  41F0 103A   2234          BAL    LINK,ERROR      OUTPUT MESSAGE                    FOX22340
002074  1764        2235          DC     Z(ERROR9)       "ERROR 09"                        FOX22350
002076  2402        2236          LIS    R0,2                                              FOX22360
002078  4810 13B4   2237          LH     R1,TEMP6                                          FOX22370
00207C  C820 1630   2238          LHI    R2,ERR9CHAR     PUT MULTICODE LETTER IN           FOX22380
002080  41F0 0BDC   2239          BAL    LINK,HEXASC     ERROR DESCRIPTOR                  FOX22390
002084  D100 2440   2240          LM     R0,ERRSAVE      RESTORE REGISTERS                 FOX22400
002088  41F0 1078   2241          BAL    LINK,OUTPUT     OUTPUT MESSAGE                    FOX22410
00208C  1624        2242          DC     Z(MSG27)        "MULTICODE ERROR"                 FOX22420
00208E  4300 2284   2243          B      TST5Z           EXIT TEST MODULE                  FOX22430
```

```
                                2245  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX22450
                                2246  *                                               *                    FOX22460
                                2247  *          T E S T   M O D U L E   0 5          *                    FOX22470
                                2248  * THIS MODULE TESTS ALL MULTICODE SEQUENCES VIA *                    FOX22480
                                2249  * OPERATOR INTERVENTION.                        *                    FOX22490
                                2250  *                                               *                    FOX22500
                                2251  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX22510
002092  DE00 139D              2252  TEST05   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED     FOX22520
002096  9B0B                    2253           RDR    DEV0,CHAR         FORCE BUSY SET                     FOX22530
002098  DE10 139C              2254           OC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED    FOX22540
00209C  41F0 1E8A              2255           BAL    LINK,CLRSCRN      CLEAR SCREEN                       FOX22550
0020A0  C8B0 004A              2256           LHI    CHAR,C'J'                                            FOX22560
0020A4  40B0 13B4              2257           STH    CHAR,TEMP6        OUTPUT MESSAGES:                   FOX22570
0020A8  41F0 1078              2258           BAL    LINK,OUTPUT       "TEST 05"                          FOX22580
0020AC  1544                   2259           DC     Z(MSG15)          "HC & CS HAVE BEEN OUTPUT"         FOX22590
0020AE  41F0 1078              2260           BAL    LINK,OUTPUT       "HIT CR TO CONTINUE. "             FOX22600
0020B2  1676                   2261           DC     Z(MSG22)                                             FOX22610
0020B4  41F0 1078              2262           BAL    LINK,OUTPUT       "LF ON ERROR"                      FOX22620
0020B8  15F4                   2263           DC     Z(MSG24)                                             FOX22630
0020BA  DE00 139D              2264           OC     DEV0,TREAD        READ MODE                          FOX22640
0020BE  9B0B                   2265           RDR    DEV0,CHAR         SET BUSY                           FOX22650
                                2266  *                                                                   FOX22660
0020C0  41F0 1184              2267  TST5A    BAL    LINK,READ         READ A CHARACTER                   FOX22670
0020C4  C5B0 000A              2268           CLHI   CHAR,X'0A'                                           FOX22680
0020C8  4330 206C              2269           BE     ERROR09           IF LF, BRANCH TO ERROR             FOX22690
0020CC  C5B0 000D              2270           CLHI   CHAR,X'0D'        IF CR, CONTINUE                    FOX22700
0020D0  2038                   2271           BNES   TST5A             OTHERWISE READ A NEW CHARACTER     FOX22710
0020D2  DE10 139C              2272           OC     DEV1,TWRT         WRITE MODE                         FOX22720
                                2273  *                                                                   FOX22730
0020D6  C8D0 002A              2274  TST5B    LHI    COUNT,X'2A'       SET UP INITIAL CURSOR POSITION     FOX22740
0020DA  41F0 1F3E              2275           BAL    LINK,LPOS         POSITION CURSOR TO PROPER LINE     FOX22750
0020DE  086D                   2276           LDAR   R6,COUNT                                             FOX22760
0020E0  41F0 1F70              2277           BAL    LINK,CPOS         POSITION CURSOR TO PROPER COLUMN   FOX22770
0020E4  41F0 1F8E              2278           BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION       FOX22780
0020E8  45D0 13BA              2279           CLH    COUNT,CURSLINE    IS LINE NUMBER CORRECT ?           FOX22790
0020EC  4230 1EDA              2280           BNE    BADLPOS           NO, BRANCH TO ERROR                FOX22800
0020F0  4560 13BC              2281           CLH    R6,CURSCOLM       IS COLUMN NUMBER CORRECT ?         FOX22810
0020F4  4230 1F0E              2282           BNE    BADCPOS           NO, BRANCH TO ERROR                FOX22820
                                2283  *                                                                   FOX22830
0020F8  C8B0 0041              2284  TST5C    LHI    CHAR,C'A'                                            FOX22840
0020FC  41E0 204A              2285           BAL    RET,MULOUT        MOVE CURSOR UP 1 LINE              FOX22850
002100  41F0 1F8E              2286           BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION       FOX22860
002104  27D1                   2287           SIS    COUNT,1                                              FOX22870
002106  45D0 13BA              2288           CLH    COUNT,CURSLINE    IS LINE NUMBER CORRECT ?           FOX22880
00210A  4230 206C              2289           BNE    ERROR09           NO, BRANCH TO ERROR                FOX22890
00210E  C8B0 0042              2290           LHI    CHAR,C'B'                                            FOX22900
002112  41E0 204A              2291           BAL    RET,MULOUT        MOVE CURSOR DOWN 1 LINE            FOX22910
002116  41F0 1F8E              2292           BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION       FOX22920
00211A  26D1                   2293           AIS    COUNT,1                                              FOX22930
00211C  45D0 13BA              2294           CLH    COUNT,CURSLINE    IS LINE NUMBER CORRECT ?           FOX22940
002120  4230 206C              2295           BNE    ERROR09           NO, BRANCH TO ERROR                FOX22950
002124  C8B0 0043              2296  TST5D    LHI    CHAR,C'C'                                            FOX22960
002128  41E0 204A              2297           BAL    RET,MULOUT        MOVE CURSOR RIGHT 1 COLUMN         FOX22970
00212C  41F0 1F8E              2298           BAL    LINK,CURSREAD     READ CURRENT CURSOR POSITION       FOX22980
```

TEST 5

```
002130  2661                2299          AIS   R6,1                                          FOX22990
002132  4560 13BC           2300          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23000
002136  4230 206C           2301          BNE   ERROR09          NO, BRANCH TO ERROR          FOX23010
00213A  C8B0 0044           2302          LHI   CHAR,C'D'                                     FOX23020
00213E  41E0 204A           2303          BAL   RET,MULOUT       MOVE CURSOR LEFT 1 COLUMN    FOX23030
002142  41F0 1F8E           2304          BAL   LINK,CURSREAD    READ CURRENT CURSOR POSITION FOX23040
002146  2761                2305          SIS   R6,1                                          FOX23050
002148  4560 13BC           2306          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23060
00214C  4230 206C           2307          BNE   ERROR09          NO, BRANCH TO ERROR          FOX23070
                            2308  *                                                           FOX23080
002150  C8B0 0033           2309  TST5E    LHI   CHAR,C'3'                                     FOX23090
002154  41E0 204A           2310          BAL   RET,MULOUT       CLEAR ALL TABS               FOX23100
002158  24B9                2311          LIS   CHAR,X'09'                                    FOX23110
00215A  4120 10B0           2312          BAL   RET2,OUTCHR      TABULATE !                   FOX23120
00215E  41F0 1F8E           2313          BAL   LINK,CURSREAD    READ CURRENT CURSOR POSITION FOX23130
