

LA36

TERM TEST
CZLAFAO

AH-E100A-MC

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FICHE 1 OF 1

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MADE IN USA

Product code: AC-EG99A-MC
Product Name: CZLAFAD LA36 TERM TST
Date Created: MARCH 1978
Maintainer: DIAGNOSTIC ENGINEERING
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1.0 ABSTRACT

This diagnostic will functionally test the hardware options on the LA36 terminal.

Up to 48 terminals, including the console device, can be tested at a time. All terminals under test must be interfaced thru a DL11 type interface.

Control of this diagnostic may be thru a switch register, or via interactive console terminal commands.

1.1 Functional Description

The program will first determine if the system has a hardware switch register. If none available a software switch register at loc 176 will be assigned.

The program will then determine what device interfaces are on the system, at the standard DL11-A,B,C,D,E address and the interrupt vector of each interface present. This information will then be stored in a table.

The program will then ask the operator if he/she wants to use console control. If the response is "no" the program will halt and wait for the operator to enter control information thru the switch register.

Note : If no hardware switch register is present control is forced to console control.

If console control is selected a menu of available commands will be printed on the console terminal, and the program will wait for commands via the console.

2.0 REQUIREMENTS

2.1 EQUIPMENT

This diagnostic was written to run on all models of the PDP-11 computer, including the LSI-11. One to forty eight LA36 terminals, connected thru a single line asynchronous interface (DL11-A thru E, DL11-W, DLV11), may be tested. 8K of memory is required.

A hardware switch register is supported, but not required.

2.2 OPTIONS

The following options are tested by this diagnostic:

ASCII/APL character set.
Selective Addressing Option.
Auto-Answerback Option.
Top-of-form Option.
Horizontal & Vertical Tab Option.

2.3 RELATED PROGRAMS

Although some error checking is done, this diagnostic does not functionally test the basic LA36 terminal, nor the terminals interface.

Therefore the basic LA36 terminal diagnostic, MDEC-11-DZLAC-*, and the DL11-*/DLV-11 interface test should be successfully run prior to this diagnostic. Also any other applicable processor/memory tests.

3.0 LOADING & INITIALIZATION

This diagnostic may be loaded using the standard procedures for paper tape, or via XXDP media. This diagnostic will not run in chained mode because manual intervention is required. The absolute loader area is preserved.

This diagnostic self sizes the system as far as the interfaces, and their interrupt vectors. The only operator modifications to be made are:

1. the location 'TIMER' which is a CPU dependent TIME constant.
See listing of DELAYM Routine.

```
TIMER: .WORD 554      ;SET FOR 11/35 - 11/40
                      ;SET TO 202 IF 11/03
                      ;251 11/05 - 11/10
                      ;314 11/15 - 11/20
                      ;2127 11/45 BIPOLAR - 11/55
                      ;1237 11/45 - MOS - 11/70
                      ;755 11/45
DELAYT: .WORD 0      ;DELAY TIME BUFFER
```

2. any of the preset device address to accomodate a non-standard interface address. (See Sect 7.0 for details)
3. location 'WIDTH' if other than 132 COL PAPER is being used.
(See section 4.3). (Common for all terminals)

The initial starting address is 200(B), and all restarts at 1372.

4.0 CONTROL & TEST SELECTION

The diagnostic will ask (via the console) if console control is desired. Answer 'Y' if you want to use interactive commands, otherwise type 'N' for switch register control.

If 'Y' is typed a menu of available commands is printed on the console, and the program will wait for command input. If 'N' is typed the program will print a listing of the line (interface) table, then halt for the operator to set the switches to the desired parameters.

4.1 SWITCH REGISTER CONTROL

When SWITCH REGISTER CONTROL is selected the program will halt. Set the switches to the desired mode, then press continue. The program will check the entry and if a specific test is to be run, or a specific line is to be tested the program will halt again. Enter the desired line/test data in the switches, then press continue. To change parameters the test must be restarted at loc 1372.

ALL of the switch functions are also available under console control mode. (See sect. 4.2,4.3).

SWITCH REGISTER BIT DEFINITIONS FIRST WORD MODE SELECTION

BIT15	=1 (UP) =0 (DOWN)	HALT ON ERROR CONTINUE AFTER REPORT
BIT14	=1 (UP) =0 (DOWN)	LOOP AFTER ERROR IS DETECTED DON'T LOOP
BIT13	=1 (UP) =0 (DOWN)	INHIBIT ERROR REPORTS PRINT ERROR REPORTS
BIT12	=1 (UP) =0 (DOWN)	PRINT INTERFACE TABLE DON'T PRINT TABLE
BIT11	=1 (UP) =0 (DOWN)	INHIBIT ITERATIONS NORMAL RUN.
BIT6	=1 (UP) =0 (DOWN)	RUN ALL TESTS IN SEQUENCE RUN SELECTED TEST ONLY
BIT5	=1 (UP) =0 (DOWN)	RUN ALL AVAILABLE LINES RUN SINGLE LINE ONLY

SECOND WORD LINE AND TEST NO.

BIT15 - BIT8	SELECTED LINE NUMBER (00-57)
BIT7 - BIT0	SELECTED TEST NUMBER (0-5)

4.2 CONSOLE CONTROL

When console control is selected a menu of available commands is typed on the console terminal. The program will wait for commands to be entered thru the keyboard.

Enter one command per line, followed by a carriage return. To terminate command input and start execution type an ALTmode or ESCape.

To regain control once execution has begun type a CTL-C. The program will respond with 'READY'. You can now enter the desired

commands just as in startup.

4.3 COMMANDS

There are two types of commands available, interactive commands; and static commands.

ALL static commands can only be entered while in "Command Mode", that is during startup after 'READY' is printed on the console, or after the operator has invoked command mode by typing a CTL-C and the program has printed 'READY'.

Interactive commands can be entered at any time, and are essentially the same as the switch register bits 15,14,13.

The available Commands are:

- S (STATIC) Single Line Mode. Test a single device. Line 00 is default. Use add command to select the desired line.
- M (STATIC) Multi Line Mode. Test all lines present and not deselected.
- Q (STATIC) Sequence thru all tests, starting with test 0.
- Rn (STATIC) Run test N.
- Dn (STATIC) Deselect or Drop from testing interface line N. (see T command)
- An (STATIC) Add line N. Clear out the error count for line N, and reselect the line for testing. In single line mode sets N as current line to test.
- T (STATIC) Type out a listing of the interface lines present on the system, the vector address at which the device interrupts, and whether or not the line is selected.
- Wn (STATIC) Changes location 'Width' to N. Used to control output of terminal tests. Enter N as an Octal number 32 to 204. (132 decimal)
- CTL-L (interactive) Loop on error. If an error is detected the program will start looping on the test section which caused the error, and continue to loop until a Klear command is issued.
In command mode type an L.

- CTL-H (interactive) Halt on error. Will cause the program to halt after the error message is printed. (assuming error printouts are enabled).
In command mode type an H.
- CTL-K (interactive) Klear - resets both the H and L commands (Don't halt, Don't loop).
In command mode type a C.
- CTL-N (interactive) NO Error reports. Inhibits the printing of normal error messages.
In command mode type an N.
- CTL-P (interactive) Print error reports. ALL report messages will be printed on the console.
In command mode type a P.
- CTL-G (interactive) Will cause the program PCFLAGS to be displayed on the console for trouble shooting purposes. See listing for bit definitions.
- ESC Exit command mode & start execution of the diagnostic test(s).
- CTL-C Returns test to command mode.
All operations in progress stop.

4.4 EXAMPLES & HINTS

Test numbers 0 thru 5 may be selected to run individually on all, or any terminal.

ALL tests can be run sequentially on all or any terminal.

Tests can be run sequentially on a terminal, but there is little chance that any terminal will have more than one or two of these options installed. Sequencing all tests will probably result in numerous errors from trying to test non-existent options.

If a line gets more than 16 errors it will be deselected by the program and a message will be printed on the console. If the line is the only one being tested it will automatically be re-selected.

Example 1. the commands to select test #4 to be run on all lines.

```
READY
R04(CR) - Run test 4
M(CR)   - Multi line mode
W120(CR) - Set paper width to 120
$        - ESC - echoed as $
```


Example 2. the commands to run all tests on line no. 06, with Halt on error set.

```
READY
Q(CR)    - Sequence tests
S(CR)    - Single line mode.
ADD(CR)  - Add line #06
H(CR)    - Halt on error
$        - ESC - echoed as $.
```

EXAMPLE 3. How do I run tests on 10 out of 12 terminals.

First you must be in command mode. If a test is running type CTL-C. The program will respond with "Ready". Now type D nn (cr) to deselect line number nn. Repeat for each additional line to be dropped from the tests. Now select your test other parameters as in Example 1.

EXAMPLE 4. How do I restart a device which has been deselected?

In command mode type Ann (cr) where nn is the line number of the line to be added.

EXAMPLE 5. How do I loop on error.

If the test is running type a CTL-L. When an error is detected the program will start to loop on the test or subtest and continue to loop until a CTL-K or CTL-C command is issued.

If in command mode type L (CR).

EXAMPLE 6. Can I set the 'width' constant different for each terminal?

The constant 'width' is the same for all terminals, although it may be changed any time you are in command mode.

5.0 SCOPE OF TESTS.

This diagnostic will functionally test the following hardware options of the LA36.

1. Secondary character set option APL/ASCII character set selection
2. Selective addressing option
3. Auto-answer back option
4. Top of forms option

5. - Horizontal and Vertical tabulation option.

The diagnostic will do cursory testing of the basic interface, and basic LA36 logic. It is assumed that the basic interface, CPU/memory, and LA36 tests have been run successfully.

Due to the nature of the hardware under test most error checking will be by visual inspection of the terminal output by the operator.

Description Of Tests

5.1 Test 0 Secondary Character Set.

This test is an output only test. No terminal feed back is received.

The test prints on each terminal alternating lines of ASCII character set, and APL character set.

Output of characters per line will consist of char codes 40 thru 176 unless the paper width limit is reached first.

Output format:

PRIMARY----(ASCII CHARACTER SET)
SECONDARY--(APL CHARACTER SET)

This output is controlled by the "width" of the paper. See W command description.

5.2 Test 1 Selective Addressing Option

This test will alternately send out a select code, followed by it's ASCII Equivalent, for all possible select codes (20 thru 177).

This test will also deslect all terminals and try to output a "this should not print" message. "All terminals should be off"

This test will also try to print "this should not print" messages after transmitting 'NUL' select character sequences, and no select codes sequences.

Valid terminal output should be: Select Recognized = /NN(Group Select Code) /NN(Individual Select Code)/

Where NN represents the select codes recognized by this terminal. If the group select code and individual select codes are set to the same thing them only one /NN/ should appear.

More than two /nn/ codes printed indicates a logic failure in the decoder section of the option, or possibly interface to terminal line problems.

Any of the "this should not print" message that appear on the terminal indicate a failure of the selection logic.

5.3 Test 2 Auto Answer Back Option

This test is divided into six subtests:

Subtest -1

The first subtest is actually a sizing routine. The terminal should respond to its unique selection code with an answerback when polled. This test has no way of knowing what the answer back is, nor any way of 'pre-selecting' its unique selection code. Therefore subtest -1 will try all legal selection codes to see if it can cause an answer back to be transmitted. If one is received the program will store the select code associated with the response in the line table for future testing.

Subtest -2

Will see if any answer back has been received, and check its length, the message should not exceed 20 (10) characters. Subtest 2 will print the ASCII message on the terminal, and an octal representation of the characters (to verify non printables are being transmitted correctly, and as a trouble shooting aid if bad data is being sent out from the switches).

Subtest -3

Will read the answer back ten times to verify reliability of the data, and lines.

Subtest -4

Will try to cause transmission of the answer back in response to a broadcast code.

Single Line Mode - Subtests 5, and 6.

Subtest -5

The test will request the operator to press the 'Here-is' key, then check for answerback.

Subtest -6

The test will request the operator to type 'CTL-E', then check for answer back.

The operator must verify that the message echoed back to the terminal is correct, by comparing it to the data switch configuration.

5.4 Test 3 Top Of Forms Option

This test is divided into two subtests, one for multi line mode, the other for single line mode. Operator intervention will be required for the single line test.

1. Multi line mode.

This subtest will assume a standard form of 11 inches being used.

The test will issue a form feed, then print a line of dashes. This FF/dashes is repeated 3 times.

The operator should verify correct operation by checking for a line of dashes at the same place on each page.

2. In single line mode, This test will require the operator to set the forms length switch to the value requested. The test will then do three form feeds at each length setting.

5.5 Test 4 Horizontal Tab Option

This test will adjust it's output to conform to the paper width. Change location "width" to the appropriate value before starting test. (Preset to 132 col.) Note: see W command description.

The test will print a reference line for visual verification. The line will look like this:V.....V.....V.....V.....

Tabs will then be set corresponding to the location of each V. The test will then issue a tab and print an X, tab then X etc until the line is complete. Three lines of X's will be printed. All X's printed should be aligned with the reference line V's.

This will be repeated for various (7) values of tab spacing.

Example of output

```

.....V.....V.....V.....V.....V.....
X      X      X      X      X
X      X      X      X      X
X      X      X      X      X

.....V.....V.....V.....
X      X      X
X      X      X
X      X      X

```

5.6 Test 5 Vertical Tab Option

This test is divided into two subtests, one for multi line mode, the other for single line mode. The single line mode test requires operator intervention.

Multi line mode subtest

Will set tabs at intervals of 1 line, 2 lines, 3 lines etc. up to 11 lines. The test will then issue a vert. tab then print a line of dashes, then repeat until 1 full page has been done. Three pages of output are run for 1 pass of test.

Single line mode testing involves the operator to set up the forms control to 11 inch forms, and then proceeds with the same subtest as for multi line mode.

5.0 ERROR REPORTING

There will be four basic sources of error messages. First the system sizer, second the command decoder, and third the diagnostic tests, and the I/O drivers.

5.1 Diagnostic Tests

All test error messages will be 2 lines of output. A standard format line, shown below, and a descriptive message telling what went wrong.

Std. Fmt.: #ERROR XXY TEST YY LINE ZZ

where XXX = the error number local to the current test.

YY = the current test number.

ZZ = the line under test.

an example of a descriptive message :

.NO ANSWERBACK MESSAGE RECEIVED

As each error is handled a routine will update an error count for the failing line. If 16 errors are accumulated on a line, that line will be "deselected" and the following message will be displayed.

EXCESSIVE ERRORS .. LINE XX DROPPED.

If the line under test is the only line being tested the program will automatically re-select the line, zero the count, and continue testing after typing the following:

LINE RE-SELECTED FOR TEST.

6.2 I/O Driver

If the IO Driver finds no available line to test a message will be displayed and then control will return to the "ready" state.

NO LINES AVAILABLE FOR TEST.

#377 Multi line driver error.
Error messages tagged as #377 indicate a failure during an I/O driver operation, such as a failure to interrupt on transmit to a terminal with the interrupt enable set.

#376 Same as #377 except a single line Driver.

6.3 Command Decoder

Console terminal command errors will be handled by a CMDERR module & will output a line of "???" if the input was invalid.

If a line selection command tries to add (re-select) an invalid or non-existent line a "--LINE INVALID" message will be typed.

6.4 System Sizer

If during the sizing operation the sizing routine detects a failure of the interface to interrupt it will be reported.

ex: 'NO INTERRUPT ON TXMIT LINE 27'

7.0 PROCEDURES FOR NON-STANDARD DEVICES.

This diagnostic can be modified for use on devices that have non-standard interface addresses by replacing an unused address in the line table with the address of the interface line to be tested.

The table is preset to the standard DL11-A,B,C,D,E addresses, (775610 - 776170 & 776500 - 776670), and the console address 777560.

No modification need be made because of non-standard interrupt vector addresses. The diagnostic sizes each address for presence on the system, and inserts the interrupt vector data into the table at run time.

NOTE: The table addresses are not in ascending order, rather it has been optimized for relative system size by having the most commonly used addresses at the head of the table. DL11-A,B

and DL11-C,D,E address are merged together.

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SEQ 0016

101		BASIC DEFINITIONS
216	04200	ACT11 HOOKS
507	08500	TEST CONTROL & INITIALIZATION
713	12540	LINE CONTROL & INITIALIZATION
791	14840	SWITCH REGISTER ROUTINES
1189	22020	CONSOLE TERMINAL ROUTINES
1378	00700	ERROR & REPORT ROUTINES
1452	05450	INTERFACE SIZER ROUTINES
1472	06650	EMT HANDLER
1659	11595	I/O DRIVERS
1793	16900	TRAP ROUTINES
1898	00250	CONVERSION ROUTINES
2778	43150	LA36 OPTION TESTS
		STORAGE & CONSTANTS

E02

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SEQ 0017

00200

.TITLE CZLAFAD LA36 TERM TST
:*COPYRIGHT (C) 1977
:*DIGITAL EQUIPMENT CORP.
:*MAYNARD, MASS. 01754
:*
:*PROGRAM BY R.SCHAUBER
:*
:*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
:*PACKAGE (MAINDEC-11-DZQAC-C3), JAN 19, 1977.
:*
\$TN=1
\$SWR=160000 ::HALT ON ERROR. LOOP ON TEST. INHIBIT ERROR TYP0UT

000001
160000

00260
00280
00300
00320
00340
00360
00380
00400
00420
00440
00460
00480
00500
00520
00540
00560
00580
00600
00620
00640
00660
00680
00700
00720
00740
00760
00780
00800
00820
00840
00860
00880
00900
00920
00940
00950
00955
00960
00980
01000
01020
01040
01060
01080

00260
00280
00300
00320
00340
00360
00380
00400
00420
00440
00460
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00500
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00560
00580
00600
00620
00640
00660
00680
00700
00720
00740
00760
00780
00800
00820
00840
00860
00880
00900
00920
00940
00950
00955
00960
00980
01000
01020
01040
01060
01080

***** OPERATING INSTRUCTIONS *****

- +1. THIS TEST ASSUMES THAT THE BASIC INTERFACE LOGIC TESTS & BASIC LA36 FUNCTIONS TEST MDEC-11-DZLAC-X HAVE BEEN RUN SUCCESSFULLY.

TIMING FOR ALL TESTS IS DEPENDENT ON CPU TYPE. THE TIMER IS SET FOR AN 11/40...IF THIS IS NOT THE CASE CHANGE LOCATION "TIMER" ACCORDING TO THE TABLE SUPPLIED IN THIS LISTING.

- +2. THE DIAGNOSTIC WILL START BY ASKING IF THE OPERATOR WANTS TO USE CONSOLE TERMINAL CONTROL, ANSWER Y OR N.