002162  C860 006F           2314          LHI   R6,X'6F'                                      FOX23140
002166  4560 13BC           2315          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23150
00216A  4230 206C           2316          BNE   ERROR09          NO, BRANCH TO ERROR          FOX23160
                            2317  *                                                           FOX23170
00216E  086D                2318  TST5F    LDAR  R6,COUNT                                      FOX23180
002170  41F0 1F70           2319          BAL   LINK,CPOS        POSITION CURSOR TO PROPER COLUMN FOX23190
002174  41F0 1F8E           2320          BAL   LINK,CURSREAD    READ CURRENT CURSOR POSITION FOX23200
002178  4560 13BC           2321          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23210
00217C  4230 1F0E           2322          BNE   BADCPOS          NO, BRANCH TO ERROR          FOX23220
002180  C8B0 0031           2323          LHI   CHAR,C'1'                                     FOX23230
002184  41E0 204A           2324          BAL   RET,MULOUT       SET TAB AT PRESENT COLUMN    FOX23240
002188  C860 0020           2325          LHI   R6,X'20'                                      FOX23250
00218C  41F0 1F70           2326          BAL   LINK,CPOS        POSITION CURSOR TO START OF LINE FOX23260
002190  41F0 1F8E           2327          BAL   LINK,CURSREAD    READ CURRENT CURSOR POSITION FOX23270
002194  4560 13BC           2328          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23280
002198  4230 1F0E           2329          BNE   BADCPOS          NO, BRANCH TO ERROR          FOX23290
00219C  24B9                2330          LIS   CHAR,X'09'                                    FOX23300
00219E  4120 10B0           2331          BAL   RET2,OUTCHR      TABULATE !                   FOX23310
0021A2  41F0 1F8E           2332          BAL   LINK,CURSREAD    READ CURRENT CURSOR POSITION FOX23320
0021A6  086D                2333          LDAR  R6,COUNT                                      FOX23330
0021A8  4560 13BC           2334          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23340
0021AC  4230 206C           2335          BNE   ERROR09          NO, BRANCH TO ERROR          FOX23350
                            2336  *                                                           FOX23360
0021B0  C860 0020           2337  TST5G    LHI   R6,X'20'                                     FOX23370
0021B4  41F0 1F70           2338          BAL   LINK,CPOS        POSITION CURSOR TO START OF LINE FOX23380
0021B8  41F0 1F8E           2339          BAL   LINK,CURSREAD    READ CURRENT CURSOR POSITION FOX23390
0021BC  4560 13BC           2340          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23400
0021C0  4230 1F0E           2341          BNE   BADCPOS          NO, BRANCH TO ERROR          FOX23410
0021C4  C8B0 0033           2342          LHI   CHAR,C'3'                                     FOX23420
0021C8  41E0 204A           2343          BAL   RET,MULOUT       CLEAR ALL TABS               FOX23430
0021CC  24B9                2344          LIS   CHAR,X'09'                                    FOX23440
0021CE  4120 10B0           2345          BAL   RET2,OUTCHR      TABULATE !                   FOX23450
0021D2  41F0 1F8E           2346          BAL   LINK,CURSREAD    READ CURRENT CURSOR POSITION FOX23460
0021D6  C860 006F           2347          LHI   R6,X'6F'                                      FOX23470
0021DA  4560 13BC           2348          CLH   R6,CURSCOLM      IS COLUMN NUMBER CORRECT ?   FOX23480
0021DE  4230 206C           2349          BNE   ERROR09          NO, BRANCH TO ERROR          FOX23490
                            2350  *                                                           FOX23500
0021E2  C8D0 0020           2351  TST5H    LHI   COUNT,X'20'                                   FOX23510
0021E6  41F0 1F3E           2352          BAL   LINK,LPOS        POSITION CURSOR TO PROPER LINE FOX23520
```

TEST 5

```
0021EA  086D                2353          LDAR   R6,COUNT                                    FOX23530
0021EC  41F0 1F70           2354          BAL    LINK,CPOS          POSITION CURSOR TO PROPER COLUMN  FOX23540
0021F0  41F0 1F8E           2355          BAL    LINK,CURSREAD      READ CURRENT CURSOR POSITION      FOX23550
0021F4  4500 13BA           2356          CLH    COUNT,CURSLINE     IS LINE NUMBER CORRECT ?          FOX23560
0021F8  4230 1EDA           2357          BNE    BADLPOS            NO, BRANCH TO ERROR               FOX23570
0021FC  4560 13BC           2358          CLH    R6,CURSCOLM        IS COLUMN NUMBER CORRECT ?        FOX23580
002200  4230 1F0E           2359          BNE    BADCPOS            NO, BRANCH TO ERROR               FOX23590
002204  C8B0 0049           2360          LHI    CHAR,C'I'                                            FOX23600
002208  41E0 204A           2361          BAL    RET,MULOUT         CLEAR THE LINE                    FOX23610
00220C  41F0 133A           2362          BAL    LINK,TMER          WAIT 50 MILLISECONDS              FOX23620
002210  26D1                2363          AIS    COUNT,1                                              FOX23630
002212  41F0 1F3E           2364          BAL    LINK,LPOS          POSITION CURSOR TO PROPER LINE    FOX23640
002216  41F0 1078           2365          BAL    LINK,OUTPUT        CRLF                              FOX23650
00221A  13FA                2366          DC     Z(MSG0)                                              FOX23660
00221C  41F0 1078           2367          BAL    LINK,OUTPUT        CRLF                              FOX23670
002220  13FC                2368          DC     Z(MSG0.5)                                            FOX23680
002222  41F0 1078           2369          BAL    LINK,OUTPUT        "TEST 5 HAS BEEN DELETED"         FOX23690
002226  1604                2370          DC     Z(MSG26)                                             FOX23700
002228  41F0 1078           2371          BAL    LINK,OUTPUT        "HIT CR TO CONTINUE, "            FOX23710
00222C  1676                2372          DC     Z(MSG22)                                             FOX23720
00222E  41F0 1078           2373          BAL    LINK,OUTPUT        "LF ON ERROR"                     FOX23730
002232  15F4                2374          DC     Z(MSG24)                                             FOX23740
002234  DE00 139D           2375          OC     DEV0,TREAD         READ MODE                         FOX23750
002238  9B0B                2376          RDR    DEV0,CHAR          SET BUSY                          FOX23760
                            2377  *                                                                  FOX23770
00223A  41F0 1184           2378  TST5I   BAL    LINK,READ          READ A CHARACTER                  FOX23780
00223E  C5B0 000A           2379          CLHI   CHAR,X'0A'         LF ?                              FOX23790
002242  4330 206C           2380          BE     ERROR09            YES, BRANCH TO ERROR              FOX23800
002246  C5B0 000D           2381          CLHI   CHAR,X'0D'         CR ?                              FOX23810
00224A  2038                2382          BNES   TST5I              NO, READ A NEW CHARACTER          FOX23820
00224C  DE10 139C           2383          OC     DEV1,TWRT          WRITE MODE                        FOX23830
                            2384  *                                                                  FOX23840
002250  C8B0 004B           2385  TST5K   LHI    CHAR,C'K'                                            FOX23850
002254  41E0 204A           2386          BAL    RET,MULOUT         CLEAR ALL                         FOX23860
002258  41F0 133A           2387          BAL    LINK,TMER          WAIT 50 MILLISECONDS              FOX23870
00225C  41F0 1078           2388          BAL    LINK,OUTPUT        OUTPUT MESSAGE                    FOX23880
002260  1656                2389          DC     Z(MSG28)           "CLEAR ALL HAS BEEN OUTPUT"       FOX23890
002262  41F0 1078           2390          BAL    LINK,OUTPUT        "HIT CR TO CONTINUE, "            FOX23900
002266  15F4                2391          DC     Z(MSG24)           "LF ON ERROR"                     FOX23910
002268  DE00 139D           2392          OC     DEV0,TREAD         READ MODE                         FOX23920
00226C  9B0B                2393          RDR    DEV0,CHAR          SET BUSY                          FOX23930
                            2394  *                                                                  FOX23940
00226E  41F0 1184           2395  TST5L   BAL    LINK,READ          READ A CHARACTER                  FOX23950
002272  C5B0 000A           2396          CLHI   CHAR,X'0A'         LF ?                              FOX23960
002276  4330 206C           2397          BE     ERROR09            YES, BRANCH TO ERROR              FOX23970
00227A  C5B0 000D           2398          CLHI   CHAR,X'0D'         CR ?                              FOX23980
00227E  2038                2399          BNES   TST5L              NO, READ A NEW CHARACTER          FOX23990
002280  DE10 139C           2400          OC     DEV1,TWRT          WRITE MODE                        FOX24000
                            2401  *                                                                  FOX24010
002284  4300 0F68           2402  TST5Z   B      TSTEXT             END OF TEST MODULE                FOX24020
```

TEST 6

```
                                2404  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX24040
                                2405  *                                               *                    FOX24050
                                2406  *          T E S T   M O D U L E   0 6          *                    FOX24060
                                2407  * THIS MODULE TESTS THE ANSWER-BACK (HERE-IS)   *                    FOX24070
                                2408  * ROM.  IT CAN ALSO BE USED AS AN ECHO TEST BY  *                    FOX24080
                                2409  * CHANGING THE "HEREIS" OPTION.                 *                    FOX24090
                                2410  *                                               *                    FOX24100
                                2411  * * * * * * * * * * * * * * * * * * * * * * * *                    FOX24110
002288  DE00 139D              2412  TEST06   OC     DEV0,TREAD        READ MODE, INTERRUPTS DISABLED     FOX24120
00228C  9B0B                    2413           RDR    DEV0,CHAR         DUMMY READ TO FORCE BUSY SET       FOX24130
00228E  DE10 139C               2414           OC     DEV1,TWRT         WRITE MODE, INTERRUPTS DISABLED    FOX24140
002292  41F0 1078               2415           BAL    LINK,OUTPUT       "TEST 06"                          FOX24150
002296  15C6                    2416           DC     Z(MSG21)          "DEPRESS 'HERE-IS'"                FOX24160
002298  2460                    2417           LIS    R6,0                                                 FOX24170
00229A  2471                    2418           LIS    R7,1                                                 FOX24180
00229C  4880 0C82               2419           LH     R8,HEREIS         ARE 32 CHARACTERS EXPECTED ?       FOX24190
0022A0  2134                    2420           BNZS   HERE80            NO, 80 - BRANCH                    FOX24200
0022A2  C880 001F               2421           LHI    R8,31             YES, SET TO READ 32 CHARACTERS(BXLE) FOX24210
0022A6  2303                    2422           BS     READ6                                                FOX24220
0022A8  C880 004F               2423  HERE80   LHI    R8,79             SET TO READ 80 CHARACTERS(BXLE)    FOX24230
0022AC  DE00 139D               2424  READ6    OC     DEV0,TREAD        OC READ MODE                       FOX24240
0022B0  9B0B                    2425           RDR    DEV0,CHAR         DUMMY READ TO CLEAR STATUS         FOX24250
0022B2  41F0 1184               2426  READ60   BAL    LINK,READ         READ A CHARACTER                   FOX24260
0022B6  C4B0 007F               2427           NHI    CHAR,X'7F'        MASK TO 7 BITS                     FOX24270
0022BA  D2B6 23DE               2428           STB    CHAR,READBUF(R6)  SAVE THE CHARACTER                 FOX24280
0022BE  C5B0 000D               2429           CLHI   CHAR,X'0D'        CR ?                               FOX24290
0022C2  2333                    2430           BES    READ61            YES, BRANCH                        FOX24300
0022C4  C160 22B2               2431           BXLE   R6,READ60         NO, CONTINUE UNTILL DONE           FOX24310
0022C8  0886                    2432  READ61   LDAR   R8,R6            ESTABLISH TRUE                     FOX24320
0022CA  2781                    2433           SIS    R8,1              BUFFER LIMITS                      FOX24330
0022CC  2460                    2434           LIS    R6,0                                                 FOX24340
0022CE  41E0 1078               2435           BAL    LINK,OUTPUT       CR, LF                             FOX24350
0022D2  13FC                    2436           DC     Z(MSG0,5)                                            FOX24360
0022D4  DE10 139C               2437           OC     DEV1,TWRT         OC WRITE MODE                      FOX24370
0022D8  D3B6 23DE               2438  WRITE6   LB     CHAR,READBUF(R6)                                     FOX24380
0022DC  4120 10B0               2439           BAL    RET2,OUTCHR       WRITE CHARACTER BUFFER AS READ     FOX24390
0022E0  C5B0 000D               2440           CLHI   CHAR,X'0D'        CR ?                               FOX24400
0022E4  2333                    2441           BES    READ62            YES, BRANCH                        FOX24410
0022E6  C160 22D8               2442           BXLE   R6,WRITE6         NO, CONTINUE UNTILL DONE           FOX24420
0022EA  41F0 1078               2443  READ62   BAL    LINK,OUTPUT       CR, LF                             FOX24430
0022EE  13FA                    2444           DC     Z(MSG0)                                              FOX24440
0022F0  41F0 1078               2445           BAL    LINK,OUTPUT       "HIT CR TO CONTINUE, "             FOX24450
0022F4  1676                    2446           DC     Z(MSG22)                                             FOX24460
0022F6  41F0 1078               2447           BAL    LINK,OUTPUT       "LF TO EXIT"                       FOX24470
0022FA  15E6                    2448           DC     Z(MSG23)                                             FOX24480
0022FC  DE00 139D               2449           OC     DEV0,TREAD        OC READ MODE                       FOX24490
002300  9B0B                    2450           RDR    DEV0,CHAR         DUMMY READ TO CLEAR STATUS         FOX24500
002302  41F0 1184               2451  READ63   BAL    LINK,READ         READ A CHARACTER (LF OR CR ONLY)   FOX24510
002306  C5B0 000A               2452           CLHI   CHAR,X'0A'        LF ?                               FOX24520
00230A  4330 0F68               2453           BE     TSTEXT            YES, EXIT TEST MODULE              FOX24530
00230E  C5B0 000D               2454           CLHI   CHAR,X'0D'        NO, CR ?                           FOX24540
002312  4330 2288               2455           BE     TEST06            YES, REPEATE TEST                  FOX24550
002316  220A                    2456           BS     READ63            NO, READ A NEW CHARACTER           FOX24560
```

DU DETECTED HANDLER

```
002318  4090 13CA   2458  DUPASS   STH   STAT,DUSTAT      SAVE DU STATUS REGISTER          FOX24580
00231C  4890 13C8   2459           LH    STAT,DU          IS DU FLAG ALREADY SET ?         FOX24590
002320  4230 2382   2460           BNZ   DURESTOR         YES, IGNORE PRESENT DU STSTUS    FOX24600
002324  40F0 13C4   2461           STH   LINK,DUSAVE      NO, SAVE CALLING REGISTER        FOX24610
002328  40E0 13C8   2462           STH   LINK,DU          SET THE DU FLAG                  FOX24620
00232C  2401        2463           LIS   R0,1                                              FOX24630
00232E  DE00 13C0   2464           OC    R0,INCR          OC DISPLAY IN INCREMENTAL MODE   FOX24640
002332  C810 AD0B   2465           LHI   R1,X'AD0B'                                        FOX24650
002336  9801        2466           WHR   R0,R1            "00B7" = BIT 7                   FOX24660
002338  C810 B700   2467           LHI   R1,X'B700'                                        FOX24670
00233C  9801        2468           WHR   R0,R1            "0BAD" = BAD                     FOX24680
00233E  DE00 13A4   2469           OC    R0,NORM          OC DISPLAY IN NORMAL MODE        FOX24690
002342  4810 138A   2470           LH    R1,TESTNO                                         FOX24700
002346  C610 3030   2471           OHI   R1,X'3030'                                        FOX24710
00234A  4010 16FE   2472           STH   R1,DUMSG         PUT TEST NUMBER IN DU MESSAGE    FOX24720
00234E  4800 0C10   2473           LH    DEV0,DEVSADR     RESTORE DEV0 & DEV1 REGISTERS    FOX24730
002352  4810 0C12   2474           LH    DEV1,DEVSADR+2                                    FOX24740
002356  DE10 139C   2475           OC    DEV1,TWRT        OC CONSOLE DEVICE IN WRITE MODE  FOX24750