IF Y IS ENTERED, A "MENU" OF AVAILABLE COMMANDS IS PRINTED ON THE TERMINAL, AND THEN THE PROGRAM WAITS FOR INSTRUCTIONS THRU THE KEYBOARD.

IF N IS ENTERED, THE PROGRAM WILL PRINT A LISTING OF INTERFACES BY LINE NUMBER, THEN HALTS. SET THE SWITCHES TO THE DESIRED MODE AND PRESS CONTINUE. THE PROGRAM WILL DECODE THE SWITCH REGISTER, AND IF RUNNING A SELECTED TEST, OR A SELECTED LINE, WILL HALT AGAIN. ENTER THE DESIRED TEST NO. IN THE LOW ORDER BYTE, AND/OR THE DESIRED LINE NO. IN THE HIGH ORDER BYTE. PRESS CONTINUE.

IF NO HARDWARE SWITCH REGISTER IS PRESENT ON THE SYSTEM THE PROGRAM WILL USE LOCATION 176 AS A SOFTWARE SWITCH REGISTER. CONTROL WILL DEFAULT TO THE CONSOLE !

- +3. TO CHANGE MODES TYPE CTL-C. THE CONSOLE WILL RESPOND WITH READY. ENTER YOUR COMMANDS FOLLOWED BY AN ESC. INTERACTIVE COMMANDS SUCH AS CTL-G MAY BE ENTERED DURING COMMAND, OR RUN MODES.

- +4. IF MULTI-LINE MODE IS SELECTED, A TABLE OF INTERFACE LINES WILL BE PRINTED. ALL LINES PRESENT WILL BE INITIALLY SELECTED. IF YOU ADD OR DROP LINES USE THE LINE NO. SPECIFIED IN THE LINE TABLE LIST.

```

01160 : * **** SWITCH REGISTER BIT DEFINITIONS ****
01180 :
01200 :     BIT15      =1 (UP)    HALT ON ERROR
01220 :               =0 (DOWN)  CONTINUE AFTER REPORT
01240 :
01260 :     BIT14      =1 (UP)    LOOP AFTER ERROR IS DETECTED
01280 :               =0 (DOWN)  DON'T LOOP
01300 :
01320 :     BIT13      =1 (UP)    INHIBIT ERROR REPORTS
01340 :               =0 (DOWN)  PRINT   ERROR REPORTS
01360 :
01380 :     BIT12      =1 (UP)    PRINT INTERFACE TABLE
01400 :               =0 (DOWN)  DON'T PRINT TABLE
01420 :
01440 :     BIT11      =1 (UP)    INHIBIT ITERATIONS
01460 :               =0 (DOWN)  NORMAL RUN
01480 :
01500 :     BIT6       =1 (UP)    RUN ALL TESTS IN SEQUENCE
01520 :               =0 (DOWN)  RUN SELECTED TEST ONLY
01540 :
01560 :     BIT5       =1 (UP)    RUN ALL AVAILABLE LINES
01580 :               =0 (DOWN)  RUN SINGLE LINE ONLY
01600 :
01620 :
01640 :     SECOND WORD ENTRY VIA SWITCHES
01660 :
01680 :     BIT15 - BIT8   SELECTED LINE NUMBER
01700 :
01720 :     BIT7  - BIT0   SELECTED TEST NUMBER
01740 :
01760 :
01780 : ***** TEST ASSIGNMENTS *****
01800 :
01820 :     TEST 0       SECONDARY CHARACTER SET
01840 :     TEST 1       SELECTIVE ADDRESSING OPTION
01860 :     TEST 2       AUTO ANSWERBACK OPTION
01880 :     TEST 3       TOP OF FORMS OPTION
01900 :     TEST 4       HORIZONTAL TAB OPTION
01920 :     TEST 5       VERTICAL TAB OPTION

```


000020
000006
000004
000200
000015
000003
000000
000007
000010
000013
000014
000016
000020
004000
100000
000010
000005
004000
020000
040000
000033
000003
000001
0000C2
100000
000200
177776
000040
020000
005726
022626
000400
000100
040000
000200
000340
000000
000200
000240
000240
003000
000006
000002
000010
000340
000017
000016
000001
000002
010000
020000

01960
02080
02100
02120
02140
02160
02180
02200
02220
02240
02260
02280
02300
02301
02302
02303
02304
02305
02320
02340
02360
02380
02400
02420
02440
02460
02480
02500
02520
02540
02560
02580
02600
02620
02640
02660
02680
02700
02720
02740
02760
02780
02800
02820
02840
02860
02880
02900
02920
02940
02960
02980
03000
03020
03040
03060

```

:*****
: LOCAL PROGRAM EQUATES

```

```

ABO = BIT4
ACK = 6
ADDC = BIT2
ATTN = BIT7
CR = 15
CTLC = 3
CTLCNT = 0
CTLG = 7
CTLH = 10
CTLK = 13
CTLL = 14
CTLN = 16
CTLP = 20
DATAIN = BIT11
DLP = BIT15
DROPC = BIT3
ENG = 5
EOL = BIT11
EOP = BIT13
EOT = BIT14
ESC = 33
ETX = 3
FLAG1 = BIT0
FLAG2 = BIT1
HALTOE = BIT15
HALTC = BIT7
ICNT = -2
INHR = BIT5
INHRPT = BIT13
ISP = 5726
ISP2 = 22626
LDONE = BIT8
LOOPC = BIT6
LOOPOE = BIT14
PRI4 = 200
PRI7 = 340
PRIO = 0
SEL = BIT7
NOP = 240
NOOP = 240
MAJOR = 3000
POINT = 6
PASCNT = 2
RPC = 10
NREQ = 340
SI = 17
SO = 16
SOH = 1
STX = 2
PRINTT = BIT12
TDONE = BIT13

```

:LINE ABORT FLAG

:LINE PRESENT FLAG

```

: INC SP 2
: INC SP 4

```

```

: PRIORITY 4
:      ::
:      0
: LINE SELECT FLAG

```

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 CZLAFAP11 03-JAN-78 11:20 BASIC DEFINITIONS

SEQ 0021

159	100000	03080	MERR = BIT15
160	002000	03120	NEWTST = BIT10
161	001000	03140	NEWMOD = BIT9
162	000200	03160	READY = BIT7
163	000100	03180	SEQ = BIT6
164	000040	03200	MULTI = BITS
165	000020	03220	SWCTL = BIT4
166	000020	03240	PRINT = BIT4
167	100377	03260	MERRN = 100377
168	000004	03280	MFLAGS = 4
169	177564	03281	TPS = 177564
170	177566	03282	TPB = 177566
171	177560	03283	TKS = 177560
172	177562	03284	TKB = 177562
173	000060	03285	TKV = 60
174		03300	;***** EMT CALL EQUATES
175	104000	03320	TYPE = EMT
176	104002	03340	PRTTBL = EMT+2
177	104004	03360	ITRAP = EMT+4
178	104006	03380	DELAYR = EMT+6
179		03460	

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 CZLAFAP11 03-JAN-78 11:20 BASIC DEFINITIONS

SEQ 0022

```

181      000000 000000      03500      . = 0      ; TRAP CATCHER
182      000000 000002      03520      . + 2
183      000002 000000      03540      HALT
184      000004 000006      03560      MACHR: . + 2
185      000006 000000      03580      HALT
186      000010 000012      03600      . + 2
187      000012 000000      03620      HALT
188      000014 007162      03640      INTRAP      ; BREAKPOINT TRAP
189      000016 000200      03660      PRI4        ; USED DURING SYSTEM SIZER
190      000020 007416      03680      TXTRAP      ; IOT TRAP
191      000022 000200      03700      PRI4        ; USED BY TXMIT I/O DRIVER
192      000024 001372      03720      RESTART      ; POWER FAIL TRAPS TO RESTART
193      000026 000000      03740      PRI0
194      000030 006162      03760      EMTBOS
195      000032 000000      03780      PRI0
206      000172 000172      04000      . = 172
207      000172 000000      04020      SWTEST: .WORD 0
208      000174 000000      04040      SWLINE: .WORD 0
209      000176 000000      04060      SSWR: .WORD 0
210      000200 000137 001102 04080      JMP START
211      04100
212      .SBTTL ACT11 HOOKS
(1)      ; *****
(2)      ; HOOKS REQUIRED BY ACT11
(1)      $SVPC=      ; SAVE PC
(1)      . = 46
(1)      000046 001102      START      ; 1) SET LOC. 46 TO ADDRESS OF START
(1)      000052 000052      . = 52
(1)      000052 020000      .WORD 20000      ; 2) SET LOC. 52 TO 20000
(1)      000204 000204      . = $SVPC
(1)      001100 000240      . = 1100      ; RESTORE PC
213      04140
214      001100 000240      04160      NOP

```


K02

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 CZLAFAP11 03-JAN-78 11:20 TEST CONTROL & INITIALIZATION

SEQ 0023

216				04200	.SBTTL TEST CONTROL & INITIALIZATION
221				04300	*****
222				04320	*****
223	001102			04340	***** TEST MONITOR *****
225	001102	000005		04380	*****
226				04400	
227				04420	PROGRAM INITIALIZATION SECTION
228				04440	
229	001104	012706	001100		MOV #STACK,SP
230	001110	005037	016152		CLR NEXT
231	001114	005037	016154		CLR INTEST
232	001120	005037	016162		CLR NXTLIN
233	001124	005037	016160		CLR ONLIN
234	001130	012737	016114	016164	MOV #INBUF, PTR
235	001136	012705	010352		MOV #TOOBLK, RE
236				04580	
237				04600	SEE IF SYSTEM HAS A SWITCH REGISTER
238				04620	
239	001142	004737	003006		JSR PC, SWRTST
240				04660	
241				04680	PRINT TEST IDENTIFICATION MESSAGE
242				04700	
243	001146	012700	016772		MOV #PROGID, RO
244	001152	104000		04740	TYPE
245				04760	
246				04780	DETERMINE SYSTEM CONFIGURATION +-
247				04800	BUILD A TABLE OF INTERFACE LINES.
248				04820	
249	001154	004737	005640		JSR PC, BUILD
250				04860	
251				04880	RESTORE TRAP CATCHER FROM 100 TO 1000
252				04900	
253	001160	004737	006126		JSR PC, CATCH
254	001164	104002		04930	PRITBL
255				04940	
256				04960	FIND OUT IF OPERATOR WANTS TO USE
257				04980	CONSOLE OR SWITCHES FOR CONTROL
258				05000	
259	001166	004737	003350		JSR PC, GETSRC
260	001172	004737	003332	05030	JSR PC, CONSON
261	001176	032737	000020	001364	BIT #SWCTL, PCFLAG
262	001204	001011			BNE 50001\$
263				05060	
264				05080	PRINT A MENU OF AVAILABLE COMMANDS
265	001206	012700	017051	05100	
266	001212	104000		05115	MOV #L3, RO
267	001214	012700	017056		TYPE
268	001220	104000		05140	MOV #HEADR1, RO
269	001222	012700	017103		TYPE
270	001226	104000		05180	MOV #COMSUM, RO
271	001230				TYPE
272	001230	004737	003332	05220	50001\$: JSR PC, CONSON
273	001234			05260	50002\$:
274					:
275	001234	032737	000020	001364	BIT #SWCTL, PCFLAG

L02

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-7
 CZLAFAP11 03-JAN-78 11:20 TEST CONTROL & INITIALIZATION

SEQ 0024

```

(9) 001242 001403
276 001244 004737 003130
277 001250 000421
278 001252
(3) 001252
279 05420
280 05440
281 05460
282 05480
283 001252 012700 020123
284 001256 104000
285 001260
286 001260 000001
287 001262 032737 000200 001364
(5) 001270 001001
288 001272 000772
(3) 001274
289 05620
290 05640
291 05660
292 001274 032737 010000 001364
(9) 001302 001404
293 001304 104002
294 001306 042737 010000 001364
295 001314
296 001314
297 05780
298 05800
299 05820
300 05840
301 001314 004737 002110
302 001320 012700 020411
303 001324 004737 007010
304 05870
305 001330 004737 001446
306 001334 032737 004000 002032
(5) 001342 001406
307 001344 042737 004000 002032
308 001352 004737 001372
309 001356 000726
(3) 001360
310 001360 000137 001172
311 001364
312 05990
313 06020
314 06040
315 06060
316 06080
317 06100
318 06120
319 06140
320 001364 06160
321 001364 000001 06180
322 001366 000000 06200
323 001370 000000 06220
324 06240
06260

```

```

; IF IN SWITCH CONTROL GET CONTENTS OF SW REG.
BEQ 50004$
JSR PC,GETSW
BR 50005$
50004$:
; IN CONSOLE CONTROL SIGNIFY READY
; AND READ COMMANDS FROM THE CONSOLE.
MOV #RDY,RO
TYPE
50006$:
WAIT
BIT #ATTN,PCFLAG
BNE 50007$
BR 50006$
50007$:
; PRINT THE LINE TABLE IF REQUESTED.
BIT #PRINTT,PCFLAG
BEQ 50010$
PRTTBL
BIC #PRINTT,PCFLAG
50010$:
50005$:
; SET UP THE I/O DRIVER AREAS
; SET UP & EXECUTE REQUESTED TESTS.
JSR PC,LINMON
MOV #ALLON,RO
JSR PC,MTYPE
; ISSUE A SELECT ALL COMMAND
; IN CASE THERE ARE SELECTIVE
; TERMINALS ON LINE.
JSR PC,TSTCTL
BIT #EOL,CFLAGS
BEQ 50003$
BIC #EOL,CFLAGS
JSR PC,RESTR
BR 50002$
50003$:
JMP START2
50000$:
*****
* NOTE...TYPING CTL-G WHILE IN CONSOLE *
* CONTROL MODE WILL CAUSE THE *
* PCFLAG WORD TO BE PRINTED. *
*****
;PROGRAM CONTROL BLOCK
;PROGRAM CONTROL FLAGS
;TESTNO
;LINENO

```

```

CTLBLK:
PCFLAG: .WORD 1
TESTNO: .WORD 0
LINENO: .WORD 0

```

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-8
 CZLAFAP11 03-JAN-78 11:20 TEST CONTROL & INITIALIZATION

SEQ 0025

```

325 06280 *****
326 06281 ; PCFLAG BIT DEFINITIONS *
327 06282 *****
328 06283
329 06284 : BIT 15 HALTOE
330 06285 : BIT 14 LOOPOE
331 06286 : BIT 13 INHRT
332 06287 : BIT 12 PRINTT
333 06288 : BIT 11 DATAIN
334 06289 : BIT 10 NEWST
335 06290 : BIT 9 NEWMOD
336 06291 : BIT 8 LDONE
337 06292 : BIT 7 ATTN
338 06293 : BIT 6 SEQ
339 06294 : BIT 5 MULTI
340 06295 : BIT 4 SWCTL
341 06296 : BIT 3 DROP
342 06297 : BIT 2 ADDC
343 06298 : BIT 1 FLAG2
344 06299 : BIT 0 FLAG1
345 06300
346 06301
347 06305
348 06306
349 06307
350 06319 *****
351 06320 ; RESTART
352 06340 *****
353 06360
354 06380
355 06400
356 06420
357 06440
358 06460
359 06480
360 06500
361 06520
362 06540
363 06560
364 06580

001372 012706 001100
001376 005037 016152
001402 005037 016154
001406 012737 000001 001364
001414 005037 016162
001420 005037 016160
001424 012737 016114 016164
001432 004737 006126
001436 000240
001440 000005
001442 000137 001230

*****
; REINITIALIZE EVERYTING

RESTR: MOV #STACK, SP
        CLR NEXT
        CLR INTEST
        MOV #1, PCFLAG
        CLR NXTLIN
        CLR ONLIN
        MOV #INBUF, PTR
        JSR PC, CATCH
        NOP
        RESET
        JMP START3
  
```


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 CZLAFAP11 03-JAN-78 11:20 TEST CONTROL & INITIALIZATION

SEQ 0026

```

369 06680 *****
370 06700 ; TSTCTL THIS SECTION CONTROLS TEST SELECTION, TEST
371 06720 ; SEQUENCING, AND INTERFACES TO ERROR AND REPORT
372 06740 ; MODULES AS REQUIRED BY THE TEST MODULES.
373 06760 *****
374 06780
375 001446 013737 001366 016152 06800 TSTCTL: MOV TESTNO,NEXT ;GET TEST NO.
376 001454 013737 016152 016154 06820 LOOP1: MOV NEXT,INTEST ;GET CURRENT TEST NO.
377 001462 004737 002056 06840 JSR PC,SUTEST
378 001466 004777 014464 06920 LOOP2: JSR PC,TESTAD ;:START TEST
379 06940
380 06942
381 06944
382 06946 ; CHECK FOR ERROR FLAG FROM TEST
383 001472 032737 000020 001364 ;
384 (9) 001500 001414 ; BIT #SWCTL,PCFLAG
385 001502 017737 014416 016100 ; BEQ 50011$
386 001510 042737 003777 016100 ; MOV #SWR,TEMP
387 001516 042737 174000 001364 ; BIC #3777,TEMP
388 001524 053737 016100 001364 ; BIC #174000,PCFLAG
389 001532 ; BIS TEMP,PCFLAG
390 001532 032765 100000 000004 06953 50011$:
391 (9) 001540 001414 ; BIT #MERR,MFLAGS(R5)
392 001542 016537 000004 002032 ; BEQ 50012$
393 001550 016537 000006 002034 ; MOV MFLAGS(R5),CFLAGS
394 07002 ; MOV POINT(R5),TSCPTR
395 07004 ;
396 001556 004737 005124 ; CALL ERROR HANDLER ROUTINE
397 001562 042765 100377 000004 ; JSR PC,ERROR
398 001570 000421 ; BIC #MERR,MFLAGS(R5)
399 (3) 001572 ; BR 50013$
400 07062 50012$:
401 07064 ; SEE IF TEST IS REPORTING DONE CONDITION
402 07066 ;
403 001572 032765 020000 000004 ; BIT #TDONE,MFLAGS(R5)
404 (9) 001600 001415 ; BEQ 50014$
405 07082 ;
406 07084 ; UPDATE THE PASS COUNT THEN REPORT END OF PASS
407 07086 ;
408 001602 005265 000002 ; INC PASCNT(R5)
409 001606 042765 020000 000004 ; BIC #TDONE,MFLAGS(R5)
410 001614 052737 020000 002032 ; BIS #EOP,CFLAGS
411 001622 016537 000002 002036 ; MOV PASCNT(R5),TSCCNT
412 001630 004737 005436 ; JSR PC,REPORT
413 001634 ;
414 07222 50014$:
415 07224 50013$:
416 07226 ; IF LOOP ON ERROR IS SET AND AN ERROR IS
417 07228 ; DETECTED THE ERROR HANDLER WILL MAKE THE
418 07230 ; RETURN ADDRESS OF THE TEST ODD
419 07232 ; CHECK FOR ODD ADDRESS....IN LOOP MODE...
420 001634 032765 000001 000010 ; BIT #BIT0,RPC(R5)