00235A  9D19        2476  DUPASS1  SSR   DEV1,STAT        WAIT FOR DU & BUSY               FOX24760
00235C  2091        2477           BTBS  9,DUPASS1        TO DISAPPEAR                     FOX24770
00235F  41F0 1078   2478           BAL   LINK,OUTPUT      OUTPUT MESSAGE                   FOX24780
002362  16DC        2479           DC    Z(MSG32)         "DU DETECTED"                    FOX24790
002364  48F0 0C92   2480           LH    LINK,RUN         IS RUN FLAG SET ?                FOX24800
002368  2335        2481           BZS   DUEXEC           NO, DU IS IN EXEC, SO BRANCH     FOX24810
                    2482  *                                                                 FOX24820
00236A  41F0 1078   2483  DUTEST   BAL   LINK,OUTPUT      OTHERWISE OUTPUT MESSAGE         FOX24830
00236E  16F6        2484           DC    Z(MSG34)         "IN TEST XX"                     FOX24840
002370  2304        2485           BS    DUCOM            BRANCH                           FOX24850
                    2486  *                                                                 FOX24860
002372  41F0 1078   2487  DUEXEC   BAL   LINK,OUTPUT      OUTPUT MESSAGE                   FOX24870
002376  16EC        2488           DC    Z(MSG33)         "IN EXEC"                        FOX24880
                    2489  *                                                                 FOX24890
002378  24F0        2490  DUCOM    LIS   LINK,0                                            FOX24900
00237A  40F0 13C8   2491           STH   LINK,DU          RESET DU FLAG                    FOX24910
00237E  48F0 13C4   2492           LH    LINK,DUSAVE      RESTORE CALLING REGISTER         FOX24920
                    2493  *                                                                 FOX24930
002382  4890 13CA   2494  DURESTOR LH   STAT,DUSTAT       RESTORE STATUS REGISTER          FOX24940
002386  030F        2495           BR    LINK             RETURN TO POINT WHERE            FOX24950
                    2496  *                                DU WAS FIRST DETECTED            FOX24960
```

```
                                 2498  * IF THE MODEL-1100 DOES NOT RESPOND WHEN THE TEST PROGRAM                FOX24980
                                 2499  * IS STARTED, TRY THE FOLLOWING TWO SMALL ROUTINES.                      FOX24990
                                 2500  * THEY SUPPORT PASLA STRAPPED FOR FULL-DUPLEX OR HALF-DUPLEX OPERATION.  FOX25000
                                 2501  * VARIFY OTHER STRAPS AS PER SECTION 4 OF TEST PROGRAM DESCRIPTION.      FOX25010
                                 2502  *                                                                        FOX25020
                                 2503  * THIS ROUTINE SETS UP THE DEVICE TO READ KEYBOARD KEYS DEPRESSED BY     FOX25030
                                 2504  * USER. THE KEY CODE IS READ IN AND DISPLAYED ON THE DISPLAY PANEL.      FOX25040
                                 2505  * USER SHOULD CHECK THE HEX VALUE DISPLAY WITH THE KEY CODE.             FOX25050
                                 2506  *                                                                        FOX25060
002388   2440                    2507  TRY1     LIS    ZERO,0                                                 FOX25070
002388A  9564                    2508           EPSR   WORK,ZERO          NO INTERRUPTS, REG SET 0              FOX25080
002388C  2451                    2509           LIS    ONE,1                                                  FOX25090
002388E  DE50 13A4               2510           OC     ONE,NORM           DISPLAY IN NORMAL MODE                FOX25100
002392   4800 0A04               2511           LH     DEV0,RECADR                                              FOX25110
002396   C400 03FF               2512           NHI    DEV0,X'3FF'        ISOLATE DEVICE ADDRESS                FOX25120
00239A   DE00 0A09               2513           OC     DEV0,SECOND        SET UP PASLA SPEED AND STOP BITS      FOX25130
00239E   2040                    2514  FSYNC1   BTBS   4,FSYNC1          FALSE SYNC, CHECK ADDRESS STRAPS      FOX25140
0023A0   DE00 139D               2515           OC     DEV0,TREAD         GIVE READ COMMAND                     FOX25150
0023A4   9B0B                    2516           RDR    DEV0,CHAR          CLEAR THE STATUS                      FOX25160
0023A6   9D09                    2517  SS1      SSR    DEV0,STAT          SENSE READ SIDE STATUS                FOX25170
0023A8   2081                    2518           BTBS   8,1                LOOP ON BSY TILL KEY IS DEPRESSED     FOX25180
0023AA   9B0B                    2519           RDR    DEV0,CHAR          READ CHARACTER IN ECHO-PLEX MODE      FOX25190
0023AC   9A5B                    2520           WDR    ONE,CHAR           DISPLAY CHARACTER WITH PARITY         FOX25200
0023AE   2204                    2521           BS     SS1                REPEAT                                FOX25210
                                 2522  *                                                                        FOX25220
                                 2523  * THIS ROUTINE SETS UP THE DEVICE IN WRITE MODE. USER ENTERED DATA       FOX25230
                                 2524  * BYTE INTO SWITCH REGISTER IS READ AND THE CORRESPONDING CHARACTER     FOX25240
                                 2525  * IS DISPLAYED ON THE MODEL-1100 SCREEN. THEN PROCESSOR HALTS. USER      FOX25250
                                 2526  * SHOULD ENTER ANOTHER DATA BYTE & HIT RUN FOR DISPLAY OF                FOX25260
                                 2527  * CORRESPONDING CHARACTER ON THE MODEL-1100 DISPLAY TERMINAL.             FOX25270
                                 2528  *                                                                        FOX25280
0023B0   2440                    2529  TRY2     LIS    ZERO,0                                                 FOX25290
0023B2   9564                    2530           EPSR   WORK,ZERO          NO INTERRUPTS, REGISTER SET 0         FOX25300
0023B4   2451                    2531           LIS    ONE,1                                                  FOX25310
0023B6   DE50 13A4               2532           OC     ONE,NORM           DISPLAY IN NORMAL MODE                FOX25320
0023BA   4810 0A06               2533           LH     DEV1,SNDADR        GET TRANSMIT DEVICE ADDRESS           FOX25330
0023BE   C410 03FF               2534           NHI    DEV1,X'3FF'                                              FOX25340
0023C2   DE10 0A09               2535           OC     DEV1,SECOND        SET UP PASLA SPEED AND STOP BITS      FOX25350
0023C6   2040                    2536  FSYNC2   BTBS   4,FSYNC2          FALSE SYNC, CHECK ADDRESS STRAPS      FOX25360
0023C8   DE10 139C               2537           OC     DEV1,TWRT          GIVE WRITE COMMAND                    FOX25370
                                 2538  *                                                                        FOX25380
0023CC   9B5B                    2539  DISPLAY  RDR    ONE,CHAR           READ DATA BYTE FROM SWITCH REGISTER   FOX25390
0023CE   9D19                    2540           SSR    DEV1,STAT          SENSE CRT STATUS                      FOX25400
0023D0   2081                    2541           BTBS   8,1                LOOP TILL BSY DROPS                   FOX25410
0023D2   9A1B                    2542           WDR    DEV1,CHAR          WRITE DATA BYTE (CHAR) TO MODEL-1100  FOX25420
                                 2543  *                                  DISPLAYED CHARACTER SHOULD MATCH THE  FOX25430
                                 2544  *                                  DATA BYTE ENTERED BY USER.            FOX25440
0023D4   C840 4000               2545           LHI    ZERO,X'4000'                                             FOX25450
0023D8   9141                    2546           SLHLS  ZERO,1                                                   FOX25460
0023DA   9564                    2547           EPSR   WORK,ZERO          PROCESSOR HALTS, ENTER DATA BYTE      FOX25470
0023DC   2208                    2548           BS     DISPLAY            INTO SWITCH REGISTER                  FOX25480
                                 2549  * HIT RUN FOR NEXT CHARACTER DISPLAY ON THE MODEL-1100 DISPLAY TERMINAL  FOX25490
                                 2550  *                                                                        FOX25500
         0000 23DD               2551  LNZB     EQU    *-1                LAST NON-ZERO BYTE                    FOX25510
```

```
                          *--------------------------------                                    FOX25530
                          * BUFFER & SAVE AREAS                                                FOX25540
                          *                                                                    FOX25550
00230E                    READBUF  DS      80                HEREIS INPUT BUFFER               FOX25560
00242E                    CMDBUF   DS      6                 COMMAND MODE SAVE BUFFER          FOX25570
002434                    CSAVE    DS      2                 LAST CHARACTER SAVE SPACE         FOX25580
                          *--------------------------------                                    FOX25590
                          *                                                                    FOX25600
002438                             ALIGN   8                                                   FOX25610
                          *                                                                    FOX25620
00243A                    PSWSAVE  DS      8                 PSW SAVE AREA                     FOX25630
002440                    ERRSAVE  DS      64                REG STORAGE FOR ERROR ROUTINES    FOX25640
002480                    IORSAVE  DS      64                I/O REGISTER SAVE AREA            FOX25650
0024C0                    RSAVE    DS      32                INTERRUPT REGISTER SAVE AREA(16-BIT) FOX25660
                          *                                                                    FOX25670
0024E0                             DS      64                REGISTER SAVE FOR 32-BIT WITH 2   FOX25680
                          *                                  REGISTER SETS OR 16-BIT WITH DFU  FOX25690
002520                             IFNZ    ADC-2                                               FOX25700
002520                             DS      416               (FOR 32-BIT WITH 8 REGISTER SETS) FOX25710
0026C0                             DS      64                (FOR 32-BIT DFU REGISTER SAVE)    FOX25720
002700                             ENDC                                                        FOX25730
```

CHKSUM/M17 PUNCHER

```
002700  2400                2575  $CHKSUM  LIS    R0,0            PUNCH M17 TAPE WITH CHECKSUM        FOX25750
002702  9510                2576           EPSR   R1,R0           SELECT REG. SET 0 & CLEAR PSW       FOX25760
                            2577  *                                                                  FOX25770
002704  E610 0A00           2578           LDAI   R1,ORIGIN       LOAD START ADDRESS                  FOX25780
002708  2421                2579           LIS    R2,1            LOAD INCREMENT VALUE                FOX25790
00270A  E630 23DD           2580           LDAI   R3,LNZB         LOAD FINAL ADDRESS                  FOX25800
00270E  2440                2581           LIS    R4,0            INITIALIZE CHKSUM BYTE              FOX25810
                            2582  *                                                                  FOX25820
002710  D351 0000           2583  $GEN     LB     R5,0(R1)                                            FOX25830
002714  0745                2584           XAR    R4,R5           CALCULATE CHKSUM BYTE               FOX25840
002716  C110 2710           2585           BXLE   R1,$GEN                                             FOX25850
00271A  D240 0099           2586           STB    R4,MN+3         CHECKSUM BYTE TO BOOT LOADER        FOX25860
                            2587  *                                                                  FOX25870
00271E  C810 0080           2588  $TAPE    LHI    R1,X'0080'                                          FOX25880
002722  9E21                2589           OCR    R2,R1           DISPLAY IN NORMAL MODE              FOX25890
002724  9444                2590           EXBR   R4,R4                                               FOX25900
002726  9824                2591           WHR    R2,R4           DISPLAY CHKSUM BYTE (TO D1)         FOX25910
002728  9411                2592           EXBR   R1,R1                                               FOX25920
00272A  9501                2593           EPSR   R0,R1           HALT PROCESSOR.                     FOX25930
                            2594  *                                                                  FOX25940
                            2595  ***************************************************************     FOX25950
                            2596  *                                                                  FOX25960
00272C  D360 007A           2597  $PUNCH   LB     R6,X'7A'        GET BOUTDV (PUNCH) ADDRESS.         FOX25970
002730  DE60 007B           2598           OC     R6,X'7B'        START TAPE PUNCH                    FOX25980
002734  9D60                2599           SSR    R6,R0                                               FOX25990
002736  2081                2600           BTBS   8,1                                                 FOX26000
002738  41F0 277A           2601           BAL    R15,$TAPL       PUNCH LEADER (256 CHARACTERS)       FOX26010
00273C  9411                2602           EXBR   R1,R1           (R1) = X'0080'                      FOX26020
00273E  C830 00CF           2603           LHI    R3,X'CF'                                            FOX26030
                            2604  *                                                                  FOX26040
002742  DA61 0000           2605  $PNCH1   WD     R6,0(R1)        PUNCH BOOT LOADER                   FOX26050
002746  9D60                2606           SSR    R6,R0                                               FOX26060
002748  2081                2607           BTBS   8,1                                                 FOX26070
00274A  C110 2742           2608           BXLE   R1,$PNCH1                                           FOX26080
00274E  41F0 2780           2609           BAL    R15,$TAPL1      PUNCH ONE-FOLD GAP.                 FOX26090
                            2610  *                                                                  FOX26100
002752  D340 0099           2611           LB     R4,MN+3         GET CHECKSUM BYTE                   FOX26110
002756  E610 0A00           2612           LDAI   R1,ORIGIN       (NORMALLY X'A00')                   FOX26120
00275A  E630 23DD           2613           LDAI   R3,LNZB                                             FOX26130
                            2614  *                                                                  FOX26140
00275E  D351 0000           2615  $PNCH2   LB     R5,0(R1)        PUNCH PROGRAM                       FOX26150
002762  0745                2616           XAR    R4,R5           (ORIGIN1 TO LNZB)                   FOX26160
002764  9A65                2617           WDR    R6,R5                                               FOX26170
002766  9401                2618           EXBR   R0,R1                                               FOX26180
002768  9820                2619           WHR    R2,R0           DISPLAY ADDRESS PUNCHED             FOX26190
00276A  9D60                2620           SSR    R6,R0                                               FOX26200
00276C  2081                2621           BTBS   8,1                                                 FOX26210
00276E  C110 275E           2622           BXLE   R1,$PNCH2                                           FOX26220
002772  41F0 277A           2623           BAL    R15,$TAPL       PUNCH TRAILER.                      FOX26230
002776  4300 271E           2624           B      $TAPE           DISPLAY CHECKSUM, HALT PROCESSOR.   FOX26240
                            2625  *                                                                  FOX26250
00277A  C800 0100           2626  $TAPL    LHI    R0,256          TO PUNCH BLANK LEADER               FOX26260
00277E  2303                2627           BS     $TAPLP                                              FOX26270
                            2628  *                                                                  FOX26280
```

```
                          *  CHKSUM/M17 PUNCHER (CONTINUED)                                   FOX26300
                          *                                                                   FOX26310
002780   C800 0080        $TAPL1   LHI    R0,128          TO PUNCH 1-FOLD GAP          ***   FOX26320
                          *                                                                   FOX26330
002784   2701             $TAPLP   SIS    R0,1                                                FOX26340
002786   032F                      BNPR   R15             RETURN                              FOX26350
002788   2430                      LIS    R3,0                                                FOX26360