```

```

(9) 001642 001413          BEQ      50015$
421                                     07242
422                                     07244
423                                     07246
424                                     07248
425 001644 032737 040000 001364          BIT      #LOOPOE,PCFLAG
(9) 001652 001006          BNE      50016$
426 001654 042765 000001 000010          BIC      #BITO,RPC(R5)
427 001662 016537 000010 016156          MOV      RPC(R5),TESTAD
428                                     50016$: BR      50017$
429 001670 000456          50015$:
(3) 001672          07342
430                                     07344
431                                     07346
432                                     : CHECK TO SEE IF THE ITERATION COUNT IS COMPLETED
433 001672 026565 000002 000000          CMP      PASCNT(R5),CTLCNT(R5)
(9) 001700 003447          BLE      50020$
434 001702 052737 040000 002032          BIS      #EOT,CFLAGS
435 001710 005037 002036          CLR      TSCCNT
436                                     07402
437                                     07404
438                                     07406
439 001714 004737 005436          : REPORT END OF TEST CONDITION
440 001720 016565 000002 000000          JSR      PC,REPORT
(6) 001726 066565 177776 000000          MOV      PASCNT(R5),CTLCNT(R5)
441                                     ADD      ICNT(R5),CTLCNT(R5)
442                                     07442
443                                     07444
444                                     07446
445 001734 032737 000100 001364          : IF IN SEQUENCE TESTS MODE SET UP NEXT TEST
(9) 001742 001423          BIT      #SEQ,PCFLAG
446 001744 013737 016152 016154          BEQ      50021$
447 001752 005237 016152          MOV      NEXT,INTEST
448                                     INC      NEXT
449                                     07520
450                                     07522
451                                     07524
452                                     07526
453                                     07528
454 001756 023727 016154 000005          : IF NEXT IS A NON EXISTANT TEST SET EOL
(9) 001764 003407          : AND RETURN TO MONITOR FOR NEW COMMANDS
455 001766 005037 016152 002032          CMP      INTEST,#5
456 001772 052737 004000 002032          BLE      50022$
457 002000 000207 07600          CLR      NEXT
458 002002 000402          BIS      #EOL,CFLAGS
(3) 002004          RTS      PC
459 002004 004737 002056          BR      50023$
460 002010 000402          50022$: JSR      PC,SUTEST
(3) 002012          50023$: BR      50024$
461                                     50021$:
462                                     : SET UP TEST ADDRESS FOR THE SAME TEST AGAIN.
463 002012 004737 002056          JSR      PC,SUTEST
464 002016 000403          50024$: BR      50025$
465 002020          50020$:
(3) 002020          07742
466

```

C03

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-11
 CZLAFAP11 03-JAN-78 11:20 TEST CONTROL & INITIALIZATION

SEQ 0028

```

467      07744  ; RETURN TO TEST VIA ADDRESS SUPPLIED BY TEST
468      07746  ;
469      002020 016537 000010 016156      MOV      RPC(R5),TESTAD
470      002026      50025$:
471      002026      50017$:
472      002026 000137 001466      07820      JMP      LOOP2
473      08160
474      08180 ;*****
475      002032 000000      08200  CFLAGS: .WORD 0      :FLAGS
476      002034 000000      08220  TSCPTR: .WORD 0      :POINTER
477      002036 000000      08240  TSCCNT: .WORD 0      :PASCNT
478      08260
479      08300
480      002040 010164      08320  TSTBL:  TEST0      ; TABLE OF TEST ADDRESSES *****
481      002042 010444      08340      TEST1
482      002044 011526      08360      TEST2
483      002046 013700      08380      TEST3
484      002050 014652      08400      TEST4
485      002052 015354      08420      TEST5
486      002054 177777      08440      -1
487      08441
488      08442
489      08443
490      08444
491      08445 ;*****
492      08446 ;SUTEST  INITIALIZES THE TEST ADDRESS POINTER
493      08447 ;          FOR TEST # IN 'INTEST'
494      08448 ;*****
495      08449
496      002056
497      002056 006337 016154      SUTEST:  ASL      INTEST
498      002062 012700 002040      MOV      @TSTBL,R0
499      (6) 002066 063700 016154      ADD      INTEST,R0
500      002072 011037 016156      MOV      (R0),TESTAD
501      002076 006237 016154      ASR      INTEST
502      002102 005065 000004      CLR      MFLAGS(R5)
503      002106      50000$:
504      (3) 002106      50001$:
505      002106 000207      RTS      PC

08480
08485
08490

```


D03

CZLAFAD LAB6 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-12
 CZLAFAD.F11 03-JAN-78 11:20 LINE CONTROL & INITIALIZATION

SEQ 0029

```

507 08500 .SBTTL LINE CONTROL & INITIALIZATION
508 08520 :*****
509 08540 :THIS SECTION CONTROLS THE SELECTION AND SEQUENCING
510 08560 :OF SINGLE OR MULTIPLE LINES FOR TESTING.
511 08580 :*****
512 08600
513 08620
514 002110
515 002110 032737 001000 001364 LINMON:
516 (9) 002116 001427 BIT #NEWMOD,PCFLAG
517 BEQ 50002$
518 08680
519 08700 : INITIALIZE THE DEVICE HANDLER :
520 08720 : SET UP A POINTER AREA WITH THE
521 08740 : DEVICE ADDRESSES & VECTORS ETC.
522 08760 :
523 002120 032737 000040 001364 BIT #MULTI,PCFLAG
524 (9) 002126 001407 BEQ 50003$
525 002130 004737 JSR PC,GVL
526 002134 004737 JSR PC,MTW
527 002140 004737 JSR PC,GNL
528 (3) 002144 000410 BR 50004$
529 002146
530 08880
531 08900 : GET SELECTED LINE NUMBER AND
532 08920 : PULL THE DATA FROM THE TABLE.
533 08940 :
534 002146 013737 001370 016160 MOV LINENO,ONLIN
535 002154 004737 JSR PC,MTW
536 002160 013737 016160 016162 MOV ONLIN,NXTLIN
537 002166
538 002166 042737 001000 001364 50004$:
539 (3) 002174 000402 BIC #NEWMOD,PCFLAG
540 002176 BR 50005$
541 09080
542 09100 : DO LINESEL SECTION FOR EACH DEVICE
543 09120 : TO BE TESTED.
544 09140 :
545 002176 004737 002204 JSR PC,LINSEL
546 002202
547 002202
548 (3) 002202
549 (2) 002202 000207 50005$:
550 09220 50000$:
551 09240 50001$:
552 09260 RTS PC
553 09280 :*****
554 09300 :LINESEL ROUTINE TO FURNISH THE IODRIVER WITH DVC POINTERS
555 09320 :*****
556 002204 LINESEL:
557 09360 :
558 09380 : MULTIPLE LINES UNDER TEST ?
559 09400 :
560 002204 032737 000040 001364 BIT #MULTI,PCFLAG
561 (9) 002212 001426 BEQ 50002$
562 09440
563 09460 : SET UP POINTER AREA WITH DATA FOR

```

E03

CZLAFAD LAB6 TEAM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-13
 CZLAFAP11 03-JAN-78 11:20 LINE CONTROL & INITIALIZATION

SEQ 0030

```

556      09480      : THE NEXT DEVICE TO BE TESTED
557      09500      :
558      002214    013737    016162    016160      MOV      NXTLIN,ONLIN
559      09540      :
560      09560      : RESET EVERYTHING IF AT THE END OF OUR DEVICE LIST.
561      09580      :
562      002222    023727    016160    177777      CMP      ONLIN,#-1
563      (9) 002230    001012      BNE      50003$
564      002232    052737    000400    001364      BIS      #LDONE,PCFLAG
565      002240    004737    002332      JSR      PC,GVL
566      002244    004737    002432      JSR      PC,MTW
567      002250    004737    002556      JSR      PC,GNL
568      002254    000404      BR       50004$
569      (3) 002256      50003$:
570      09720      : SET UP POINTER AREA FOR LINE = 'ONLIN'.
571      09750      :
572      09780      :
573      002256    004737    002432      JSR      PC,MTW
574      002262    004737    002556      JSR      PC,GNL
575      002266      50004$:
576      002266    000420      BR       50005$
577      (3) 002270      50002$:
578      002270    004737    002432      JSR      PC,MTW
579      002274    032737    000200    016126      BIT      #SEL,DLFLAG
580      (9) 002302    001404      BEQ      50006$
581      09920      :
582      09940      : CHECK TO SEE IF ALL DEVICES
583      09960      : HAVE BEEN TESTED YET. SET LDONE FLAG.
584      09980      :
585      002304    052737    000400    001364      BIS      #LDONE,PCFLAG
586      002312    000406      BR       50007$
587      (3) 002314      50006$:
588      10040      :
589      10060      : MAKE SHURE THAT WHEN TESTING A SINGLE
590      10080      : DEVICE , IT DOESN'T GET DROPPED
591      10100      : BECAUSE OF EXCESSIVE ERRORS.
592      10120      :
593      002314    052737    000200    016126      BIS      #SEL,DLFLAG
594      002322    012700    020345      MOV      #E20,R0
595      002326    104000      10180      TYPE
596      002330      50007$:
597      002330      50005$:
598      (3) 002330      50000$:
599      (2) 002330      50001$:
600      002330    000207      RTS      PC
601      10260      :
602      10280      : *****
603      10300      : GVL THIS ROUTINE FINDS A VALID LINE FOR TESTING
604      10320      : *****
605      10340      :
606      10360      GVL:
607      10380      MOV      R3,-(SP)
608      10400      MOV      #LIN00,R3      :GET ADDR OF LINE TABLE
609      10420      G1A: TST      (R3)      :LIN PRESENT?
610      10440      BMI      G1D      :YES BRANCH
611      G1B: ADD      #10,R3      :POINT TO OTHER WORD

```

F03

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-14
 CZLAFAP11 03-JAN-78 11:20 LINE CONTROL & INITIALIZATION

SEQ 0031

604	002350	020027	016770	10460		CMP	RO, #TABEND	:END OF TABLE ?
605	002354	001371		10480		BNE	G1A	:NO BRANCH
606	002356	012700	020306	10500	G1C:	MOV	#E19,R0	:NOTIFY OPERATOR - NO LINES
607	002362	104000		10520		TYPE		
608	002364	000137	001372	10540		JMP	RESTR	
609	002370	105713		10560	G1D:	TSTB	(R3)	:LINE SELECTED?
610	002372	100364		10580		BPL	G1B	:NO TRY ANOTHER LINE
611	002374	062703	000006	10600		ADD	#6,R3	:POINT TO OTHER WORD
612	002400	011337	016160	10620		MOV	(R3),ONLIN	:GET DATA FROM TABLE
613	002404	000337	016160	10640		SWAB	ONLIN	
614	002410	105037	016161	10660		CLRB	ONLIN+1	
615	002414	005037	000174	10680		CLR	SWLINE	
616	002420	113737	016160	10700		MOVB	ONLIN,SWLINE	
617	002426	012603				MOV	(SP)+,R3	
618	002430	000207				RTS	PC	:EXIT
619				10740				
620				10760				
621				10780				
622				10800				
623				10820				
624	002432			10840				
625	(4) 002432	010346			MTW:	MOV	R3, -(SP)	
626	002434	013703	016160	10860		MOV	ONLIN,R3	:GET LINE NO.
627	002440	006303		10880		ASL	R3	
628	002442	006303		10900		ASL	R3	
629	002444	006303		10920		ASL	R3	:XB FOR OFFSET
630	002446	062703	016170	10940		ADD	#LIN00,R3	:ADD IN BASE ADDR
631	002452	012337	016126	10960	MTW1:	MOV	(R3)+,DLFLAG	:GET FLAG WORD
632	002456	012337	016130	10980		MOV	(R3)+,DLADR	:GET ADDRESS
633	002462	012337	016132	11000		MOV	(R3)+,DLVEC	:GET VECTOR
634	002466	011337	016134	11020		MOV	(R3),DL0TH	:GET "OTHER WORD"
635	002472	013737	016130	11040		MOV	DLADR,DVCRXB	
636	002500	062737	000002	11060		ADD	#2,DVCRXB	
637	002506	013737	016136	11080		MOV	DVCRXB,DVCTXS	
638	002514	062737	000002	11100		ADD	#2,DVCTXS	
639	002522	013737	016140	11120		MOV	DVCTXS,DVCTXB	
640	002530	013737	016132	11140		MOV	DLVEC,TVVEC	
641	002536	062737	000004	11160		ADD	#4,TVVEC	
642	002544	062737	000002	11180		ADD	#2,DVCTXB	
643	002552	012603				MOV	(SP)+,R3	
644	002554	000207				RTS	PC	
645				11220				
646				11240				
647				11260				
648				11280				
649				11300				
650	002556			11320				
651	(4) 002556	010346			GNL:	MOV	R3, -(SP)	
652	002560	013703	016160	11340		MOV	ONLIN,R3	:GET CURRENT LINE
653	002564	005203		11360		INC	R3	:CURRENT +1
654	002566	006303		11380		ASL	R3	
655	002570	006303		11400		ASL	R3	
656	002572	006303		11420		ASL	R3	:XB FOR OFFSET
657	002574	062703	016170	11440		ADD	#LIN00,R3	:ADD IN BASE ADDR OF TABLE
	002600	005713		11460	GN1:	TST	(R3)	:LINE PRESENT?
	002602	100403		11480		BMI	GN3	:YES - BRANCH
	002604	062703	000010	11500	GN2:	ADD	#10,R3	:POINT TO NEXT LINE ENTRY
	002610	000773		11520		BR	GN1	:CHECK NEXT

G03

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-15
 CZLAFAP11 03-JAN-78 11:20 LINE CONTROL & INITIALIZATION

SEQ 0032

658	002612	105713		11540	GN3:	TSTB	(R3)	: LINE SELECTED?
659	002614	100373		11560		BPL	GN2	: NO TRY ANOTHER
660	002616	021327	177777	11580		CMP	(R3), #-1	: END OF TABLE?
661	002622	001412		11600		BEQ	GN5	: YES - BRANCH
662	002624	062703	000006	11620		ADD	#6, R3	: GET "OTHER WORD"
663	002630	011337	016162	11640		MOV	(R3), NXTLIN	
664	002634	000337	016162	11660		SWAB	NXTLIN	: = NEXT AVAILABLE LINE
665	002640	105037	016163	11680		CLRB	NXTLIN+1	
666	002644			11700	GN4:			
(4)	002644	012603				MOV	(SP)+, R3	
667	002646	000207		11720		RTS	PC	: EXIT
668	002650	012737	177777 016162	11740	GN5:	MOV	#-1, NXTLIN	: SET NXTLIN TO -1 - NO SELECT
669	002656	000772		11760		BR	GN4	
670				11780				
671				11800				
672				11820				
673				11840				
674				11860				
675				11880				
676	002660							
677				11902				
678				11904				
679				11906				
680	002660	006337	004776			ASL	DATA	
(7)	002664	006337	004776			ASL	DATA	
(7)	002670	006337	004776			ASL	DATA	
681				11930				
682	002674	062737	016170 004776			ADD	#LIN00, DATA	
683				11960				
684				11980				
685				12000				
686				12020				
687	002702	032777	100000 002066			BIT	#DLP, 3DATA	
(9)	002710	001003				BNE	50002\$	
688	002712	004737	005100			JSR	PC, SELEA	
689	002716	000430				BR	50003\$	
(3)	002720							
690				12100				
691				12120				
692				12140				
693				12160				
694	002720	032737	000004 005002					
(9)	002726	001415				BIT	#ADDC, TEMPF	
695	002730	052777	000200 002040			BEQ	50004\$	
696	002736	042777	000037 002032			BIS	#SEL, 3DATA	
697	002744	062737	000007 004776			BIC	#ABO!, #17, 3DATA	
698	002752	117737	002020 001370			ADD	#7, DATA	
699	002760	000407				MOVB	3DATA, LINENO	
(3)	002762					BR	50005\$	
700				12300				
701				12320				
702				12340				
703	002762	032737	000010 005002					
(9)	002770	001403				BIT	#DROPC, TEMPF	
704	002772	042777	000200 001776			BEQ	50006\$	
705	003000					BIC	#SEL, 3DATA	

 : UPDATE ROUTINE TO UPDATE INTERFACE TABLE FROM COMMANDS
 : *****
 UPDATE:
 : SHIFT THE CONVERTED LINE NO. FOR AN
 : OFFSET TO THE LINE TABLE.
 :
 : ASL DATA
 : ASL DATA
 : ASL DATA
 : ADD IN THE BASE ADDRESS OF THE TABLE.
 : ADD #LIN00, DATA
 :
 : IF THE LINE SELECTED DOESN'T EXIST -
 : SEND AN ERROR MESSAGE.
 :
 : BIT #DLP, 3DATA
 : BNE 50002\$
 : JSR PC, SELEA
 : BR 50003\$
 50002\$:
 :
 : ADDING A LINE SETS IT'S "SELECTED" FLAG
 : AND CLEARS OUT THE ERROR COUNT FOR THAT LINE
 :
 : BIT #ADDC, TEMPF
 : BEQ 50004\$
 : BIS #SEL, 3DATA
 : BIC #ABO!, #17, 3DATA
 : ADD #7, DATA
 : MOVB 3DATA, LINENO
 : BR 50005\$
 50004\$:
 :
 : DROPPING A LINE JUST RESETS IT'S "SELECTED" FLAG
 :
 : BIT #DROPC, TEMPF
 : BEQ 50006\$
 : BIC #SEL, 3DATA
 50006\$:

H03

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CZLAFAP11 03-JAN-78 11:20 LINE CONTROL & INITIALIZATION

SEQ 0033

706 003000
707 003000
708 003000 005037 004776
709 003004
(3) 003004
(2) 003004 000207
710
711

50005\$:
50003\$:
50000\$:
50001\$:
CLR DATA
RTS PC

12480
12500

```

713 12540
714 12560
715 12580
716 12600
717 003006 012737 003040 000004 12620
718 003014 012737 000340 000006 12640
719 003022 005777 013076 12660
720 003026 000240 12680
721 003030 012737 177570 016124 12700
722 003036 000404 12720
723 003040 012737 000176 016124 12740
724 003046 022626 12760
725 003050 012737 000006 000004 12780
726 003056 005037 000005 12800
727 003062 000207 12820
728 12840
729 12860
730 12880
731 12900
732 12920
733 003064
734 003064 013746 001364
735 003070 012746 000006
736 003074 012746 020230
737 003100 004737 007566
738 003104 142737 000006 020226
739 003112 012700 020215
740 003116 104000 13080
741 003120 012700 017730
742 003124 104000 13120
743 003126
(3) 003126
(2) 003126 000207
744 13160
745 13180
746 13200
747 13220
748 13240
749 13260
750 13280
751 003130
752 13320
753 13340
754 13360
755 003130 000000
756 003132 017737 012766 016100 13380
757 13420
758 13440
759 13460
760 13480
761 003140 032737 000100 016100
(8) 003146 001404
(6) 003150 032737 000040 016100
(9) 003156 001016
(6) 003160
762 003160 000000 13520

```

```

.SBTTL SWITCH REGISTER ROUTINES
:*****
:SWRTST TESTS FOR HARDWARE SWITCH REGISTER
:*****
SWRTST: MOV #4$,MACHER ;SU NXM TRAP TO 4$
        MOV #PR17,MACHER+2
        TST @SWR ;ACCESS SWITCH REG.
        NOP
        MOV #177570,SWR ;RETAIN HARDWARE POINTER
        BR 6$
4$: MOV #SSWR,SWR ;SU FOR SOFTWARE SWITCH REG.
   ISP2 ;CLEAN THE STACK
6$: MOV #6,MACHER ;RESET TRAP CATCHER
   CLR MACHER+2
   RTS PC ;EXIT

:*****
:CTLGX THIS ROUTINE PRINTS THE PROGRAM CONTROL FLAGS ON THE CONSOLE.
:*****
CTLGX: MOV PCFLAG,-(SP)
      MOV #6,-(SP)
      MOV #SW+11,-(SP)
      JSR PC,02ASC
      BICB #6,SW+11
      MOV #SW,RO
      TYPE MOV #L1,RO
      TYPE
50000$:
50001$: RTS PC

:*****
:GETSWS THIS ROUTINE READS THE SWITCH REGISTER AND
:CONVERTS THE DATA TO THE APPROPRIATE CONTROL
:FLAGS OR POINTERS.
:*****
GETSWS:
: STOP HERE FOR OPERATOR TO ENTER CONTROL SWITCHES
:
: HALT
: MOV @SWR,TEMP
:
: IF SWITCHES INDICATE A SINGLE LINE OR A SINGLE TEST
: TO BE DONE STOP SO OPERATOR CAN ENTER LINE/TEST DATA
:
: BIT #SEQ,TEMP
: BEQ 50002$
: BIT #MULTI,TEMP
: BNE 50003$
50002$: HALT

```


J03

CZLAFAD LAG6 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-18
 CZLAFAP11 03-JAN-78 11:20 SWITCH REGISTER ROUTINES

SEQ 0035

763	003162	017737	012736	016102		MOV	JSWR, TEMP+2
764	003170	005037	001366			CLR	TESTNO
765	003174	113737	016102	001366		MOVB	TEMP+2, TESTNO
766	003202	005037	001370			CLR	LINENO
767	003206	113737	016103	001370		MOVB	TEMP+3, LINENO
768	003214				50003\$:		
769	003214	032737	000100	016100		BIT	#SEQ, TEMP
(9)	003222	001406				BEQ	50004\$
770	003224	052737	000100	001364		BIS	#SEQ, PCFLAG
771	003232	005037	001366			CLR	TESTNO
772	003236	000403				BR	50005\$
(3)	003240				50004\$:		
773	003240	042737	000100	001364		BIC	#SEQ, PCFLAG
774	003246				50005\$:		
775					13780		
776	003246	032737	000040	016100		BIT	#MULTI, TEMP
(9)	003254	001406				BEQ	50006\$
777	003256	052737	000040	001364		BIS	#MULTI, PCFLAG
778	003264	005037	001370			CLR	LINENO
779	003270	000403				BR	50007\$
(3)	003272				50006\$:		
780	003272	042737	000040	001364		BIC	#MULTI, PCFLAG
781	003300				50007\$:		
782					13940		
783	003300	052737	003200	001364		BIS	#ATTN! #NEWMOD! #NEWTST, PCFLAG
784					13980		
785	003306	042737	174037	001364		BIC	#174037, PCFLAG
786	003314	042737	003777	016100		BIC	#3777, TEMP
787	003322	053737	016100	001364		BIS	TEMP, PCFLAG
788	003330				50000\$:		
(3)	003330				50001\$:		
(2)	003330	000207				RTS	PC
789					14100		

K03

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-19
 CZLAFAD.F11 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEQ 0036

```

791 14840 .SBTTL CONSOLE TERMINAL ROUTINES
792 14860 :*****
793 14880 :CONSON-- ROUTINE TO INITIALIZE CONSOLE VECTOR AREA
794 14900 :*****
795 14920
796 003332 012737 003466 000060 14940 CONSON: MOV #READKB, @TKV ; INTERRUPT TO "READKB"
797 003340 012737 000101 177560 14960 MOV #101, @TKS
798 003346 000207 14980 RTS PC
799 15000
800 15020 :*****
801 15040 :GETSRC THIS ROUTINE ASKS THE OPERATOR IF HE/SHE
802 15060 : WANTS TO USE CONSOLE CONTROL. THEN SETS
803 15080 : A CONTROL FLAG ACCORDINGLY.
804 15100 :*****
805 15120
806 15140
807 003350
808 003350 005077 012610
809 003354 012700 020370
810 003360 104000 15220
811 003362 012737 000001 177560
812 003370
813 003370 032737 000200 177560
814 (9) 003376 001410
815 003400 113777 177562 012556
816 003406 004737 005044
817 003412 012700 017730
818 003416 104000 15360
819 003420
820 003420 005777 012540
821 (5) 003424 001001
822 003426 000760
823 (3) 003430
824 003430 :42777 000200 012526
825 003436 027727 012522 000116
826 (9) 003444 001007
827 (6) 003446 023727 016124 000176
828 (9) 003454 001403
829 003456 052737 000020 001364
830 003464
831 (3) 003464
832 (2) 003464 000207

GETSRC: CLR @PTR
MOV #CTLM, RO
TYPE MOV #1, @TKS
50002$: BIT #READY, @TKS
BEQ 50004$
MOVB @TKB, @PTR
JSR PC ECHO
MOV #L1, RO
TYPE
50004$: TST @PTR
BNE 50003$
BR 50002$
50003$: BICB #200, @PTR
CMP @PTR, #'N
BNE 50005$
CMP SWR, #SSWR
BEQ 50005$
BIS #SWCTL, PCFLAG
50005$:
50000$:
50001$: RTS PC

```

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-20
 CZLAFAP11 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEQ 0037

827				15540	*****
828				15560	READKB THIS MODULE IS AN INTERRUPT HANDLER
829				15580	FOR THE CONSOLE TERMINAL.
830				15600	*****
831				15620	
832	003466				READKB:
833	003466	010046			MOV RO, -(SP)
834				15650	
835				15655	GET CHAR FROM KEYBOARD BUFFER REG.
836				15660	CLEAR PARITY BIT IF SET.
837				15665	
838	003470	013737	177562		MOV @TKB, RDSAV
839	003476	142737	000200		BICB @200, RDSAV
840				15680	
841				15685	CHECK FOR DEVICE ERROR
842				15690	
843	003504	032737	100000		BIT #MERR, RDSAV
(9)	003512	001405			BEG 50002\$
844	003514	004737	005062		JSR PC, CMDERR
845	003520	005037	177560		CLR @TKS
846	003524	000516			BR 50003\$
(3)	003526				
847				50002\$:	
848				15715	
849				15720	IF CMD CHAR WAS A CTL-G DO THE CTLGX ROUTINE.
850				15725	PRINT OUT PCFLAGS ON CONSOLE.
851	003526	123727	003776		
(9)	003534	001006	000007		CMPB RDSAV, #CTLG
852	003536	004737	003064		BNE 50004\$
853	003542	012700	017730		JSR PC, CTLGX
854	003546	104000			MOV #L1, RO
855	003550	000504		15750	TYPE
(3)	003552				BR 50005\$
856				50004\$:	
857				15756	
858				15757	IF IN I/O MODE PUT DATA IN I/O BUFFER
859	003552	032737	000002		
(9)	003560	001410	001364		BIT #FLAG2, PCFLAG
860	003562	113711	003776		BEG 50006\$
861	003566	052737	004000		MOVB RDSAV, (R1)
862	003574	005037	007564		BIS #DATAIN, PCFLAG
863	003600	000470			CLR DELAYT
(3)	003602				BR 50007\$
864				50006\$:	
865				15776	
866				15777	IF IN COMMAND MODE PUT DATA IN INBUF
867				15778	AND CALL INTERPRITER
868	003602	032737	000001		
(9)	003610	001406	001364		BIT #FLAG1, PCFLAG
869	003612	113777	003776		BEG 50010\$
870	003620	004737	004000		MOVB RDSAV, @PTR
871	003624	000456			JSR PC, CSI
(3)	003626				BR 50011\$
872				50010\$:	
873				15796	
874				15797	CLEAR AND GO TO READY STATE.
				15798	

M03

CZLAFAO LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-21
CZLAFA.PI1 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEQ 0036

875	003626	123727	003776	000003		CMPB	RDSAV, #CTLC
(9)	003634	001003				BNE	50012\$
876	003636	004737	001372			JSR	PC, RESTRT
877	003642	000447				BR	50013\$
(3)	003644				50012\$:		
878					15811	:	
879					15812	:	CHECK FOR PRINT REPORTS COMMAND
880					15813	:	
881	003644	123727	003776	000020		CMPB	RDSAV, #CTLP
(9)	003652	001004				BNE	50014\$
882	003654	042737	020000	001364		BIC	#INHRPT, PCFLAG
883	003662	000437				BR	50015\$
(3)	003664				50014\$:		
884					15826	:	
885					15827	:	CHECK FOR NO REPORTS COMMAND
886					15828	:	
887	003664	123727	003776	000016		CMPB	RDSAV, #CTLN
(9)	003672	001004				BNE	50016\$
888	003674	052737	020000	001364		BIS	#INHRPT, PCFLAG
889	003702	000427				BR	50017\$
(3)	003704				50016\$:		
890					15841	:	
891					15842	:	CHECK FOR HALT ON ERROR COMMAND
892					15843	:	
893	003704	123727	003776	000010		CMPB	RDSAV, #CTLH
(9)	003712	001004				BNE	50020\$
894	003714	052737	100000	001364		BIS	#HALTOE, PCFLAG
895	003722	000417				BR	50021\$
(3)	003724				50020\$:		
896					15856	:	
897					15857	:	CHECK FOR LOOP ON ERROR COMMAND
898					15858	:	
899	003724	123727	003776	000014		CMPB	RDSAV, #CTLL
(9)	003732	001004				BNE	50022\$
900	003734	052737	040000	001364		BIS	#LOOPOE, PCFLAG
901	003742	000407				BR	50023\$
(3)	003744				50022\$:		
902					15871	:	
903					15872	:	CHECK FOR CLEAR COMMAND
904					15873	:	
905	003744	123727	003776	000013		CMPB	RDSAV, #CTLK
(9)	003752	001003				BNE	50024\$
906	003754	042737	140000	001364		BIC	#HALTOE, #LOOPOE, PCFLAG
907	003762				50024\$:		
908	003762				50023\$:		
909	003762				50021\$:		
910	003762				50017\$:		
911	003762				50015\$:		
912	003762				50013\$:		
913	003762				50011\$:		
914	003762				50007\$:		
915	003762				50005\$:		
916	003762				50003\$:		
917					15935	:	
918					15940	:	TURN CONSOLE BACK ON & EXIT.
919					15945	:	

N03

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CZLAFAP11 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEQ 0039