00278A   9A63                      WDR    R6,R3           PUNCH BLANK FRAME                   FOX26370
00278C   9D68                      SSR    R6,R8                                               FOX26380
00278E   2081                      BTBS   8,1                                                 FOX26390
002790   2206                      BS     $TAPLP          CONTINUE.                           FOX26400
                          *                                                                   FOX26410
002792                             END                                                        FOX26420
```

NO ERRORS 0 SQUEZ PASSES

CAL 04-01

$CHKSUM	0000 2700													
$GEN	0000 2710	2585												
$PNCH1	0000 2742	2608												
$PNCH2	0000 275E	2622												
$PUNCH	0000 272C													
$TAPE	0000 271E	2624												
$TAPL	0000 277A	2601	2623											
$TAPL1	0000 2780	2609												
$TAPLP	0000 2784	2627	2640											
ABOVE	0000 0B50	334												
ABSTOP	0000 2792													
ADC	0000 0004	5	54	134	173	181	210	222	251	259	275	307	323	341
		1192	1676	1690	1913	2570								
ASCIDEV	0000 0C38	371												
ASCILOC	0000 0C54	388												
ASCIPSW	0000 0C4A	385												
ASCISTA	0000 0C40	375												
BADCHAR	0000 1D4B													
BADCP04	0000 1F0A	2076												
BADCPOS	0000 1F0E	2282	2322	2329	2341	2359								
BADINT	0000 1C0E	1796												
BADLPOS	0000 1EDA	2073	2280	2357										
BOOT	0000 0086	103												
BRKFLG	0000 1396	943	951	953	1477	1708	1744	1838	2211					
BRKMIC	0000 1926	1455	1490											
BRKMIC2	0000 193C	1485												
BRKOK	0000 1C86	1845	1859											
BRKOK1	0000 1CA0	1862												
BRKWT	0000 18D4	1393												
BRKWT1	0000 1904	1456	1476											
BRKWT2	0000 191E	1458	1468	1491										
BRKWTA1	0000 18FA	1461												
BRKWTA2	0000 1918	1471												
BRKWTA3	0000 18EA	1466												
BSTAT	0000 11C8	930	2186											
BSTAT1	0000 11EE	948												
BSTAT2	0000 11E4	950												
BSTAT3	0000 11FC	954	961											
BSTAT5	0000 11F6	958												
BSTAT6	0000 1226	980												
BSTAT8	0000 120E	971												
BSTAT9	0000 11FE	976												
BYTETAB	0000 13EA	610	898											
CHAR	0000 000B	495	497	499	500	504	505	508	510	512	514	521	548	551
		554	558	560	562	569	573	575	576	578	580	582	584	587
		596	597	603	608	610	614	618	620	635	636	648	649	658
		664	670	671	672	673	673	684	689	712	714	763	765	768
		770	771	771	791	822	824	826	828	868	879	880	881	883
		884	886	893	894	896	899	906	909	912	933	939	942	951
		962	969	979	979	1078	1082	1087	1116	1119	1120	1121	1122	1122
		1123	1125	1126	1309	1314	1316	1318	1321	1330	1332	1334	1366	1391
		1392	1397	1399	1403	1423	1435	1437	1438	1439	1439	1441	1442	1443

		1443 1445 1447 1454 1459 1467 1467 1482 1508 1519 1520 1522 1549
		1559 1562 1565 1584 1589 1590 1592 1608 1610 1612 1623 1625 1635
		1636 1650 1660 1662 1664 1683 1684 1685 1685 1686 1782 1791 1795
		1827 1831 1869 1874 1876 1938 2058 2060 2062 2074 2075 2077 2123
		2125 2131 2140 2141 2147 2149 2156 2163 2177 2189 2190 2192 2202
		2208 2210 2220 2223 2224 2226 2253 2256 2257 2265 2268 2270 2284
		2290 2296 2302 2309 2311 2323 2330 2342 2344 2360 2376 2379 2381
		2385 2393 2396 2398 2413 2425 2427 2428 2429 2438 2440 2450 2452
		2454 2516 2519 2520 2539 2542
CHARPOS	0000 1EAE	1957 1967 2034 2036 2047 2050
CLRSCRN	0000 1E8A	1510 1586 1618 1940 2255
CMD1	0000 0CE6	493
CMD2	0000 0CFC	488
CMDBUF	0000 242E	481 482 483 505 514 531
CMDERR	0000 0E9E	503 529 549 553 557 559 563 570 579 583 585 604 637
		650
CMDIN	0000 0CA0	300 317 1749 1774 1851
COMM	0000 061A	
COMM1	0000 0B22	339
CONTIN	0000 0C6A	742
COUNT	0000 000D	1517 1523 1524 1533 1588 1593 1594 1634 1635 1639 1640 1941 1950
		1952 1960 1970 1980 1990 2000 2010 2012 2014 2016 2018 2020 2022
		2072 2089 2125 2274 2276 2279 2287 2288 2293 2294 2318 2333 2351
		2353 2356 2363
CPOS	0000 1F70	2277 2319 2326 2338 2354
CPOS1	0000 1F74	2142
CSAVE	0000 2434	521 596 635 648
CURSCOLM	0000 13BC	2075 2106 2210 2281 2300 2306 2315 2321 2328 2334 2340 2348 2358
CURSLINE	0000 13BA	2072 2085 2192 2279 2288 2294 2356
CURSOR	0000 138C	466 639 703 705 713 723 739
CURSREAD	0000 1F8E	2071 2278 2286 2292 2298 2304 2313 2320 2327 2332 2339 2346 2355
CURSRED1	0000 1FA6	2160
CURSRED2	0000 1FAE	2159 2162 2171
CURSRED3	0000 1FCE	2173
CURSRED4	0000 1FD4	2175 2188
CURSRED5	0000 2008	2201
CURSRED6	0000 2030	2204
CURSRED7	0000 2034	2206
CURSRED8	0000 2044	
CURSRED9	0000 1FBE	2166
CURSREDB	0000 201E	2196
CURSREDC	0000 1FEA	2181
DAT	0000 0007	464 465 466 475 480 481 482 483 528 531 537 538 539
		539 540 599 600 612 613 614 615 616 624 625 657 661
		666 670 682 686 687 687 703 704 705 713 714 722 723
		724 738 739 742 752 762 768 769 788 790 796 797 799
		820 824 826 827 1006 1013 1014 1015 1016 1017 1018 1034 1035
		1041 1042 1043 1044 1045 1046 1047 1048 1054 1055 1056 1057 1058
		1059 1060 1392 1395 1397 1413 1422 1434 1437 1441 1445 1447 1709
		1710 1711 1778 1786 1793 1797 1802 1823 1825 1827 1832 1833 1838
		1843 1844 1844 1881 1896 1906 1908 1920 1921
DEBUG0	0000 19AE	
DEBUG1	0000 1AA2	
DELAY	0000 1BAE	
DELAYL	0000 1BB2	1769
DEV0	0000 0000	494 495 818 839 841 843 853 857 922 933 937 962 969

		970 1020 1025 1062 1365 1366 1379 1380 1391 1395 1425 1459 1460
		1469 1482 1483 1507 1508 1558 1559 1583 1584 1607 1608 1659 1660
		1717 1724 1737 1745 1756 1843 1853 1868 1869 1873 1874 1881 1885
		1904 1905 1937 1938 2129 2161 2174 2176 2177 2178 2189 2193 2202
		2205 2252 2253 2264 2265 2375 2376 2392 2393 2412 2413 2424 2425
		2449 2450 2473 2511 2512 2513 2515 2516 2517 2519
DEV1	0000 0001	477 485 651 817 821 840 841 870 879 937 939 1021 1025
		1367 1370 1398 1410 1422 1425 1427 1434 1509 1518 1551 1585 1600
		1617 1622 1652 1720 1740 1757 1831 1870 1878 1885 1887 1889 1896
		1897 1939 2129 2161 2165 2174 2205 2207 2254 2272 2383 2400 2414
		2437 2474 2475 2476 2533 2534 2535 2537 2540 2542
DEVINT	0000 0C1A	272 1710 1711
DEVMSG	0000 0C32	378 439 440
DEVSADR	0000 0C10	238 266 817 818 839 840 990 997 1020 1021 1697 1700 1793
		1797 2473 2474
DEFAULT	0000 FC00	449 599
DISPLAY	0000 23CC	2548
DU	0000 13C8	1294 2459 2462 2491
DUCOM	0000 2378	2485
DUEXEC	0000 2372	2481
DUMSG	0000 16FE	2472
DUPASS	0000 2318	490 847 862 875 927 973 1375 1385 1418 1430 1463 1473 1487
		1554 1603 1655 1856 1892 1900 2168 2183 2198
DUPASS1	0000 235A	2477
DURESTOR	0000 2382	2460
DURTN	0000 13C6	489 491 846 848 861 863 874 876 926 928 972 974 1374
		1376 1384 1386 1417 1419 1429 1431 1462 1464 1472 1474 1486 1488
		1553 1555 1602 1604 1654 1656 1855 1857 1891 1893 1899 1901 2167
		2169 2182 2184 2197 2199
DUSAVE	0000 13C4	2461 2492
DUSTAT	0000 13CA	2458 2494
DUTEST	0000 236A	
EBLRED	0000 13A1	1717 1737 1905
EBLWRT	0000 13A0	1016 1046 1058 1151 1757
ERR	0000 0B62	315
ERR07M1	0000 14B0	2086
ERR07M2	0000 14C2	2090
ERR08M1	0000 14E0	2107
ERR08M2	0000 14F2	2111
ERR9CHAR	0000 1630	2238
ERRALL	0000 0B78	298 1808
ERRDEV	0000 0C22	293 370 1802
ERRDS1	0000 0B96	362
ERRNO	0000 0C2E	292 306 322 758 800 1805
ERRNOMSG	0000 0C26	353 361 437 761 805
ERROR	0000 103A	981 1772 1849 1923 2093 2114 2234
ERROR0	0000 1752	751 756 796 1066 1924
ERROR09	0000 206C	2269 2289 2295 2301 2307 2316 2335 2349 2380 2397
ERROR1	0000 1754	
ERROR2	0000 1756	
ERROR3	0000 1758	982 1850
ERROR4	0000 175A	1089
ERROR5	0000 175C	1115
ERROR6	0000 175E	1773 1807
ERROR7	0000 1760	2094
ERROR8	0000 1762	2115

ERROR9	0000	1764	775	2235										
ERRORL	0000	0FE4	778											
ERRPL1	0000	0BBA	316	363										
ERRSAVE	0000	2440	349	354	357	364	2083	2097	2104	2118	2233	2240		
ERRSTA	0000	0C25	294	374	1803									
FIRSTF	0000	138E	1722	1742	1755	1782	1790							
FLAG	0000	0003	484	502	505	514	515	516	526	531	533	534	669	671	675
			679	684	691	1300	1336	1515	1520	1561	1564	1581	1590	1614	1615
			1615												
FSYNC1	0000	239E	2514											
FSYNC2	0000	23C6	2536											
GO	0000	0FA8	715											
GOBACK	0000	1038	1788	1841										
GOTCHAR	0000	002E	501											
HALT	0000	0A2C												
HERE80	0000	22A8	2420											
HEREIS	0000	0C82	2419											
HEXASC	0000	0BDC	372	376	386	389	759	801	2087	2091	2108	2112	2239	
HEXASC1	0000	0BE6	407											
HEXTAB	0000	13CC	403	673	684	771	1122	1125	1439	1443				
I1	0000	0B12	217											
IMPTOP	0000	0000I												
INCR	0000	13C0	851	1169	1411	2464								
INIT1	0000	12F6	1026	1036										
INIT2	0000	12FA	642	1049	1061									
INIT3	0000	12FE	1068											
INITAL	0000	1260	463	1297										
INPFLG	0000	1390	1706	1723	1743	1795								
INTDEV	0000	0C20	257	1778										
INTLVL	0000	0C18	280	993	1000									
INTPSW	0000	0C1E	256											
INTRPT	0000	1BC8	1709											
INTSTA	0000	0C24	258	1779										
IOKSAVE	0000	2480	787	802	816	830								
LAUC	0000	0002												
LAST	0000	0FBE	725											