920	003762	012737	000101	177560	MOV	#101,2#TKS
921	003770	012600			MOV	(SP)+,RO
922	003772	000002		15960	RTI	
923	003774				50000\$:	
(3)	003774				50001\$:	
(2)	003774	000207			RTS	PC
924				16580		
925	003776	000000		16600	RDSAV:	.WORD 0

```

927      16640 ;*****
928      16660 ; CSI  COMMAND STRING INTERPRETER
929      16680 ;*****
930      16700
931 004000 CSI:
932      16740 ;
933      16760 ; IF CMD CHMR IS AN ESCAPE ECHO A '$'
934      16780 ; AND SET MODE BACK TO 0.
935      16800 ;
936 004000 123727 003776 000033      CMPB  RDSAV, #ESC
937 (9) 004006 001030      BNE  50002$
938 004010 112777 000044 012146      MOVB  #'$, #PTR
939 004016 004737 005044      JSR  PC, ECHO
940 004022 012700 017051      MOV  #L3, RO
941 004026 104000      TYPE
942 004030 042737 000001 005002      BIC  #FLAG1, TEMPF
943      17100 ;
944      17120 ; MOVE NEW CONTROL FLAGS TO THE PCFLAG WORD.
945      17140 ; RESET THE BUFFER POINTER.
946      17160 ;
947 004036 013737 005002 001364      MOV  TEMPF, PCFLAG
948 004044 013737 005004 001366      MOV  TEMPT, TESTNO
949 004052 012737 016114 016164      MOV  #INBUF, PTR
950      17235 ; CLEAR ATTENTION FLAGS FROM TEMPF
951 004060 042737 017603 005002      BIC  #17603, TEMPF
952      17260
953 004066 000457      BR  50003$
954 (3) 004070
955      17300 50002$:
956      17320 ; IF CMD CHAR WAS A DELETE RESET THE BUFFER
957      17340 ; POINTER AND ECHO A CR/LF.
958      17360 ;
959 004070 123737 003776 016166      CMPB  RDSAV, DEL
960 (9) 004076 001007      BNE  50004$
961 004100 012737 016114 016164      MOV  #INBUF, PTR
962 004106 012700 017730      MOV  #L1, RO
963 004112 104000      TYPE
964 004114 000444      BR  50005$
965 (3) 004116
966      17480 50004$:
967      17500 ; IF CMD CHAR WAS A RETURN ECHO A CR/LF
968      17520 ; AND CALL THE DECODER.
969      17540 ;
970 004116 123727 003776 000015      CMPB  RDSAV, #CR
971 (9) 004124 001021      BNE  50006$
972 004126 012700 017730      MOV  #L1, RO
973 004132 104000      TYPE
974 004134 004737 004230      JSR  PC, DECODE
975 004140 123727 016114 000121      CMPB  INBUF, #'Q
976 (9) 004146 001007      BNE  50007$
977 004150 005037 001366      CLR  TESTNO
978 004154 005037 005004      CLR  TEMPT
979 004160 012737 000001 016152      MOV  #1, NEXT
980 004166      50007$:
981 (3) 004170      BR  50010$
          50006$:

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C04

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 CZLAFAP11 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEG 0041

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976      17800      :
977      17820      : IF CMD CHAR WAS A '?' RETYPE THE COMMAND
978      17840      : SUMMARY & GO TO READY CONDITION.
979      17860      :
980      004170 123727 003776 000077      CMPB      RDSAV, #'?'
981      (9) 004176 001007      BNE      50011$
982      004200 012700 017103      MOV      #COMSUM, R0
983      004204 104000      TYPE
984      004206 012700 020123      MOV      #RDY, R0
985      004212 104000      TYPE
986      004214 000404      BR      50012$
987      (3) 004216      50011$:
988      18000      : ECHO THE INPUT CHARACTER.
989      18020      :
990      18040      :
991      004216 004737 005044      JSR      PC, ECHO
992      004222 005237 016164      INC      PTR
993      004226      50012$:
994      004226      50010$:
995      004226      50005$:
996      (3) 004226      50003$:
997      (2) 004226      50000$:
          000207      50001$:
          18220      RTS      PC
          18240

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004

SEQ 0042

999					18280	*****
1000					18300	DECODE THIS SECTION DECODES THE COMMAND STRING FROM THE
1001					18320	CONSOLE, AND SETS THE APPROPRIATE CONTROL FLAGS.
1002					18340	*****
1003					18360	
1004	004230					DECODE:
1005					18400	
1006	004230	010046				MOV RO, -(SP)
1007	004232	010146				MOV R1, -(SP)
1008	004234	010246				MOV R2, -(SP)
1009	004236	012702	001364			MOV #CTLBLK, R2
1010	004242	012700	004656			MOV #DECTBL, R0
1011	004246	012701	016114			MOV #INBUF, R1
1012	004252					50002\$:
1013					18560	
1014					18580	COMPARE CHAR IN TO FIRST BYTE OF TABLE
1015					18600	
1016	004252	121110				CMPB (R1), (R0)
(9)	004254	001145				BNE 50004\$
1017					18640	
1018					18660	IF SAME GET FLAGS FROM THE TABLE TO TEMPF
1019					18680	
1020	004256	116037	000001	004774		MOVB 1(R0), DECSAV
1021	004264	056037	000002	005002		BIS 2(R0), TEMPF
1022	004272	046037	000004	005002		BIC 4(R0), TEMPF
1023	004300	005037	004776			CLR DATA
1024	004304	005037	005000			CLR DATA2
1025					18800	
1026					18820	SEE IF THIS COMMAND REQUIRES ADDITIONAL DATA
1027					18840	
1028	004310	032737	000340	004774		BIT #NREQ, DECSAV
(9)	004316	001520				BEQ 50005\$
1029	004320	126127	000001	000015		CMPB 1(R1), #CR
(9)	004326	001006				BNE 50006\$
1030					18900	
1031					18920	DATA REQUIRED BUT NOT PRESENT...ERROR
1032					18940	
1033	004330	004737	005062			JSR PC, CMDERR
1034					18980	
1035					19000	IF A OR D COMMAND USE DATA FOR LINE NO.
1036					19020	
1037	004334	012737	016114	016164		MOV #INBUF, PTR
1038	004342	000505				BR 50007\$
(3)	004344					
1039					19080	50006\$:
1040					19100	CONVERT THE CHARS TO OCTAL...DATA
1041					19120	
1042	004344	012746	004776			MOV #DATA, -(SP)
1043	004350	116137	000001	004776		MOVB 1(R1), DATA
1044	004356	126127	000002	000015		CMPB 2(R1), #CR
(9)	004364	001003				BNE 50010\$
1045	004366	012746	000001			MOV #1, -(SP)
1046	004372	000417				BR 50011\$
(3)	004374					
1047	004374	116137	000002	004777		50010\$:
1048	004402	126127	000003	000015		MOVB 2(R1), DATA+1
						CMPB 3(R1), #CR

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CZLAFAD L336 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-26
 CZLAFAP11 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEQ 0043

(9)	004410	001003			BNE	50012\$
1049	004412	012746	000002		MOV	#2, -(SP)
1050	004416	000405			BR	50013\$
(3)	004420				50013\$:	
1051	004420	116137	000303	005000	MOVB	3(R1), DATA2
1052	004426	012746	000003		MOV	#3, -(SP)
1053	004432				50013\$:	
1054	004432				50011\$:	
1055	004432	012746	004776		MOV	#DATA, -(SP)
1056	004436	004737	007676		JSR	PC, A2BIN
1057				19440	:	
1058				19460	:	IF R COMMAND USE DATA AS A TEST NO.
1059				19480	:	
1060	004442	121027	000122		CMPB	(R0), #R
(9)	004446	001020			BNE	50014\$
1061				19520	:	
1062				19540	:	CHECK THE LIMITS FOR VALID TEST NO.
1063				19560	:	
1064				19580	:	***** #5 BELOW IS HIGHEST TEST NO THIS DIAGNOSTIC *****
1065	004450	005737	004776		TST	DATA
(8)	004454	002404			BLT	50015\$
(6)	004456	023727	004776	000005	CMP	DATA, #5
(9)	004464	003403			BLE	50016\$
(6)	004466				50015\$:	
1066	004466	004737	005100		JSR	PC, SELERR
1067				19640	:	
1068				19660	:	OUT OF RANGE ERROR.
1069				19680	:	
1070	004472	000403			SR	50017\$
(3)	004474				50016\$:	
1071	004474	013737	004776	005004	MOV	DATA, TEMPT
1072	004502				50017\$:	
1073	004502	052737	100000	005000	BIS	#MERR, DATA2
1074	004510				50014\$:	
1075				19800	:	
1076				19820	:	IF W COMMAND USE DATA AS WIDTH
1077				19840	:	
1078	004510	121027	000127		CMPB	(R0), #W
(9)	004514	001005			BNE	50020\$
1079				19880	:	
1080				19900	:	GO CHECK FOR VALID LIMITS ON WIDTH ENTRY.
1081				19920	:	
1082	004516	004737	005006		JSR	PC, CHKW
1083	004522	052737	100000	005000	BIS	#MERR, DATA2
1084	004530				50020\$:	
1085				20000	:	
1086				20020	:	IF ADDING OR DROPPING A LINE CALL UPDATE ROUTINE
1087				20040	:	
1088	004530	121027	000101		CMPB	(R0), #A
(8)	004534	001403			BEQ	50021\$
(6)	004536	121027	000104		CMPB	(R0), #D
(9)	004542	001005			BNE	50022\$
(6)	004544				50021\$:	
1089				20080	:	
1090				20100	:	TAKE LINE NO. AND UPDATE INTERFACE TABLE
1091				20120	:	

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CZLAFAD LAB6 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-27
 CZLAFAP11 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEG 0044

1092	004544	004737	002660			JSR	PC, UPDATE
1093	004550	052737	100000	005000		BIS	#MERR, DATA2
1094	004556				50022\$:		
1095	004556				50007\$:		
1096	004556	000403				BR	50023\$
(3)	004560				50005\$:		
1097	004560	052737	100000	005000		BIS	#MERR, DATA2
1098	004566				50023\$:		
1099	004566	000415				BR	50024\$
(3)	004570				50004\$:		
1100	004570	062700	000006			ADD	#6, R0
1101					20320		
1102					20340		
1103					20360		
1104					20380		
1105	004574	020027	004774			CMP	R0, #DTEND
(9)	004600	001010				BNE	50025\$
1106	004602	004737	005062			JSR	PC, CMDERR
1107	004606	012737	016114	016164		MOV	#INBUF, PTR
1108	004614	052737	100000	005000		BIS	#MERR, DATA2
1109	004622				50025\$:		
1110	004622				50024\$:		
1111					20520		
1112					20540		
1113					20560		
1114					20580		
1115	004622	032737	100000	005000		BIT	#MERR, DATA2
(5)	004630	001001				BNE	50003\$
1116	004632	000607				BR	50002\$
(3)	004634				50003\$:		
1117	004634	005037	005000			CLR	DATA2
1118					20660		
1119					20680		
1120					20700		
1121	004640	012737	016114	016164		MOV	#INBUF, PTR
1122	004646	012602				MOV	(SP)+, R2
1123	004650	012601				MOV	(SP)+, R1
1124	004652	012600				MOV	(SP)+, R0
1125	004654				50000\$:		
(3)	004654				50001\$:		
(2)	004654	000207				RTS	PC
1126					20820		
1127					20840		
1128	004656	123	000		20860		
1129	004660	001200	000040		20880		
1130	004664	115	000		20900		
1131	004666	001240	000000		20920		
1132	004672	121	000		20940		
1133	004674	000300	000000		20960		
1134	004700	122	200		20980		
1135	004702	000200	000100		21000		
1136	004706	104	100		21020		
1137	004710	002010	000004		21040		
1138	004714	101	100		21060		
1139	004716	002004	000010		21080		
1140	004722	124	000		21100		

DECTBL:	.BYTE	'S, 0	: DECODE TABLE
	.WORD	ATTN!NEWMOD, MULTI	: FIRST - CHAR TO BE DECODED
	.BYTE	'M, 0	: SECOND - CONTROL BITS
	.WORD	ATTN!MULTI!NEWMOD, 0	: THIRD - SET MASK
	.BYTE	'Q, 0	: FOURTH - CLEAR MASK
	.WORD	ATTN!SEQ, 0	
	.BYTE	'R, 200	
	.WORD	ATTN, SEQ	
	.BYTE	'D, 100	
	.WORD	DROPC!NEWST, ADDC	
	.BYTE	'A, 100	
	.WORD	ADDC!NEWST, DROPC	
	.BYTE	'T, 0	: CONTROL BITS:

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 CZLAFAP11 03-JAN-78 11:20 CONSOLE TERMINAL ROUTINES

SEQ 0045

1141	004724	010000	000000	21120	.WORD	PRINTT,0	
1142	004730	114	000	21140	.BYTE	'L,0	
1143	004732	040000	000000	21160	.WORD	LOOPOE,0	
1144	004736	110	000	21180	.BYTE	'H,0	:5 = GET WIDTH
1145	004740	100000	000000	21200	.WORD	HALTOE,0	
1146	004744	116	000	21220	.BYTE	'N,0	:6 = GET LINE N
1147	004746	020000	000000	21240	.WORD	INHRPT,0	
1148	004752	120	000	21260	.BYTE	'P,0	:7 = GEN TEST NO.
1149	004754	000000	020000	21280	.WORD	0,INHRPT	
1150	004760	103	000	21300	.BYTE	'C,0	
1151	004762	000000	140000	21320	.WORD	0,HALTOE!LOOPOE	
1152	004766	127	040	21340	.BYTE	'W,40,0,0,0,0	
	004771	000	000				
1153	004774			21360	DTEND:		
1154	004774	000000		21380	DECSAV:	.WORD	0
1155	004776	000000		21400	DATA:	.WORD	0
1156	005000	000000		21420	DATA2:	.WORD	0
1157	005002	000000		21440	TEMPF:	.WORD	0
1158	005004	000000		21460	TEMPT:	.WORD	0
1159				21480			
1160				21500			
1161				21520			
1162				21540			
1163				21560	*****		
1164				21580	: CHKW THIS ROUTINE VALIDATES A "W" COMMAND		
1165				21600	*****		
1166	005006				CHKW:		
1167				21621	:		
1168				21622	: RANGE OF 26 THRU 132 CHARACTERS IS VALID		
1169				21623	:		
1170	005006	023727	004776	000032	CMP	DATA,#32	
(8)	005014	002404			BLT	50002\$	
(6)	005016	023727	004776	000204	CMP	DATA,#132.	
(9)	005024	003403			BLE	50003\$	
(6)	005026				50002\$:		
1171	005026	004737	005100		JSR	PC,SELERR	
1172	005032	000403			BR	50004\$	
(3)	005034				50003\$:		
1173	005034	013737	004776	016146	MOV	DATA,WIDTH	
1174	005042				50004\$:		
1175	005042				50000\$:		
(3)	005042				50001\$:		
(2)	005042	000207			RTS	PC	
1176				21760			
1177				21780			

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CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-29
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CONSOLE TERMINAL ROUTINES

SEQ 0046

1179				21820	*****
1180				21840	:ECHO CONSOLE KEYBOARD ECHO ROUTINE; PTR HAS ADDR OF CHAR
1181				21860	*****
1182				21880	
1183	005044	105737	177564	21900	ECHO: TSTB @#TPS
1184	005050	100375		21920	BPL ECHO
1185	005052	117737	011106 177566	21940	MOVb @PTR, @#TF3
1186	005060	000207		21960	RTS PC
1187				21980	

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 1-30
 CZLAFAP11 03-JAN-78 11:20 ERROR & REPORT ROUTINES

SEG 0047

1189				22020	.SBTTL ERROR & REPORT ROUTINES
1190				22040	*****
1191				22060	:CMDERR ROUTINE TO HANDLE INVALID COMMANDS
1192				22080	*****
1193				22100	
1194	005062				CMDERR:
1195	005062	012700	020017		MOV #ER1,RO
1196	005066	104000		22160	TYPE
1197	005070	012700	020123		MOV #RDY,RO
1198	005074	104000		22200	TYPE
1199	005076				50000\$:
(3)	005076				50001\$:
(2)	005076	000207			RTS PC
1200				22240	*****
1201				22260	:SELERR ROUTINE TO HANDLE SELECTION ERRORS
1202				22280	*****
1203				22300	
1204	005100				SELERR:
1205	005100	012700	020032		MOV #ER2,RO
1206	005104	104000		22360	TYPE
1207	005106	012700	020123		MOV #RDY,RO
1208	005112	104000		22400	TYPE
1209	005114	012737	016114 016164		MOV #INBUF,PTR
1210	005122				50000\$:
(3)	005122				50001\$:
(2)	005122	000207			RTS PC
1211				22460	

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1213      22500      :*****
1214      22520      :ERRORS ERROR LOGGER AND TYPEOUT ROUTINE
1215      22540      :
1216      22560      :*****
1217      22580
1218      005124      ERROR:
1219      005124      005037      005434      CLR      ERRSAV
1220      005130      032737      020000      001364      BIT      #INHRPT,PCFLAG
1221      005136      001044      BNE      50002$
1222      22642      :
1223      22644      :CONVERT TEST NO. FOR OUTPUT
1224      22646      :
1225      005140      013746      016154      MOV      INTEST,-(SP)
1226      005144      012746      000002      MOV      #2,-(SP)
1227      005150      012746      020001      MOV      #ERO+16,-(SP)
1228      005154      004737      007566      JSR      PC,02ASC
1229      22722      :
1230      22724      :CONVERT ERROR NO. FOR OUTPUT
1231      22726      :
1232      005160      113737      002032      005434      MOV      CFLAGS,ERRSAV
1233      005166      013746      005434      MOV      ERRSAV,-(SP)
1234      005172      012746      000003      MOV      #3,-(SP)
1235      005176      012746      017770      MOV      #ERO+7,-(SP)
1236      005202      004737      007566      JSR      PC,02ASC
1237      22822      :
1238      22824      :CONVERT LINE NO. FOR OUTPUT
1239      22826      :
1240      005206      013746      016160      MOV      ONLIN,-(SP)
1241      005212      012746      000002      MOV      #2,-(SP)
1242      005216      012746      020011      MOV      #ERO+24,-(SP)
1243      005222      004737      007566      JSR      PC,02ASC
1244      005226      012700      017761      MOV      #ERO,RO
1245      005232      104000      TYPE
1246      22940      :
1247      22960      :
1248      22980      :CLEAR THE ERROR FLAG
1249      23000      :
1250      005234      042737      100377      002032      BIC      #MERRN,CFLAGS
1251      23040      :
1252      23060      :GET THE POINTER SUPPLIED BY THE PROGRAM
1253      23080      :AND PRINT THE ERROR DESCRIPTION MSG.
1254      23100      :
1255      005242      013700      002034      MOV      TSCPTR,RO
1256      005246      104000      TYPE
1257      005250      005037      005434      50002$: CLR      ERRSAV
1258      23200      :
1259      23220      :UPDATE THE ERROR COUNT FOR THE FAILING LINE
1260      23240      :
1261      005254      013737      016160      005434      MOV      ONLIN,ERRSAV
1262      005262      006337      005434      ASL      ERRSAV
1263      005266      006337      005434      ASL      ERRSAV
1264      005272      006337      005434      ASL      ERRSAV
1265      005276      062737      016170      005434      ADD      #LINOO,ERRSAV
1266      005304      005277      000124      INC      JERRSAV
1267      23340      :
1268      23360      :IF LOOP ON ERROR IS SET , MAKE THE

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SEG 0049

1266					23380	:	RETURN ADDRESS OF THE TEST	ODD.
1267					23400	:	THE TEST CONTROLLER WILL USE THE OLD	
1268					23420	:	RPC TO RE-DO THE SUBTEST.	
1269					23440	:		
1270	005310	032737	040000	001364			BIT	#LOOPOE,PCFLAG
(9)	005316	001403					BEQ	50003\$
1271	005320	052765	000001	000010			BIS	#BITD,RPC(R5)
1272	005326				50003\$:			
1273					23520	:		
1274					23540	:	SEE IF LINE ABORT FLAG IS SET	
1275					23560	:		
1276	005326	032777	000020	000100			BIT	#ABO,ERRSAV
(9)	005334	001431					BEQ	50004\$
1277					23600	:		
1278					23620	:	IF ABORT IS SET DESELECT THE LINE	
1279					23640	:	UNLESS IT'S THE ONLY ONE BEING TESTED	
1280					23660	:		
1281	005336	032737	000040	001364			BIT	#MULTI,PCFLAG
(9)	005344	001417					BEQ	50005\$
1282	005346	042777	000377	000060			BIC	#SEL:#177,ERRSAV
1283	005354	013746	016160				MOV	ONLIN,-(SP)
1284	005360	012746	000002				MOV	#2,-(SP)
1285	005364	012746	020270				MOV	#DR1,-(SP)
1286	005370	004737	007566				JSR	PC,02ASC
1287					23800	:		
1288					23820	:	NOTIFY OPERATOR THAT LINE WAS DROPPED	
1289					23840	:		
1290	005374	012700	020242				MOV	#DRO,RO
1291	005400	104000			23880		TYPE	
1292					23900	:		
1293					23920	:	IF TESTING ONLY ONE LINE DONOT ALLOW IT TO BE DESELECTED	
1294	005402	000406					BR	50006\$
(3)	005404				50005\$:			
1295	005404	052777	000200	000022			BIS	#SEL,ERRSAV
1296	005412	042777	000020	000014			BIC	#ABO,ERRSAV
1297	005420				50006\$:			
1298	005420				50004\$:			
1299					24040	:		
1300					24060	:	HALT HERE IF HALT ON ERROR IS SET	
1301					24080	:		
1302	005420	032737	100000	001364			BIT	#HALTOE,PCFLAG
(9)	005426	001401					BEQ	50007\$
1303	005430	000000			24120		HALT	
1304	005432				50007\$:			
1305	005432				50000\$:			
(3)	005432				50001\$:			
(2)	005432	000207					RTS	PC
1306					24180			
1307	005434	000000			24200		ERRSAV: .WORD	0
1308					24220			
1309					24240	:	*****	
1310					24260	:	REPORT	THIS ROUTINE HANDLES END OF TEST AND
1311					24280	:		END OF PASS REPORTS.
1312					24300	:	*****	
1313					24320	:		
1314	005436						REPORT:	


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1315      24345 ; CHECK FOR END OF TEST CONDITION
1316      24350 ;
1317 005436 032737 040000 002032      BIT      #EOT,CFLAGS
(9) 005444 001423                      BEQ      50002$
1318      24365 ;
1319      24370 ; CONVERT TEST NO. FOR OUTPUT
1320      24375 ;
1321 005446 013746 016154      MOV      INTEST,-(SP)
1322 005452 012746 000002      MOV      #2,-(SP)
1323 005456 012746 020210      MOV      #EOTM+18,-(SP)
1324 005462 004737 007566      JSR      PC,02ASC
1325      24445 ;
1326      24450 ; SEND END OF TEST MESSAGE
1327 005466 042737 040000 002032      BIC      #EOT,CFLAGS
1328      24455 ;
1329 005474 012700 020166      MOV      #EOTM,RO
1330 005500 004737 007010      JSR      PC,MTYPE
1331 005504 012700 017051      MOV      #L3,RO
1332 005510 004737 007010      JSR      PC,MTYPE
1333      50002$:
1334      24505 ;
1335      24510 ; CHECK FOR END OF PASS CONDITION
1336      24515 ;
1337 005514 032737 020000 002032      BIT      #EOP,CFLAGS
(9) 005522 001425                      BEQ      50003$
1338 005524 013746 016154      MOV      INTEST,-(SP)
1339      24545 ;
1340      24550 ; CONVERT TEST NO. FOR OUTPUT
1341      24555 ;
1342 005530 012746 000002      MOV      #2,-(SP)
1343 005534 012746 020161      MOV      #EOPM+19,-(SP)
1344 005540 004737 007566      JSR      PC,02ASC
1345      24605 ;
1346      24610 ; CONVERT PASS NUMBER FOR OUTPUT
1347      24615 ;
1348 005544 013746 002036      MOV      TSCCNT,-(SP)
1349 005550 012746 020145      MOV      #EOPM+7,-(SP)
1350 005554 004737 010006      JSR      PC,BIN2DA
1351      24685 ;
1352      24690 ; SEND END OF PASS MESSAGE.
1353      24695 ;
1354 005560 012700 020136      MOV      #EOPM,RO
1355 005564 004737 007010      JSR      PC,MTYPE
1356 005570 042737 020000 002032      BIC      #EOP,CFLAGS
1357 005576
1358 005576      50003$:
(3) 005576      50000$:
(2) 005576      50001$:
1359      RTS      PC
1360      24800
1361      24820
1362      24840

```

M04

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 2
CZLAFAP11 03-JAN-78 11:20 ERROR & REPORT ROUTINES

SEQ 0051

```
1363 00050 *****
1364 00070 : SETIO ROUTINE TO SET I/O MODE
1365 00090 *****
1366 00110
1367 00130
1368 005600 SETIO:
1369 005600 50002$:
1370 005600 032737 000001 001364 BIT #FLAG1,PCFLAG
1371 005606 001003 000003 001364 BNE 50003$
1372 005610 052737 000003 001364 BIS #FLAG1!#FLAG2,PCFLAG
1373 005616 032737 000001 001364 50003$: BIT #FLAG1,PCFLAG
1374 005624 001765 BEQ 50002$
1375 005626 032737 000002 001364 BIT #FLAG2,PCFLAG
1376 005634 001761 BEQ 50002$
1377 005636 000207 50000$:
1378 005636 000207 50001$: RTS PC
1379 00320
1380 00340
```