LAST1	0000	0FD4	867											
LCORE	0000	0A2E	462	1296										
LCORE32	0000	0A74												
LCORE32A	0000	0A84	243											
LCOREXIT	0000	0A94	239											
LDWT	0000	00C8	132											
LEADER	0000	00A2	117											
LINK	0000	000F	248	298	315	352	355	360	365	372	376	377	386	389	390
			409	461	462	463	478	489	490	491	496	518	550	561	572
			607	617	629	642	655	701	702	744	745	746	759	760	788
			792	801	803	804	806	807	820	831	846	847	848	861	862
			863	869	874	875	876	914	926	927	928	944	965	972	973
			974	981	1001	1070	1079	1080	1081	1093	1107	1127	1128	1130	1293
			1294	1295	1296	1297	1298	1368	1374	1375	1376	1384	1385	1386	1417
			1418	1419	1429	1430	1431	1448	1462	1463	1464	1472	1473	1474	1486
			1487	1488	1510	1511	1513	1528	1531	1537	1553	1554	1555	1560	1586
			1596	1598	1602	1603	1604	1609	1618	1619	1654	1655	1656	1661	1682
			1686	1688	1689	1697	1698	1698	1699	1700	1701	1701	1702	1704	1713
			1733	1772	1808	1824	1828	1829	1830	1849	1855	1856	1857	1863	1866
			1867	1871	1875	1882	1891	1892	1893	1899	1900	1901	1923	1940	1942

		1944 1945 1946 1948 1953 1957 1961 1967 1971 1977 1981 1987 1991
		1997 2001 2007 2031 2034 2036 2039 2040 2043 2047 2050 2053 2054
		2057 2064 2065 2066 2069 2070 2071 2079 2080 2087 2091 2093 2095
		2108 2112 2114 2116 2122 2133 2134 2146 2151 2152 2155 2167 2168
		2169 2182 2183 2184 2197 2198 2199 2212 2213 2234 2239 2241 2255
		2258 2260 2262 2267 2275 2277 2278 2286 2292 2298 2304 2313 2319
		2320 2326 2327 2332 2338 2339 2346 2352 2354 2355 2362 2364 2365
		2367 2369 2371 2373 2378 2387 2388 2390 2395 2415 2426 2435 2443
		2445 2447 2451 2461 2462 2478 2480 2483 2487 2490 2491 2492 2495
LNZB	0000 23D0	107 2580 2613
LOAD	0000 00AC	126
LOOKUP	0000 0D66	535
LPOS	0000 1F3E	1942 1953 1961 1971 1981 1991 2001 2275 2352 2364
LPOS2	0000 1F60	2128 2130
MASK	0000 FE00	625 724
MBRSET	0000 13C1	
MICBUS	0000 12D4	1031
MM	0000 0B34	219
MM32	0000 0B44	
MN	0000 0096	2586 2611
MSG0	0000 13FA	656 1449 1529 1538 1597 2366 2444
MSG0.5	0000 13FC	1532 2368 2436
MSG1	0000 13FE	1299
MSG10	0000 1510	1129
MSG11	0000 1522	1732
MSG12	0000 1534	747
MSG15	0000 1544	2259
MSG16	0000 157C	1864
MSG17	0000 1588	1369
MSG18	0000 15A4	1514
MSG19	0000 15AE	1620
MSG2	0000 1438	1712 1908 1921
MSG20	0000 15BA	1705
MSG21	0000 15C6	2416
MSG22	0000 1676	1599 1872 2261 2372 2446
MSG23	0000 15E6	2448
MSG24	0000 15F4	2263 2374 2391
MSG26	0000 1604	2370
MSG27	0000 1624	2242
MSG28	0000 1656	2389
MSG3	0000 144C	1949
MSG30	0000 168A	1512
MSG32	0000 16DC	2479
MSG33	0000 16EC	2488
MSG34	0000 16F6	1243 2484
MSG4	0000 149C	2096
MSG40	0000 1702	2077
MSG5	0000 14C8	2117
MSG6	0000 14F8	479
MSG7	0000 14FC	630
MSG8	0000 1500	1094
MULCAR	0000 0C7A	591 2224
MULOUT	0000 204A	2285 2291 2297 2303 2310 2324 2343 2361 2386
MULOUT1	0000 204E	2059 2061 2124 2148 2157
NEREAD	0000 13A5	
NOINT	0000 1BBE	

NOMSG	0000 0C5A	528	556	560	652	791	1090	1116					
NORM	0000 13A4	856	1154	1414	2469	2510	2532						
NTRUPT	0000 1BEE	1781	1783	1785									
NXTERR	0000 102C	753											
NXTINT	0000 1BA8	1787	1821	1834									
OKIN	0000 0D56	509	511										
OKIN1	0000 0D5C	525	532										
OKIN2	0000 0D66	523											
OKINP	0000 1CD6	1837											
OKINP1	0000 1D30	1922											
OKINP2	0000 1CEA	1883											
OKINP3	0000 1D24	1884	1886										
OKOUT	0000 1C3E	1816											
OLOC	0000 0C0E	264	312	331	387								
ONE	0000 0005	247	474	486	638	639	643	644	680	681	682	686	692 693
		693	695	706	707	789	790	819	851	852	855	856	858 871
		923	953	1005	1019	1088	1089	1114	1115	1336	1371	1381	1411 1412
		1413	1414	1477	1645	1723	1743	1744	1753	1766	1768	1790	1806 1807
		2026	2179	2194	2509	2510	2520	2531	2532	2539			
OPSW	0000 0C0A	263	311	330	384								
OPSW32	0000 0C08	1917											
OPTIN	0000 0CB6	513	564	592	601	626	631	645	654	708	776	984	1338 1728
		1613											
OPTION	0000 0C8A	653											
ORIGIN	0000 0A00	106	2578	2612									
OUTCHR	0000 10B0	659	665	674	685	690	764	766	772	823	825	1310	1315 1317
		1319	1322	1331	1333	1335	1436	1440	1444	1521	1550	1591	1624 1626
		1638	1651	2063	2078	2126	2132	2150	2164	2225	2227	2312	2331 2345
		2439											
OUTCHR1	0000 10EC	865											
OUTCHR2	0000 1110	842	850	887									
OUTCHR3	0000 1116	878											
OUTCHR4	0000 10D2	845											
OUTCHR5	0000 1102	860											
OUTCHR6	0000 112E	873											
OUTFLG	0000 1392	1707	1718	1738	1753	1786	1791						
OUTMRK	0000 117E	903											
OUTODD	0000 1172												
OUTOK	0000 1182	905	907	910									
OUTP1	0000 1094	829											
OUTPUT	0000 1078	352	360	377	390	478	629	655	746	760	804	1093	1128 1298
		1368	1448	1511	1513	1528	1531	1537	1596	1598	1619	1704	1863 1871
		1948	2095	2116	2241	2258	2260	2262	2365	2367	2369	2371	2373 2388
		2390	2415	2435	2443	2445	2447	2478	2483	2487			
OUTSPA	0000 1178	901											
PALSPD	0000 0A08	165											
PARCHK	0000 130C	941	1446										
PARGEN	0000 1150	869	1080	1829									
PARITY	0000 0C72	556	900										
PARNG	0000 1322												
PASFLG	0000 0A0A	934	1030	1423	1454	1882	2127	2158	2172	2203			
PASLA	0000 139A	1019	1040	1053									
POINT	0000 000C	520	522	524	528	530	536	537	556	560	568	586	587 590
		591	652	653	658	660	663	666	667	719	720	721	730 731
		731	732	733	733	734	751	752	755	762	775	777	1400 1401
		1405	1406	1712	1721	1732	1741	1825	1826	1907	1908	1910	1921

PSW1	0000 0A0C	1688	1758											
PSW2	0000 0A0E	701	728	1866										
PSWMSG	0000 0C44	391	442	443										
PSWRTN	0000 0B60	1682												
PSWSAVE	0000 2438	104												
PURETOP	0000 0000P													
R0	0000 0000	202	203	207	209	215	263	283	286	295	313	314	335	336
		337	344	349	351	354	357	359	364	369	373	383	396	397
		408	754	787	798	802	816	830	1098	1106	2083	2084	2097	2104
		2105	2118	2233	2236	2240	2463	2464	2466	2468	2469	2575	2576	2593
		2599	2606	2618	2619	2620	2626	2632	2634					
R1	0000 0001	106	118	119	121	126	182	184	190	199	203	204	205	207
		208	215	216	236	238	242	264	282	283	350	351	358	359
		370	374	384	387	400	755	756	757	799	2085	2089	2106	2110
		2237	2465	2466	2467	2468	2470	2471	2472	2576	2578	2583	2585	2588
		2589	2592	2592	2593	2602	2602	2605	2608	2612	2615	2618	2622	
R10	0000 000A	255	255	256	277	278	280							
R11	0000 000B													
R12	0000 000C													
R13	0000 000D													
R14	0000 000E	311	324	330										
R15	0000 000F	312	325	331	2601	2609	2623	2635						
R2	0000 0002	102	122	128	183	185	189	191	200	238	240	240	241	257
		268	293	297	305	306	314	321	322	337	371	375	385	388
		404	405	758	800	2086	2090	2107	2111	2238	2579	2589	2591	2619
R3	0000 0003	107	108	109	201	206	213	217	218	237	241	258	294	296
		297	397	398	399	401	406	1962	1966	1968	1972	1982	1992	2002
		2033	2038	2046	2052	2580	2603	2613	2636	2637				
R4	0000 0004	111	112	113	115	123	125	219	220	221	233	234	235	400
		401	402	403	403	404	1963	1973	1983	1993	2003	2581	2584	2586
		2590	2590	2591	2611	2616								
R5	0000 0005	113	115	116	116	118	119	120	123	125	131	265	266	270
		272	276	280	332	333	1964	1974	1984	1994	2004	2583	2584	2615
		2616	2617											
R6	0000 0006	110	120	127	127	128	266	268	272	274	279	291	292	1943
		1954	1958	1965	1966	2033	2035	2045	2046	2048	2049	2074	2077	2102
		2110	2140	2144	2276	2281	2299	2300	2305	2306	2314	2315	2318	2321
		2325	2328	2333	2334	2337	2340	2347	2348	2353	2358	2417	2428	2431
		2432	2434	2438	2442	2597	2598	2599	2605	2606	2617	2620	2637	2638
R7	0000 0007	129	130	131	1955	1975	1985	1995	2005	2035	2037	2049	2051	2418
R8	0000 0008	121	122	1956	1976	1986	1996	2006	2037	2051	2419	2421	2423	2432
		2433	2638											
R9	0000 0009													
RCHAR	0000 13C2	854												
RDCHAR	0000 0D08	506	517											
RDCHAR1	0000 0D16	498												
READ	0000 1184	496	518	550	561	572	607	617	932	952	957	1560	1609	1661
		1875	2267	2378	2395	2426	2451							
READ0	0000 11B8	935												
READ1	0000 11BA	936	938	978										
READ5	0000 119A	925												
READ6	0000 22AC	2422												
READ60	0000 22B2	2431												
READ61	0000 22C8	2430												
READ62	0000 22EA	2441												
READ63	0000 2302	2456												

READBUF	0000	23DE	2428	2438										
RECADR	0000	0A04	987	1683	2511									
RECHK	0000	1D3E	1909											
RET	0000	000E	316	362	363	379	392	605	627	2059	2061	2124	2148	2157	2222
			2228	2229	2285	2291	2297	2303	2310	2324	2343	2361	2386		
RET2	0000	0002	659	665	674	685	690	764	766	772	823	825	882	885	941
			964	1083	1091	1095	1117	1131	1310	1315	1317	1319	1322	1331	1333
			1335	1436	1440	1444	1446	1521	1550	1591	1624	1626	1638	1651	1820
			1840	2063	2078	2126	2132	2150	2164	2225	2227	2312	2331	2345	2439
RETURN	0000	13BE	803	806											
RQ2S	0000	13A2	1018	1035	1048	1060	1724	1745							
RSAVE	0000	24C0	105	221	286	295	396	408	1098	1106					
RUN	0000	0C92	475	644	745	983	1069	1812	2480						
SECOND	0000	0A09	1062	2513	2535										