Address	Hex 1	Hex 2	Hex 3	Hex 4	Hex 5	Assembly	Comments
1378					00700	.SBTTL	INTERFACE SIZER ROUTINES
1379					00900	*****	
1380					00950	;BUILD	SUBROUTINE TO BUILD THE DEVICE TABLE USED
1381					01000	;	IN MULTI LINE MODE.
1382					01050	*****	
1383	005640	012737	000003	000066	01100	BUILD: MOV	#BPT,66 ;SET UP CONSOLE TRAP
1384	005646	012737	006120	000004	01150	MOV	#4\$,MACHER ;SET UP NXM TRAP
1385	005654	012701	016170		01200	MOV	#LIN00,R1
1386	005660	012137	016126		01220	1\$: MOV	(R1)+,DLFLAG
1387	005664	012137	016130		01240	MOV	(R1)+,DLADR
1388	005670	012137	016132		01260	MOV	(R1)+,DLVEC
1389	005674	012137	016134		01280	MOV	(R1)+,DLOTH
1390	005700	013737	016130	016140	01400	MOV	DLADR,DVCTXS
1391	005706	062737	000004	016140	01430	ADD	#4,DVCTXS
1392	005714	013737	016140	016142	01440	MOV	DVCTXS,DVCTXB
1393	005722	062737	000002	016142	01450	ADD	#2,DVCTXB
1394	005730	113737	016135	016160	01500	MOVB	DLOTH+1,ONLIN
1395	005736	005777	010166		01750	TST	DLADR
1396	005742	052737	100000	016126	01850	BIS	#DLP,DLFLAG ;TRY TO ACCESS DVC.
1397	005750	012737	000300	007564	01900	MOV	#300,DELAYT ;SET DVC PRESENT FLAG
1398	005756	112777	000076	010156	01925	MOVB	#',ADVCTXB ;SET UP FOR DELAY
1399	005764	052777	000100	010146	01950	BIS	#100,ADVCTXS ;TXMIT A ">" CHARACTER
1400	005772	104006			02050	DELAYR	
1401	005774	005737	016132		02100	TST	DLVEC ;SET DVC TX INTR ENABLE
1402	006000	001433			02125	BEQ	2\$;WAIT FOR INTERRUPT
1403					02150		
1404					02200		
1405	006002	052737	000200	016126	02300	BIS	#SEL,DLFLAG ;IF ZERO NO INTERRUPT OCCURED
1406	006010	013741	016134		02350	3\$: MOV	DLOTH,-(R1) ;NO INTERRUPT - BRANCH
1407	006014	013741	016132		02400	MOV	DLVEC,-(R1) ;OTHERWISE DLVEC=ADDR THAT
1408	006020	013741	016130		02450	MOV	DLADR,-(R1) ;DVC INTERRUPTED TO VIA INTRAP
1409	006024	013741	016126		02500	MOV	DLFLAG,-(R1) ;SET SELECTED FLAG
1410					02550		
1411	006030	062701	000010		02600	ADD	#10,R1 ;JUMP POINTER TO NEXT LINE
1412	006034	020127	016770		02650	5\$: CMP	R1,#TABEND ;ALL DONE ?
1413	006040	001307			02700	BNE	1\$;NO - DO NEXT LINE
1414	006042	162701	000010		02750	6\$: SUB	#10,R1 ;CKECH LAST ENTRY
1415	006046	005711			02800	TST	(R1) ;FOR LINE PRESENT
1416	006050	100403			02850	BMI	7\$
1417	006052	012711	177777		02900	MOV	#-1,(R1) ;IF NOT SET IT TO END
1418	006056	000771			02950	BR	6\$;OF TABLE
1419	006060	012737	000006	000004	03100	7\$: MOV	#6,MACHER ;RESET TRAP CATCHER
1420	006066	000207			03150	RTS	PC
1421	006070	052737	000020	016126	03200	2\$: BIS	#AB0,DLFLAG ;SET ABORT FLAG
1422	006076	042737	000200	016126	03250	BIC	#SEL,DLFLAG ;MAKE SURE LINE IS DESELECTED
1423	006104	004737	005124			JSR	PC ERROR

B05

CZLAFA0 LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 2-2
CZLAFA.P11 03-JAN-78 11:20 INTERFACE SIZER ROUTINES

SEQ 0053

1434	006126	012700	001000	03850	CATCH: MOV	#1000,RO	::START AT 1000
1435	006132	005040		03900	IS: CLR	-(RO)	;PUT HALT IN PC+2
1436	006134	010037	016100	03950	MOV	RO,TEMP	
1437	006140	013740	016100	04000	MOV	TEMP -(RO)	;PUT PC+2 IN PC
1438	006144	020027	000100	04050	CMP	RO,#100	;FIN?
1439	006150	002370		04100	BGE	IS	;NO - DO MORE
1440	006152	012737	003466 000060	04200	MOV	#READKB,2#TKV	;SU CONSOLE
1441	006160	000207		04250	RTS	PC	
1442				04300			
1446				04500			

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 2-3
 CZLAFAP11 03-JAN-78 11:20 INTERFACE SIZER ROUTINES

SEQ 0054

1451					05400
1452					05450
1453					05500
1454					05550
1455					05600
1456					05650
1457					05700
1458	006162				05750
(4)	006162	011637	016112		
1459	006166	162737	000002	016112	05800
1460	006174	017737	007712	016110	05850
1461	006202	042737	104400	016110	05950
1462	006210	062737	006230	016110	06000
1463	006216	017737	007666	016112	06050
1464	006224	000177	007662		06100
1465					06150
1466					06200
1467	006230	006240			06250
1468	006232	007212			06300
1469	006234	007162			06350
1470	006236	007530			06400

.SBTTL EMT HANDLER

 : THIS SECTION CONTAINS THE HANDLER AND MOST ROUTINES ACCESSED
 : BY TRAPS THROUGH LOCATION 30.

EMTBOS:

```

MOV    (SP),TEMP+12
SUB    #2,TEMP+12      ;GET REAL PC
MOV    @TEMP+12,TEMP+10 ;GET EMT INSTRUCTION
BIC    #104400,TEMP+10 ;MASK INSTR BITS
ADD    @EMTABL,TEMP+10 ;ADD TABLE ADDR
MOV    @TEMP+10,TEMP+12
JMP    @TEMP+12

```

.EVEN

EMTABL:

```

ETYPE      ;NSOLE TYPE ROUTINE
PRTLTB     ;LINE TABLE PRINTER
INTRAP     ;DL INTERRUPT CATCHER
DELAYM     ;DELAY ROUTINE

```

```

1472 06650 .SBTTL I/O DRIVERS
1473 06700 *****
1474 06750 :ETYPE CONSOLE OUTPUT ROUTINE. ENTER WITH ADDRESS OF
1475 06800 :DATA IN R0. NULL TERMINATES OUTPUT.
1476 06850 *****
1477 06900
1478 006240 105710 06950 ETYPE: TSTB (R0) :CHECK FOR NULL
1479 006242 001406 07000 BEQ 3$ :EXIT ROUTINE
1480 006244 105737 177564 1$ TSTB 3$TPS :CHECK FOR TRANSMIT READY
1481 006250 100375 07050 BPL 1$ :WAIT
1482 006252 112037 177566 07100 MOVB (R0)+,3$TPB :TRANSMIT CHARACTER
1483 006256 000770 07150 BR ETYPE :GET NEXT CHAR
1484 006260 105737 177564 3$ TSTB 3$TPS :WAIT TILL ALL DONE
1485 006264 100375 07200 BPL 3$
1486 006266 000002 07250 RTI :EXIT...
1487 07287
1488 07300
1489 07350
1490 07400 *****
1491 07450 :MECHO TERMINAL OUTPUT ROUTINE - SINGLE CHAR
1492 07500 :CHAR IN R2
1493 07550 :INTERRUPT DRIVEN ALL LINES
1494 07600 *****
1495 006270 010237 006646 MECHO: MOV R2,MSAVE
1496 006274 010446 07750 MOV R4, -(SP)
1497 006276 012702 020434 07800 MOV #STACK2,R2 :INITIALIZE STACK2
1498 006302 005037 020670 07850 CLR ENDS :ZERO COUNT
1499 006306 012704 020574 07900 1$ MOV #STACK3,R4 :INITIALIZE STACK3
1500 006312 013722 016132 07950 MOV DLVEC,(R2)+ :GET THE BASE VECTOR ADDR
1501 006316 013737 016144 016150 07950 MOV TXVEC,SAVE :SAVE THE VECTOR
1502 006324 062737 000002 016150 08000 ADD #2,SAVE
1503 006332 013777 016150 007604 08050 MOV SAVE,3TXVEC :PUT ADDR+2 INTO ADDR
1504 006340 012777 000004 007602 08100 MOV #IOT,3SAVE :PUT TRAP INTO ADDR+2
1505 006346 012737 000310 007564 08150 MOV #200,DELAYT :WAIT FOR 200 MS.
1506 006354 113777 006646 007560 08200 MOVB MSAVE,3DVCTXB :PUT CHAR IN BUF REG
1507 006362 012777 000100 007550 08250 MOV #100,3DVCTXS :ENABLE TX INTERRUPT
1508 006370 005237 020670 08300 MOV ENDS :ADD 1 TO INTR PENDING COUNT
1509 006374 004737 002110 JSR PC,LINMON
1510 006400 032737 000400 001364 08400 BIT #LDONE,PCFLAG :END OF DVC LIST ?
1511 006406 001741 08450 BEQ 1$ :NO DO THIS LINE
1512 006410 042737 000400 001364 08500 BIC #LDONE,PCFLAG
1513 006416 010237 006650 08550 MOV R2,MSAVE+2 :SAVE STACK2 POINTER
1514 006422 104006 08600 DELAYR
1515 006424 005737 020670 08650 TST ENDS
1516 006430 001004 08700 BNE 3$ :ALL PENDING INTERRUPTS SHOULD
1517 (4) 006432 012604 08750 12$ :BE COUNTED DOWN BY TXTRAP.
1518 006434 013702 006646 08800 MOV (SP)+,R4
1519 006440 000207 08850 MOV MSAVE,R2
1520 006442 010437 006652 08900 2$ RTS PC :EXIT.
1521 006446 012704 020574 08950 3$ MOV R4,MSAVE+4 :SAVE STACK 3 LIMIT
1522 006452 012702 020434 09000 MOV #STACK3,R4 :RESET STACK3 POINTER
1523 006460 001404 09050 MOV #STACK2,R2 :RESET STACK2 POINTER
1524 006462 020437 006652 09100 4$ CMP (R2),(R4)+ :VECTOR MATCH ?
1525 006466 001403 09150 BEQ 5$ :YES - BRANCH
1526 006470 000772 09200 CMP R4,MSAVE+4 :STACK END ?
09250 BEQ 6$ :YES - BRANCH
BR 4$ :COMPARE NEXT VECT.

```



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1527 006472 005012 09300 55: CLR (R2) ;ERASE VECT OUT
1528 006474 005044 09350 CLR -(R4) ;ERASE VECT IN
1529 006476 062702 000002 65: ADD #2,R2 ;MOVE STACK POINTER
1530 006502 020237 006650 09450 CMP R2,MSAVE+2 ;END OF OUT STACK ?
1531 006506 001403 09500 BEQ 7$ ;YES - GO GET ODD VECTOR
1532 006510 012704 020574 09550 MOV #STACK3,R4 ;RESET STACK3 POINTER
1533 006514 000760 09600 BR 4$ ;KEEP SORTING
1534 006516 012702 020434 75: MOV #STACK2,R2 ;RESET STACK2 POINTER
1535 006522 005712 09700 85: TST (R2) ;CHECK FOR NON ZERO
1536 006524 001003 09750 BNE 9$
1537 006526 062702 000002 09800 ADD #2,R2
1538 006532 000773 09850 BR 8$
1539 006534 012737 016174 006652 95: MOV #LIN00+4,MSAVE+4 ;GET VECT FROM TABLE
1540 006542 027712 000104 09950 105: CMP #MSAVE+4,(R2) ;MATCH ?
1541 006546 001404 10000 BEQ 11$ ;YES THIS LINE IS N.G.
1542 006550 062737 000010 006652 10050 ADD #10,MSAVE+4 ;MOVE POINTER TO NEXT
1543 006556 000771 10100 BR 10$
1544 006560 062737 000002 006652 10150 115: ADD #2,MSAVE+4 ;GET LINE NUMBER
1545 006566 017737 000060 016160 10200 MOV #MSAVE+4,ONLIN
1546 006574 105037 016160 10250 CLRB ONLIN
1547 006600 000337 016160 10300 SWAB ONLIN ;ERASE JUNK BITS
1548 006604 004737 002432 10350 JSR PC.MTW ;MOVE TABLE TO WORK AREAS
1549 006610 012737 020055 002034 10400 MOV #ER7,TSCPTR ;POINT TO ERROR MESSAGE
1550 006616 112737 000377 002032 10450 MOVB #377,CFLAGS ;ERROR NO.
1551 006624 052737 100000 002032 10500 BIS #MERR,CFLAGS ;SET ERROR FLAG
1552 10551
1553 10600 ;*****
1554 10650 ;ERROR 377 *
1555 006632 004737 005124 002032 10750 JSR PC.ERROR
1556 006636 042737 100377 002032 10800 BIC #MERRN,CFLAGS ;ERASE ERROR DATA
1557 006644 000672 000000 000000 10850 BR 12$ ;CLEAN HOUSE & EXIT
1558 006646 000000 000000 000000 MSAVE: .WORD 0,0,0
1559 10855
1560 10856
1561 10857
1562 10860 ;*****
1563 10861 ;SECHO SINGLE LINE ECHO ROUTINE
1564 10862 ;ENTER WITH CHAR IN R2
1565 10863 ;TRANSMITTS TO DVC VIA I/O DRIVER WORK AREA
1566 10864 ;*****
1567 10865
1568 10866
1569 006654
1570 006654 013737 016144 016150 SECHO: MOV TXVEC,SAVE
1571 006662 062737 000002 016150 ADD #2,SAVE
1572 006670 012777 007510 007246 MOV #STRAP,ATXVEC
1573 006676 012777 000200 007244 MOV #PRI4,ASAVE
1574 006704 012737 000144 007564 MOV #100,DELAYT
1575 006712 110277 007224 007214 MOVB R2,ADVCTXB
1576 006716 012777 000100 007214 MOV #100,ADVCTXS
1577 006724 005237 020670 10877 INC ENDS
1578 006730 104006 DELAYR TST ENDS
1579 006732 005737 020670 BEQ 50002$
1580 006736 001413 (9) 006736 MOV #ER7,TSCPTR
1581 006740 012737 020055 002034 BIS #376!#MERR,CFLAGS
1581 006746 052737 100376 002032

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CZLAFAD LAG36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 2-6
 CZLAFAP11 03-JAN-78 11:20 I/O DRIVERS

SEQ 0057

1582	006754	004737	005124			JSR	PC ERROR
1583	006760	042737	100377	002032		BIC	#MERRN,CFLAGS
1584	006766				50002\$:		
1585	006766	013777	016150	007150		MOV	SAVE,ATXVEC
1586	006774	005077	007150			CLR	SAVE
1587	007000	013737	016160	016150		MOV	ONLIN,SAVE
1588	007006				50000\$:		
(3)	007006				50001\$:		
(2)	007006	000207			RTS	PC	
1589					10900		
1590					10950		
1591					11000		
1592					11050		
1593					11100		
1594					11150		
1595					11200		
1596	007010	112002			11250		
1597	007012	001403			11300		
1598	007014	004737	006270				
1599	007020	000773			11400		
1600	007022	000207			11450		
1601					11460		
1602					11462		
1603					11464		
1604					11466		
1605					11468		
1606					11470		
1607					11472		
1608					11474		
1609	007024						
1610	007024	042737	004000	001364			
1611	007032	010237	007564				
1612	007036	012777	000101	007064			
1613	007044	104006			11480		
1614					11481		
1615	007046	032737	004000	001364			
(9)	007054	001003					
1616	007056	052765	100000	000004			
1617	007064						
1618					11487		
1619	007064	105737	016160				
(9)	007070	001004					
1620	007072	042737	000003	001364			
1621	007100	000402					
(3)	007102						
1622	007102	005077	007022				
1623	007106						
1624	007106						
(3)	007106						
(2)	007106	000207					
1625					11500		
1626					11502		
1627					11504		
1628					11506		
1629					11508		
1630					11510		


```

*****
:MTYPE  TERMINAL OUTPUT ROUTINE - LINE TABLE VERSION
:      ENTER WITH ADDR OF MSG IN R0
*****
:MTYPE:  MOVB    (R0)+,R2      ;GET CHAR TO PRINT
          BEQ     1$           ;EXIT IF NULL CHAR
          JSR     PC,MECHO
          BR      MTYPE        ;GET NEXT CHAR
1$:      RTS     PC           ;EXIT...

*****
: READIO  THIS ROUTINE MONITORS AN I/O READ OPERATION
:*****
READIO:  BIC     #DATAIN,PCFLAG
          MOV     R2,DELAYT
          MOV     #101,ADLADR
          DELAYR
: IF NO CHAR RECVD WITHIN (R2) MS SET ERROR FLAG
          BIT     #DATAIN,PCFLAG
          BNE     50002$
          BIS     #MERR,MFLAGS(R5)
50002$:  ; IF ON LINE-0 CLEAR I/O MODE FLAGS
          TSTB    ONLIN
          BNE     50003$
          BIC     #FLAG1,#FLAG2,PCFLAG
          BR      50004$
50003$:  CLR     ADLADR
50004$:
50000$:
50001$:  RTS     PC

*****
: TYPES  TERMINAL OUTPUT ROUTINE  SINGLE LINE
:*****

```

G05

CZLAFAD L436 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 2-7
 CZLAFAP11 03-JAN-78 11:20 I/O DRIVERS