SELOOP	0000	0F8A	726												
SETUP	0000	122E	461	1295											
SNDADR	0000	0A06	994	2533											
SS1	0000	23A6	2521												
START	0000	1766	189												
START1	0000	0A10	136												
STAT	0000	0009	485	486	487	492	702	843	844	849	852	853	854	855	857
			858	859	864	866	870	871	872	877	894	895	896	897	898
			898	899	900	902	904	922	923	924	929	931	934	947	949
			956	960	970	975	977	1064	1065	1066	1067	1090	1119	1124	1125
			1370	1371	1372	1377	1380	1381	1382	1387	1389	1410	1412	1415	1420
			1427	1432	1457	1460	1465	1469	1470	1475	1483	1484	1489	1551	1556
			1600	1605	1652	1657	1689	1696	1699	1702	1779	1780	1784	1803	1815
			1815	1836	1836	1853	1858	1867	1889	1894	1897	1902	2127	2158	2165
			2170	2172	2178	2179	2180	2185	2187	2193	2194	2195	2200	2203	2458
			2459	2476	2494	2517	2540								
STATER	0000	1352	964	1820	1840										
STATMSG	0000	151C	1123	1126											
STRTUT	0000	1894	1713	1733											
T3END	0000	1CAA													
T3END1	0000	1CC6	1877												
T4CPOS	0000	1F66	1944	2070											
TAB	0000	0008	1307	1309	1311	1312	1321	1323	1324	1516	1526	1534	1535	1539	1540
			1587	1621	1627	1628	1633	1645							
TALLY	0000	101A	774												
TCMDERR	0000	0E9A	609	611	621										
TEMP	0000	13A6	868	880	1079	1081									
TEMP0	0000	13A8	1078	1082	1087										
TEMP1	0000	13AA	2031	2039	2043	2053									
TEMP2	0000	13AC	1127	1130											
TEMP3	0000	13AE	2069	2079											
TEMP4	0000	13B0	2057	2065	2122	2133	2146	2151	2155	2212					
TEMP5	0000	13B2	2223	2226											
TEMP6	0000	13B4	2220	2237	2257										
TEMP7	0000	13B6	2141	2144	2149										
TEMP8	0000	13B8	2222	2228											
TEST	0000	0C62	600	605	606	615	616	624	627	667	712				
TEST00	0000	17D2	1177												
TEST01	0000	1946	1177												
TEST02	0000	19F2	1177	1663											
TEST03	0000	1ADE	1177	1925											
TEST04	0000	1D52	1178												

TEST05	0000 2092	1178											
TEST06	0000 2288	1178	2455										
TEST0A	0000 196A	1544	1548										
TEST0B	0000 19D4	1566											
TEST0C	0000 1962	1563											
TEST0D	0000 1970	1525											
TEST0E	0000 198E	1527											
TEST0F	0000 1994	1530											
TEST0G	0000 19A6	1536											
TEST0H	0000 19B8	1557											
TEST1A	0000 1A74	1629											
TEST1C	0000 1A8C	1641											
TEST1D	0000 1A8A	1649											
TEST1E	0000 1AC8	1665											
TEST1F	0000 1A98	1637											
TEST2A	0000 1A28	1606											
TEST2AA	0000 1A38	1601											
TEST2AB	0000 1ABC	1653											
TEST2B	0000 1AAC	1658											
TEST2G	0000 1A0C	1595											
TEST2H	0000 1A44	1613											
TEST2I	0000 19F4	1616											
TEST3AA	0000 1C96	1854											
TEST3AB	0000 1CFE	1890											
TEST3AC	0000 1CEE	1895											
TEST3AD	0000 1D06	1903											
TEST3AE	0000 1D16	1898											
TESTA0	0000 1780	1337											
TESTA1	0000 1782	1313											
TESTA2	0000 17A4	1325											
TESTB0	0000 17E2	1378	1450										
TESTB1	0000 1802	1388											
TESTB10	0000 1874	1416											
TESTB11	0000 1898	1428											
TESTB12	0000 1888	1433											
TESTB2	0000 182E	1390											
TESTB203	0000 19C8	1552											
TESTB3	0000 183C	1407											
TESTB4	0000 1854	1404	1421										
TESTB5	0000 18A0	1408	1424	1426									
TESTB8	0000 17F8	1373											
TESTB9	0000 1818	1383											
TESTNO	0000 138A	467	641	707	719	721	730	741	2470				
TESTOUT	0000 0F34	668											
TESTOUT1	0000 0F3C	694											
TESTOUT2	0000 0F58	683											
TESTOUT3	0000 0F62	688											
TIME	0000 1398	1766	1768										
TINP	0000 1C00	1792											
TME1	0000 1342	1105											
TME2	0000 1344	1103											
TMER	0000 133A	2064	2362	2387									
TREAD	0000 139D	494	1365	1379	1507	1558	1583	1607	1659	1756	1868	1873	1904	1937
		2252	2264	2375	2392	2412	2424	2449	2515				
TREADB	0000 139F	2176											
TRY1	0000 2388												

TEST05	0000 2092	1178											
TEST06	0000 2288	1178	2455										
TEST0A	0000 196A	1544	1548										
TEST0B	0000 19D4	1566											
TEST0C	0000 1962	1563											
TEST0D	0000 1970	1525											
TEST0E	0000 198E	1527											
TEST0F	0000 1994	1530											
TEST0G	0000 19A6	1536											
TEST0H	0000 19B8	1557											
TEST1A	0000 1A74	1629											
TEST1C	0000 1A8C	1641											
TEST1D	0000 1A8A	1649											
TEST1E	0000 1AC6	1665											
TEST1F	0000 1A98	1637											
TEST2A	0000 1A28	1606											
TEST2AA	0000 1A38	1601											
TEST2AB	0000 1ABC	1653											
TEST2B	0000 1AAC	1658											
TEST2G	0000 1A0C	1595											
TEST2H	0000 1A44	1613											
TEST2I	0000 19F4	1616											
TEST3AA	0000 1C96	1854											
TEST3AB	0000 1CFE	1890											
TEST3AC	0000 1CEE	1895											
TEST3AD	0000 1D06	1903											
TEST3AE	0000 1D16	1898											
TESTA0	0000 1780	1337											
TESTA1	0000 1782	1313											
TESTA2	0000 17A4	1325											
TESTB0	0000 17E2	1378	1450										
TESTB1	0000 1802	1388											
TESTB10	0000 1874	1416											
TESTB11	0000 1898	1428											
TESTB12	0000 1888	1433											
TESTB2	0000 182E	1390											
TESTB203	0000 19C8	1552											
TESTB3	0000 183C	1407											
TESTB4	0000 1854	1404	1421										
TESTB5	0000 18A0	1408	1424	1426									
TESTB8	0000 17F8	1373											
TESTB9	0000 1818	1383											
TESTNO	0000 138A	467	641	707	719	721	730	741	2470				
TESTOUT	0000 0F34	668											
TESTOUT1	0000 0F3C	694											
TESTOUT2	0000 0F58	683											
TESTOUT3	0000 0F62	688											
TIME	0000 1398	1766	1768										
TINP	0000 1C00	1792											
TME1	0000 1342	1105											
TME2	0000 1344	1103											
TMER	0000 133A	2064	2362	2387									
TREAD	0000 139D	494	1365	1379	1507	1558	1583	1607	1659	1756	1868	1873	1904 1937
		2252	2264	2375	2392	2412	2424	2449	2515				
TREADB	0000 139F	2176											
TRY1	0000 2388												

TRY2	0000	2380												
TRYIN	0000	1C62	1798											
TRYOUT	0000	1C32	1794											
TST03A	0000	1B5E	1911											
TST4A	0000	1D80	2013	2017										
TST4A0	0000	1D72	1947											
TST4B	0000	1D8E	1958											
TST4C	0000	1D96	2019											
TST4D	0000	1DA4	1968											
TST4E	0000	1DB2												
TST4F	0000	1DCA												
TST4G	0000	1DE4												
TST4H	0000	1DFC	2023											
TST4I	0000	1E20	2011											
TST4J	0000	1E2E	2015											
TST4K	0000	1E36												
TST4Z	0000	1E42	2021	2095	2119									
TST5A	0000	20C0	2271											
TST5B	0000	20D6												
TST5C	0000	20F8												
TST5D	0000	2124												
TST5E	0000	2150												
TST5F	0000	216E												
TST5G	0000	21B0												
TST5H	0000	21E2												
TST5I	0000	223A	2382											
TST5K	0000	2250												
TST5L	0000	226E	2399											
TST5Z	0000	2284	2243											
TSTB2A	0000	1830	1394											
TSTBRK	0000	1C76	1839											
TSTEXT	0000	0F66	1478	1567	1611	1666	1879	2027	2191	2209	2402	2453		
TSTSEL	0000	0F82	476	743										
TSTSUB4A	0000	1E4A	1977	1987	1997									
TSTSUB4B	0000	1E4E	2038											
TSTSUB4C	0000	1E66	2007											
TSTSUB4D	0000	1E6A	2052											
TSTTAB	0000	130C	610	733										
TTY	0000	12AC	1033											
TWRT	0000	139C	477	651	821	1013	1042	1055	1147	1367	1398	1509	1518	1585	1617
			1622	1720	1740	1870	1878	1887	1939	2207	2254	2272	2383	2400	2414
			2437	2475	2537										
TWRTB	0000	139E	1014	1044	1056	1149									
TYPE1	0000	0D9E	542	542	542	543									
TYPE11	0000	0DCA	552	555											
TYPE2	0000	0DDE	543												
TYPE2A	0000	0DE8	588												
TYPE2B	0000	0E1A	577	581											
TYPE2C	0000	0E22	574												
TYPE3	0000	0E2E	542												
TYPE31	0000	0E8E	619												
TYPE3A	0000	0E44	598												
TYPE3L	0000	0E54	622												
TYPE4	0000	0EA8	543												
TYPE5	0000	0ECE	543												
TYPE5A	0000	0EF2	662												

TYPE5B	0000 0EE2	677	696											
TYPE5C	0000 0F1A	676												
TYPTAB	0000 0D8E	539												
WAIT	0000 1394	1719	1739	1754	1823	1833								
WORK	0000 0006	471	472	728	729	987	988	989	990	994	995	996	997	1030
		1032	1099	1104	1401	1402	1403	1725	1726	1727	1746	1747	1748	1758
		1759	1770	1771	1804	1805	1828	1830	1860	1861	2508	2530	2547	
WORK2	0000 000A	472	729	767	773	988	991	992	993	995	998	999	1000	1100
		1102	1727	1748	1759	1771								
WRITE6	0000 22D6	2442												
XI1	0000 0AB2	271												
XI2	0000 0AC2	269												
XI3	0000 0AE8													
XI32	0000 0A9A	237	1696											
XI32A	0000 0AA8													
XI4	0000 0AEC	284	288											
XIERR	0000 0AF0	209	267	273	281									
XIEXIT	0000 0AEE	274												
ZERO	0000 0004	246	467	473	606	640	641	740	741	943	983	1004	1040	1053
		1066	1069	1706	1707	1708	1718	1719	1722	1738	1739	1742	1754	1755
		1811	1812	1916	2025	2211	2507	2508	2529	2530	2545	2546	2547	
ZERO1	0000 0A38	204												
ZERO2	0000 0A48	208												
ZERO3	0000 0A58	216												