SEQ 0058

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1631      11512
1632      11514
1633      007110 112002      11516      TYPES:  MOVB      (R0)+,R2      :GET CHAR TO PRINT
1634      007112 001403      11518      BEQ        1$      :EXIT IF NULL
1635      007114 004737      11520      JSR        PC,SECHO :SEND THE MESSAGE
1636      007120 000773      11522      BR         TYPES
1637      007122 000207      11524      1$:      RTS        PC      :EXIT
1638
1639
1640      11526
1641      11528
1642      11530      :*****
1643      11532      : READS      THIS ROUTINE SETS UP DVC RECVR VECTOR AREAS
1644      11533      :          IF THE CURRENT LINE IS NOT LINE-00
1645      11534      :*****
1646      11536
1647      11538
1648      007124      READS:
1649      007124 105737 016160      TSTB      ONLIN
1650      (9) 007130 001003      BNE        50002$
1651      007132 004737 005600      JSR        PC,SETIO
1652      007136 000410      BR         50003$
1653      007140      50002$:
1654      007140 010277 006766      MOV        R2,DLVEC
1655      007144 013702 016132      MOV        DLVEC,R2
1656      007150 062702 000002      ADD        #2,R2
1657      007154 012712 000200      MOV        #PRI4,(R2)
1658      007160      50003$:
1659      007160 000207      50000$:
1660      (3) 007160      50001$:
1661      (2) 007160      RTS        PC
1662
1663      11554
1664      11556

```


H05

SEQ 0059

1659				11595	.SBTTL TRAP ROUTINES	
1660				11600	*****	
1661				11650	:INTRAP: USED BY TABLE BUILD TO GET ADDRESS THAT A LINE	
1662				11700	: INTERRUPTS TO AN STORE IT IN - DLVEC.	
1663				11750	: TRANSMIT INTERRUPT USED, DLV HAS NO MAINT MODE.	
1664				11800	*****	
1665	007162	005077	006752	11875	:INTRAP: CLR 00VCTXS ;DISABLE THE INTERRUPTS.	
1666	007166	012637	016132		MOV (SP)+,DLVEC	
1667	007172	062706	000002	11900	ADD #2,SP ;SP+2 ADJUST STACK POINTER	
1668	007176	162737	000010	11950	SUB #10,DLVEC ;ADJUST TO RCVR INTR ADDR	
1669	007204	005037	007564	12000	CLR DELAYT ;RESET TIMER	
1670	007210	000002		12050	RTI ;GO BACK TO BUILD ROUTINE	
1671				12100		
1672				12150	*****	
1673				12200	:PRTLTB THIS ROUTINE TYPES THE LINE TABLE ON THE CONSOLE	
1674				12250	: DEVICE. DROPPED FLAGS ARE DECODED AND THE	
1675				12300	: APPROPRIATE INFORMATION IS PRINTED FOR EACH LINE.	
1676				12350	*****	
1677				12400		
1678	007212			12450	PRTLTB:	
(2)	007212	013746	016100		MOV TEMP,-(SP)	
1679	007216	013746	016102		MOV TEMP+2,-(SP)	
1680	007222	012702	016170	12650	MOV #LIN00,R2 ;POINTER TO ;START OF TABLE	
1681	007226	012700	017676	12700	MOV #HEADR2,R0	
1682	007232	104000		12750	TYPE	:PRINT HEADER
1683	007234	005712		12800	1\$: TST (R2)	:LINE PRESENT?
1684	007236	100406		12850	BMI 2\$	:YES - BRANCH
1685	007240	062702	000010	12900	ADD #10,R2	:MOVE POINTER TO NEXT ENTRY
1686	007244	021227	177777	12950	6\$: CMP (R2),#-1	:END OF TABLE?
1687	007250	001452		13000	BEQ 10\$	
1688	007252	000770		13050	BR 1\$	:YES - BRANCH
1689	007254	012237	016100	13100	2\$: MOV (R2)+,TEMP	:SAVE FLAG WORD
1690	007260	012246			MOV (R2)+,-(SP)	
1691	007262	012746	000004		MOV #4,-(SP)	
1692	007266	012746	017743		MOV #DLAD,-(SP)	
1693	007272	004737	007566	13300	JSR PC,02ASC	:CONVERT ADDRESS TO ASCII
1694	007276	012246			MOV (R2)+,-(SP)	
1695	007300	012746	000003	13400	MOV #3,-(SP)	
1696	007304	012746	017752		MOV #DLV,-(SP)	
1697	007310	004737	007566	13500	JSR PC,02ASC	:CONVERT LINE NO.
1698	007314	012237	016102	13550	MOV (R2)+,TEMP+2	
1699	007320	000337	016102	13600	SWAB TEMP+2	
1700	007324	013746	016102		MOV TEMP+2,-(SP)	
1701	007330	012746	000002		MOV #2,-(SP)	
1702	007334	012746	017733		MOV #LIN,-(SP)	
1703	007340	004737	007566	13800	JSR PC,02ASC	
1704	007344	012700	017733	13850	MOV #LIN,R0	:TYPE FORMATTED LINE
1705	007350	104000		13900	TYPE	
1706	007352	105737	016100	13950	3\$: TSTB TEMP	:SELECTED?
1707	007356	001403		14000	BEQ 4\$	:NO - BRANCH
1708	007360	012700	020117	14050	MOV #S1,R0	:SEND STAR
1709	007364	000402		14100	BR 5\$	
1710	007366	012700	020105	14150	4\$: MOV #DR,R0	:SEND DROPPED MSG
1711	007372	104000		14200	5\$: TYPE	
1712	007374	000723		14250	BR 6\$	
1713	007376			14300	10\$:	

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CZLAFAP11 03-JAN-78 11:20 TRAP ROUTINES

SEQ 0060

(2)	007376	012637	016102	MOV	(SP)+,TEMP+2
1714	007402	012637	016100	MOV	(SP)+,TEMP
1715	007406	012700	017051	MOV	#L3,R0
1716	007412	104000		TYPE	
1717	007414	000002		RTI	
1718					

14400
14450
14500
14550

```

1720      14600      ;*****
1721      14650      ;TXTRAP THIS ROUTINE CATCHES THE INTERRUPTS FROM
1722      14700      ;DL11'S IN USE BY THE MECO ROUTINE .
1723      14750      ;*****
1724      14950
1725      15000      TXTRAP: SUB      #10,(SP)      ;SUB 10 FROM UPDATED PC ON STACK
1726      15020      MOV      (SP),(R4)      ;PUT BASE VECTOR INTO STACK3
1727      15040      MOV      #LIN00+4,-(SP)      ;GET POINTER TO LINE TABLE VECTORS
1728      15060      1$: CMP      @0(SP),(R4)      ;COMPARE TABLE TO STACK3
1729      15080      BEQ      2$      ;SAME - BRANCH
1730      15100      ADD      #10,(SP)      ;POINT TO NEXT TABLE ENTRY
1731      15120      BR      1$      ;KEEP LOOKING FOR A MATCH
1732      15130      2$: SUB      #2,(SP)      ;ADDR OF DLADR NOW ON STACK
1733      15140      MOV      @0(SP),TEMP      ;GET DLADR FROM TABLE
1734      15160      ADD      #4,TEMP      ;POINT TO DVCTXS REGISTER
1735      15180      CLR      @TEMP      ;DISABLE INTERRUPT .S
1736      15200      ADD      #6,SP      ;SET STACK POINTER TO DRIVER PC
1737      15220      DEC      ENDS      ;DECRIMENT INTERRUPT PENDING COUNT
1738      15240      BGT      3$
1739      15260      CLR      DELAYT      ;ABORT TIMEOUT IF ALL ACCOUNTED FOR
1740      15280      3$: RTI      ;RETURN TO I/O DRIVER
1741      15300
1742      15500
1743      15501
1744      15502
1745      15503
1746      15504
1747      15505      ;*****
1748      15506      ;STRAP      SINGLE LINE TRANSMIT INTERRUPT CATCHER
1749      15507      ;USED IN CONJUNCTION WITH SECHO ROUTINE.
1750      15508      ;*****
1751      15509
1752      15515      STRAP: CLR      @DVCTXS
1753      15517      DEC      ENDS
1754      15519      CLR      DELAYT
1755      15520      RTI
1756      15522      50000$:
1757      15524      50001$: RTS      PC
1758      15526
1759      15528
1760      15530
1761      15532
1762      15534
1763      15536
1764      15538
1765      15540
1766      15542
1767      15544
1768      15546
1769      15548
1770      15550
1771      15552
1772      15554
1773      15556      ;*****
1774      15558      ;DELAYM, DELAYS FOR X MILLI SECONDS, X STORED IN - DELAYT
1775      15560      ;*****
1776      15562      DELAYM: TST      DELAYT
1777      15564      BEQ      3$
1778      15566      MOV      R3,-(SP)
1779      15568      MEXIT
1780      15570      TIMER,R3      ;1MS LOOP TIME
1781      15572
1782      15574
1783      15576
1784      15578
1785      15580
1786      15582
1787      15584
1788      15586
1789      15588
1790      15590
1791      15592
1792      15594
1793      15596
1794      15598
1795      15600
1796      15602
1797      15604
1798      15606
1799      15608
1800      15610
1801      15612
1802      15614
1803      15616
1804      15618
1805      15620
1806      15622
1807      15624
1808      15626
1809      15628
1810      15630
1811      15632
1812      15634
1813      15636
1814      15638
1815      15640
1816      15642
1817      15644
1818      15646
1819      15648
1820      15650
1821      15652
1822      15654
1823      15656
1824      15658
1825      15660
1826      15662
1827      15664
1828      15666
1829      15668
1830      15670
1831      15672
1832      15674
1833      15676
1834      15678
1835      15680
1836      15682
1837      15684
1838      15686
1839      15688
1840      15690
1841      15692
1842      15694
1843      15696
1844      15698
1845      15700
1846      15702
1847      15704
1848      15706
1849      15708
1850      15710
1851      15712
1852      15714
1853      15716
1854      15718
1855      15720
1856      15722
1857      15724
1858      15726
1859      15728
1860      15730
1861      15732
1862      15734
1863      15736
1864      15738
1865      15740
1866      15742
1867      15744
1868      15746
1869      15748
1870      15750
1871      15752
1872      15754
1873      15756
1874      15758
1875      15760
1876      15762
1877      15764
1878      15766
1879      15768
1880      15770
1881      15772
1882      15774
1883      15776
1884      15778
1885      15780
1886      15782
1887      15784
1888      15786
1889      15788
1890      15790
1891      15792
1892      15794
1893      15796
1894      15798
1895      15800
1896      15802
1897      15804
1898      15806
1899      15808
1900      15810
1901      15812
1902      15814
1903      15816
1904      15818
1905      15820
1906      15822
1907      15824
1908      15826
1909      15828
1910      15830
1911      15832
1912      15834
1913      15836
1914      15838
1915      15840
1916      15842
1917      15844
1918      15846
1919      15848
1920      15850
1921      15852
1922      15854
1923      15856
1924      15858
1925      15860
1926      15862
1927      15864
1928      15866
1929      15868
1930      15870
1931      15872
1932      15874
1933      15876
1934      15878
1935      15880
1936      15882
1937      15884
1938      15886
1939      15888
1940      15890
1941      15892
1942      15894
1943      15896
1944      15898
1945      15900
1946      15902
1947      15904
1948      15906
1949      15908
1950      15910
1951      15912
1952      15914
1953      15916
1954      15918
1955      15920
1956      15922
1957      15924
1958      15926
1959      15928
1960      15930
1961      15932
1962      15934
1963      15936
1964      15938
1965      15940
1966      15942
1967      15944
1968      15946
1969      15948
1970      15950
1971      15952
1972      15954
1973      15956
1974      15958
1975      15960
1976      15962
1977      15964
1978      15966
1979      15968
1980      15970
1981      15972
1982      15974
1983      15976
1984      15978
1985      15980
1986      15982
1987      15984
1988      15986
1989      15988
1990      15990
1991      15992
1992      15994
1993      15996
1994      15998
1995      16000
1996      16002
1997      16004
1998      16006
1999      16008
2000      16010
2001      16012
2002      16014
2003      16016
2004      16018
2005      16020
2006      16022
2007      16024
2008      16026
2009      16028
2010      16030
2011      16032
2012      16034
2013      16036
2014      16038
2015      16040
2016      16042
2017      16044
2018      16046
2019      16048
2020      16050
2021      16052
2022      16054
2023      16056
2024      16058
2025      16060
2026      16062
2027      16064
2028      16066
2029      16068
2030      16070
2031      16072
2032      16074
2033      16076
2034      16078
2035      16080
2036      16082
2037      16084
2038      16086
2039      16088
2040      16090
2041      16092
2042      16094
2043      16096
2044      16098
2045      16100
2046      16102
2047      16104
2048      16106
2049      16108
2050      16110
2051      16112
2052      16114
2053      16116
2054      16118
2055      16120
2056      16122
2057      16124
2058      16126
2059      16128
2060      16130
2061      16132
2062      16134
2063      16136
2064      16138
2065      16140
2066      16142
2067      16144
2068      16146
2069      16148
2070      16150

```


K05

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 CZLAFAP11 03-JAN-78 11:20 TRAP ROUTINES

SEQ 0062

1779	007550	005337	007564	16200	DEC	DELAYT
1780	007554	003371		16250	BGT	1\$
1781	007556	012603			MOV	(SP)+R3
(2)						.MEXIT
1782	007560	000002		16350	3\$: RTI	
1783				16400		
1784	007562	000554		16450	TIMER: .WORD	554
1785				16500		
1786				16550		
1787				16600		
1788				16650		
1789				16700		
1790				16750		
1791	007564	000000		16800	DELAYT: .WORD	0

```

:SET FOR 11/35 - 11/40
:SET TO 202 IF 11/03
:      251 11/05 - 11/10
:      314 11/15 - 11/20
:      2127 11/45 BIPOLAR
:      1237 11/45 - 11/70
:      755 11/45 MOS
:DELAY TIME BUFFER

```

.SBTTL CONVERSION ROUTINES

1793				16900
1794				16950
1795				17000
1796				17050
1797				17100
1798				17150
1799				17200
1800				17250
1801	007566	016637	000006	17300
1802	007574	013746	016150	17350
1803	007600	066666	000006	17400
1804	007606	005366	000004	17450
1805	007612	042716	177770	17500
1806	007616	052716	000060	17550
1807	007622	111676	000004	17600
1808	007626	005366	000004	17650
1809	007632	005366	000006	17700
1810	007636	001411		17750
1811	007640	006266	000010	17800
1812	007644	006266	000010	17850
1813	007650	006266	000010	17900
1814	007654	016616	000010	17950
1815	007660	000754		18000
1816	007662	016666	000002	18050
1817	007670	062706	000010	18100
1818	007674	000207		18150
1819				18200
1820				18250
1821				18300
1822				18350
1823				18400
1824				18450
1825				18500
1829				18700
1830	007676			
1831	007676	010046		
1832	007700	005037	010004	
1833	007704	016600	000010	
1834	007710			
1835	007710	142710	000370	
1836	007714	005366	000006	
1837	007720	152037	010004	
1838	007724	005766	000006	
(5)	007730	001407		
1839	007732	006337	010004	
(7)	007736	006337	010004	
(7)	007742	006337	010004	
1840	007746	000760		
(3)	007750			
1841	007750	016600	000004	
1842	007754	013710	010004	
1843	007760	011637	010004	
1844	007764	016600	000002	
1845	007770	062706	000010	
1846	007774	010016		
1847	007776	013700	010004	

```

:02ASCI OCTAL TO ASCII CONVERSION ROUTINE - ENTER WITH
:      NUMBER TO BE CONVERTED ON THE STACK, FOLLOWED
:      BY THE NUMBER OF DIGITS TO CONVERT, FOLLOWED
:      BY THE STORAGE ADDRESS FOR THE ASCII STRING.
:*****
02ASC:  MOV 6(SP),SAVE ;GET WORK COPY OF NUMBER
        MOV SAVE, -(SP)
        ADD 6(SP),4(SP) ;ADD COUNT TO POINTER
        DEC 4(SP) ;DEC FOR END ADDR
2$:     BIC #177770,(SP) ;MASK OUT ALL BUT 3 BITS
        BIS #60,(SP) ;MAKE CHAR ASCII
        MOVB (SP),24(SP) ;PUT ASCII CHAR IN BUFFER
        DEC 4(SP) ;INC POINTER
        DEC 6(SP) ;DEC DIGIT COUNT
        BEQ 1$ ;BRANCH IF DONE
        ASR 10(SP) ;
        ASR 10(SP) ;GET NEXT DIGIT
        ASR 10(SP) ;
        MOV 10(SP),(SP) ;
        BR 2$ ;DO NEXT CHAR FOR CONVERSION
1$:     MOV 2(SP),10(SP) ;PUT RETURN PC AT TOP OF JUNK
        ADD #10,SP ;POINT TO RETURN PC
        RTS PC ;EXIT...

```

```

:*****
:A2BIN CONVERTS INPUT ASCII TO BINARY NUMBER
:      ENTER WITH ADDR OF ASCII STRING ON STACK
:      FOLLOWED BY # DIGITS TO CONVERT
:      FOLLOWED BY ADDR OF WORD FOR ANSWER.
:*****

```

```

A2BIN:  MOV R0, -(SP)
        CLR A2SAV
        MOV 10(SP),R0
50002$: BICB #370,(R0)
        DEC 6(SP)
        BISB (R0)+,A2SAV
        TST 6(SP)
        BEQ 50003$
        ASL A2SAV
        ASL A2SAV
        ASL A2SAV
        BR 50002$
50003$: MOV 4(SP),R0
        MOV A2SAV,(R0)
        MOV (SP),A2SAV
        MOV 2(SP),R0
        ADD #10,SP
        MOV R0,(SP)
        MOV A2SAV,R0

```

M05

SEQ 0064

```

1848 010002
(3) 010002
(2) 010002 000207
1849
1850 010004 000000
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862 010006 012700 010146
1863 010012 112737 000005 010162
1864 010020 005037 010160
1865 010024 021066 000004
1866 010030 003005
1867 010032 161066 000004
1868 010036 105237 010160
1869 010042 000770
1870 010044 152737 000060 010160
1871 010052 105737 010161
1872 010056 001012
1873 010060 123727 010160 000060
1874 010066 001004
1875 010070 112737 000177 010160
1876 010076 000402
1877 010100 105137 010161
1878 010104 113776 010160 000002
1879 010112 005266 000002
1880 010116 062700 000002
1881 010122 105037 010160
1882 010126 105337 010162
1883 010132 001334
1884 010134 011666 000004
1885 010140 062706 000004
1886 010144 000207
1887
1888 010146 023420 001750 000144
010154 000012 000001
1889 010160 000
1890 010161 000
1891 010162 000 000
1892
1893
  
```

50000\$:
 50001\$:

RTS PC

A2SAV: .WORD 0 ; STORAGE AREA

```

*****
;BIN2DA BINARY TO DECIMAL ASCII CONVERSION ROUTINE
; ENTER WITH NUMBER TO CONVERT ON THE STACK,
; FOLLOWED BY THE ADDRESS OF THE ASCII BUFFER.
; 5 DIGITS WILL BE CONVERTED
*****
  
```

BIN2DA: MOV #TABDA,RO ; INITIALIZE TABLE POINTER

```

MOV #5,DIGITS
CLR CNTDA
1$: CMP (RO),4(SP)
BGT 2$
SUB (RO),4(SP)
INCB CNTDA
BR 1$
2$: BISB #60,CNTDA
TSTB FLAGDA
4$: BNE 4$
CMPB CNTDA,#'0
BNE 3$
MOV #177,CNTDA
BR 4$
3$: COMB FLAGDA
4$: MOV CNTDA,32(SP)
INC 2(SP)
ADD #2,RO
CLRB CNTDA
DECB DIGITS
1$: BNE 1$
MOV (SP),4(SP)
ADD #4,SP
RTS PC
  
```

TABDA: .WORD 10000.,1000.,100.,10.,1

```

CNTDA: .BYTE 0
FLAGDA: .BYTE 0
DIGITS: .BYTE 0,0
  
```



```

1898      00250      .SBTTL LA36 OPTION TESTS
1899      00300      ;*****
1900      00350      ;*****
1901      00400      ;TESTO SECONDARY CHARACTER SET OPTION
1902      00450      ;NO MANUAL INTERVENTION REQUIRED
1903      00500      ;*****
1904      00550      ;*****
1905      010164 012705 010352 00600      TESTO: MOV      #TOOBLK,R5      ;SET UP POINTER TO MODULE BLOCK
1906      010170 012700 010366 00650      MOV      #TO,R0      ;SU TEST ID
1907      010174 004737 007010      JSR      PC,MTYPE
1908      010200 012700 010424 00750      TO1:  MOV      #PRI,R0      ;SU PRIMARY MSG
1909      010204 004737 007010      JSR      PC,MTYPE
1910      010210 004737 010310 00850      JSR      PC,CHARS      ;SEND ALL CHARACTERS
1911      010214 012700 017730 00900      MOV      #L1,R0
1912      010220 004737 007010      JSR      PC,MTYPE
1913      010224 012700 010434 01000      MOV      #SEC,R0      ;SU SECONDARY MSG.
1914      010230 004737 007010      JSR      PC,MTYPE
1915      010234 012702 000016 01100      MOV      #SO,R2      ;SEND SO - SELECT APL SET
1916      010240 004737 006270      JSR      PC,MECHO
1917      010244 004737 010310 01200      JSR      PC,CHARS      ;SEND ALL CHARS AGAIN
1918      010250 012700 017730 01250      MOV      #L1,R0
1919      010254 004737 007010      JSR      PC,MTYPE
1920      010260 012702 000017 01350      MOV      #SI,R2      ;SEND SI-SELECT ASCII
1921      010264 004737 006270      JSR      PC,MECHO
1922
1923      010270 052765 020000 000004 01450      BIS      #TDONE,MFLAGS(R5)      ;SET DONE AND ATTENTION FLAGS
1924      010276 012702 000012 01550      MOV      #12,R2      ;SU FOR LF
1925      010302 004737 006270      JSR      PC,MECHO
1926      010306 000207 01650      RTS      PC
1927
1928      01700      ;*****
1929      01750      ;SUBROUTINE TO FILL OUTPUT LINE WITH ALL CHARACTERS
1930      01800
1931      01850      CHARS: MOV      WIDTH,R1      ;SAVE WIDTH
1932      01900      MOV      #40,R2      ;SAVE START CHAR
1933      01950      SUB      #7,R1      ;ADJUST WIDTH FOR PRI/SEC MSG
1934      02000      2$:      JSR      PC,MECHO
1935      02050      INC      R2      ;NEXT CHAR
1936      02100      CMP      R2,RUB      ;LAST CHAR?
1937      02150      BEQ      3$      ;YES - EXIT
1938      02200      DEC      R1      ;END OF PAPER?
1939      02250      BEQ      3$      ;YES - EXIT
1940      02300      BR      2$      ;SEND NEXT
1941      02350      3$:      RTS      PC
1942      02400      .WORD      6      ;ITERATION COUNT
1943      02450      TOOBLK: .WORD      0      ;CTL CNT
1944      02500      .WORD      0      ;PASS COUNT
1945      02550      .WORD      0      ;STATUS FLAGS
1946      02600      .WORD      0      ;POINTER
1947      02650      .WORD      TO1      ;RETURN PC
1948      02700      RUB:  .WORD      177
1949      02750      .NLIST BEX
1950      02800      TO:  .ASCIZ  *TEST 0 APL/ASCII CHAR SET*(15)<(12)<(12)
1951      02850      PRI:  .ASCIZ  /ASCII--/
1952      02900      SEC:  .ASCIZ  /APL----/
1953      02950      .EVEN

```

1954				03050
1955				03100
1956				03150
1957				03200
1958				03250
1959				03300
1960				03350
1961				03400
1962				03450
1963				03500
1964				03550
1965				03600
1966	010444			
1967	010444	012705	010722	03700
1968	010450	012700	010742	03750
1969	010454	004737	007010	
1970	010460			03850
1971				03900
1972				03950
1973				04000
1974				04050
1975				04100
1976	010460	012765	010566	000010
1977	010466	013701	010734	
1978	010472	012737	011176	010740
1979	010500	012737	000001	010736
(5)	010506	000402		
(4)	010510			
(7)	010510	005237	010736	
(5)	010514			
(5)	010514	023727	010736	000010
(7)	010522	003014		
1980	010524	012700	017730	
1981	010530	004737	007010	
1982	010534	017700	000200	
1983	010540	004737	007010	
1984	010544	062737	000002	010740
1985	010552	000756		
(3)	010554			
1986				04650
1987				04700
1988	010554			04750
(4)	010554	012765	010460	000010
1989	010562	013701	010734	
1990	010566			04850
1991	010566			
1992	010566	020127	000200	
(5)	010572	001420		
1993	010574	012700	020421	
1994	010600	110160	000003	
1995	010604	004737	007010	
1996	010610	112702	000002	
1997	010614	004737	006270	
1998				05250
1999	010620	004737	010662	
2000	010624	004737	007010	

.LIST BEX

TEST1: SELECTIVE ADDRESSING OPTION
 OPERATOR MUST COMPARE TYPEOUT AND SWITCHES ON THE M7737
 TO VERIFY CORRECT OPERATION.
 IF A GROUP OR UNIT SELECT CODE OF LESS THAN 20(8)
 IS USED MODIFY LOCATION GSEL ACCORDINGLY.

TEST1: MOV #T01BLK,R5 ;SET UP POINTER TO MODULE BLOCK
 MOV #T1,R0
 JSR PC,MTYPE

T11: ;DESELECT ALL TERMINALS, THEN TRY TO
 ;PRINT ERROR MESSAGES...SHOULD NOT PRINT
 ;TRANSMIT A BAD SELECT SEQUENCE, THEN TRY TO
 ;PRINT ERROR MESSAGES...SHOULD NOT PRINT
 ;SELECT ALL TERMINALS, PRINT GP MESSAGE.

MOV #T13,RPC(R5)
 MOV GSEL,R1
 MOV #TABL1,T1TEMP+2
 MOV #1,T1TEMP
 BR 50002\$

50003\$: INC T1TEMP

50002\$: CMP T1TEMP,#8.
 BGT 50004\$
 MOV #L1,R0
 JSR PC,MTYPE
 MOV #T1TEMP+2,R0
 JSR PC,MTYPE
 ADD #2,T1TEMP+2
 BR 50003\$

50004\$: ; TRANSMIT SELECT CODES TO ALL TERMINALS
 ; FOLLOWED BY ASCII EQUIV OF CODE.

T12: MOV #T11,RPC(R5)
 MOV GSEL,R1
 T13: ;OUTPUT ALL CODES AND ASCII EQUIVELANTS

50005\$: CMP R1,#200
 BEQ 50006\$
 MOV #SCODE,R0
 MOV R1,3(R0)
 JSR PC,MTYPE
 MOV #STX,R2
 JSR PC,MECHO
 ; NOW CONVERT SELECT CODE TO ASCII FOR OUTPUT
 JSR PC,CON
 JSR PC,MTYPE

2001	010630	005201				INC	R1	
2002	010632	000755				BR	50005\$	
(3)	010634					50006\$:		
2003					05500			; TURN ALL TERMINALS ON AND EXIT TEST
2004	010634				05550	T16:		
(4)	010634	012765	010460	000010		MOV	#T11, RPC(R5)	
2005	010642	052765	020000	000004		BIS	#TDONE, MFLAGS(R5)	
2006	010650	012700	020411			MOV	#ALLON, R0	
2007	010654	004737	007010			JSR	PC, MTYPE	
2008	010660					50000\$:		
(3)	010660					50001\$:		
(2)	010660	000207				RTS	PC	
2009					05750			; THIS ROUTINE CONVERTS THE SELECT CODE
2010					05800			; TO ASCII FOR OUTPUT IN OCTALC MESSAGE.
2011	010662					CON:		
2012	010662	005037	010736			CLR	TITEMP	
2013	010666	110137	010736			MOVB	R1, TITEMP	
2014	010672	013746	010736			MOV	TITEMP, -(SP)	
2015	010676	012746	000003			MOV	#3, -(SP)	
2016	010702	012746	011520			MOV	#OCTALC, -(SP)	
2017	010706	004737	007566			JSR	PC, O2ASC	
2018	010712	012700	011520			MOV	#OCTALC, R0	
2019	010716					50000\$:		
(3)	010716					50001\$:		
(2)	010716	000207				RTS	PC	
2020					06300			
2021	010720	000002			06350			; ITERATION COUNT
2022	010722	000000			06400	TO1BLK:	.WORD	0
2023	010724	000000			06450		.WORD	0
2024	010726	000000			06500		.WORD	0
2025	010730	000000			06550		.WORD	0
2026	010732	010460			06600		.WORD	0
2027	010734	000020			06650		.WORD	T11
2028	010736	000000	000000		06700	GSEL:	.WORD	20
2029					06750	TITEMP:	.WORD	0,0
2030	010742	005015	052012	051505	06800	.NLIST	BEX	
2031	011005	105	051122	051117	06850	T1:	.ASCIZ	<15><12><12>/TEST 1 SELECTIVE ADDRESSING/<15><12><12>
2032	011045	116	020117	042523	06900	E9:	.ASCIZ	/ERROR - THIS SHOULD NOT PRINT */
2033	011100	042523	042514	052103	06950	E12:	.ASCIZ	/NO SELECT CHARACTER SENT/<15><12>
2034	011137	101	046114	052040	07000	GP:	.ASCIZ	/SELECT CHARACTERS RECOGNIZED =/
2035		011176			07050	E10:	.ASCIZ	/ALL TERMINALS SHOULD BE OFF/<15><12>
2036	011176	020416	011005	011137	07100	TABL1:	.WORD	ALLOFF, E9, E10, NSELC, E9, E12, ALLON, GP
2037					07150			
2038					07200			
2039					07250			
2040					07300			
2041					07350			
2042					07400	*****		
2043					07450	;;GETANS		THIS ROUTINE SETS UP AND READS THE ANSWERBACK
2044					07500	*****		MESSAGE FROM THE TERMINAL UNDER TEST.
2045					07550			
2046					07600			
2047					07650			
2048	011216					GETANS:		
2049	011216	010337	011304			MOV	R3, 2\$	
2050	011222	012702	013144			MOV	#T220, R2	

2051	011226	004737	007124		JSR	PC, READS
2052	011232	012702	000005		MOV	#ENQ, R2
2053	011236	004737	006654		JSR	PC, SECHO
2054	011242			08000	1\$:	
(4)	011242	013702	011304		MOV	2\$, R2
2055	011246	004737	007024		JSR	PC, READIO
2056	011252	032765	100000	000004	BIT	#MERR, MFLAGS(R5)
(9)	011260	001405			BEQ	50002\$
2057	011262	042765	100000	000004	BIC	#MERR, MFLAGS(R5)
2058	011270	105011			CLRB	(R1)
2059	011272	000403			BR	50003\$
(3)	011274				50002\$:	
2060	011274	105237	013212		INCB	T2CNT1
2061	011300	000760		08350	BR	1\$
2062	011302				50003\$:	
2063	011302				50000\$:	
(3)	011302				50001\$:	
(2)	011302	000207			RTS	PC
2064	011304	000000			.WORD	0
2065				08500	2\$:	
2066				08550		
2067				08600		
2068				08650		
2069				08700	*****	
2070				08750	:TYPANS	THIS ROUTINE PRINTS THE ANSWERBACK MESSAGE
2071				08800	:	IN OCTAL FORMATT , AND ASCII FORMATT.
2072				08850	:*****	
2073	011306			08900		
2074				09000	TYPANS:	
2075	011306	012700	020421		MOV	#SCODE, R0
2076	011312	004737	007110		JSR	PC, TYPES
2077	011316	012702	000002		MOV	#STX, R2
2078	011322	004737	006654		JSR	PC, SECHO
2079	011326	012700	011472		MOV	#ANSHDR, R0
2080	011332	004737	007110		JSR	PC, TYPES
2081	011336	013746	013212		MOV	T2CNT1, -(SP)
2082	011342			09337	1\$:	
(4)	011342	005046			CLR	-(SP)
2083	011344	112116			MOVB	(R1)+, (SP)
2084	011346	012746	000003		MOV	#3, -(SP)
2085	011352	012746	011520		MOV	#OCTALC, -(SP)
2086	011356	004737	007566		JSR	PC, O2ASC
2087	011362	012700	011520		MOV	#OCTALC, R0
2088	011366	004737	007110		JSR	PC, TYPES
2089	011372	105337	013212		DECB	T2CNT1
2090	011376	105737	013212		TSTB	T2CNT1
(9)	011402	003402			BLE	50002\$
2091	011404	000756		09700	BR	1\$
2092	011406	000426			BR	50003\$
(3)	011410				50002\$:	
2093	011410	012700	017730		MOV	#L1, R0
2094	011414	004737	007110		JSR	PC, TYPES
2095	011420	012700	000023		MOV	#19, R0
2096	011424				50004\$:	
2097	011424	012702	000040		MOV	#40, R2
2098	011430	004737	006654		JSR	PC, SECHO

E06

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SEQ 0069

2099	011434	005300				DEC	RO
2100	011436	005700				TST	RO
(5)	011440	001401				BEG	50005\$
2101	011442	000770				BR	50004\$
(3)	011444					50005\$:	
2102	011444	012700	013220			MOV	#T2BUF,RO
2103	011450	004737	007110			JSR	PC,TYPES
2104	011454	012700	017730			MOV	#L1,RO
2105	011460	004737	007110			JSR	PC,TYPES
2106	011464					50003\$:	
2107	011464	012637	013212			MOV	(SP)+,T2CNT1
2108	011470					50000\$:	
(3)	011470					50001\$:	
(2)	011470	000207				RTS	PC
2109	011472	005015	047101	053523	10100	ANSHDR:	.ASCIZ <15><12>/ANSWERBACK RECVD = /
2110	011520	030060	027460	000	10150	OCTALC:	.ASCIZ *000/*
2111		011526			10200		
2112					10250		

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SEQ 0070

2114				
2115				
2116				
2117				
2118				
2119				
2120				
2121				
2122				
2123	011526			
2124	011526	012700	013326	
2125	011532	012701	013220	
2126	011536	012705	013176	
2127	011542	004737	007010	
2128	011546			
2129				
2130				
2131	011546	105737	016134	
(9)	011552	001065		
2132	011554	012701	013220	
2133				
2134				
2135				
2136				
2137	011560	013737	010734	013214
2138	011566	013737	016160	013216
(7)	011574	006337	013216	
(7)	011600	006337	013216	
(7)	011604	006337	013216	
2139	011610	062737	016176	013216
2140	011616	112777	000200	001372
2141	011624			
2142	011624	023727	013214	000200
(5)	011632	001435		
2143				
2144				
2145				
2146				
2147				
2148	011634	113737	013214	020424
2149	011642	012700	020421	
2150	011646	004737	007110	
2151	011652	012703	000310	
2152	011656	105037	013212	
2153	011662	004737	011216	
2154	011666	105737	013212	
(9)	011672	001412		
2155	011674	113777	013214	001314
2156	011702	113737	013214	016134
2157	011710	012737	000200	013214
2158	011716	000402		
(3)	011720			
2159	011720	105237	013214	
2160	011724			
2161	011724	000737		
(3)	011726			

```

10350 .LIST BEX
10400 *****
10450
10500 :TEST2 AUTO ANSWER BACK OPTION
10550 :SINGLE LINE TESTS REQUIRE MANUAL INTERVENTION
10600
10650 *****
10700
10750 .ENABL LSB
TEST2:
      MOV     #T2,R0
      MOV     #T2BUF,R1      :SET UP STACK-2 AS INPUT BUFFER
      MOV     #T02BLK,R5     :SET UP POINTER TO MODULE BLOCK
      JSR     PC,MTYPE
T21:   :IF THE LINE UNDER TEST HASN'T BEEN SIZED
      :FOR THE ANSWERBACK OPTION DO SO NOW.
      TSTB    DLOTH
      BNE     50002$
      MOV     #T2BUF,R1
      :CHECK DLOTH ENTRY OF LINE TABLE FOR CURRENT
      :LINE. IF LOBYTE IS 0 NO SIZE HAS BEEN DONE.
      :IF = 200 LINE SIZED BUT NO ANSWER RECVD.
      MOV     GSEL,T2TEMP
      MOV     ONLIN,T2TEMP+2
      ASL     T2TEMP+2
      ASL     T2TEMP+2
      ASL     T2TEMP+2
      ADD     #LIN00+6,T2TEMP+2
      MOVB    #200,T2TEMP+2
50003$: CMP     T2TEMP,#200
      BEQ     50004$
      :SEND EACH POSSABLE SELECT CODE TO THE
      :TERMINAL, THEN REQUEST AN ANSWERBACK.
      :IF AN ANSWER IS REVIEWED STORE THE SELECT
      :CODE IN DLOTH ENTRY OF THE LINE TABLE.
      :OTHERWISE SET DLOTH TO 200.
      MOVB    T2TEMP,SCODE+3
      MOV     #SCODE,R0
      JSR     PC,TYPES
      MOV     #200,R3
      CLRB    T2CNT1
      JSR     PC,GETANS
      TSTB    T2CNT1
      BEQ     50005$
      MOVB    T2TEMP,T2TEMP+2
      MOVB    T2TEMP,DLOTH
      MOV     #200,T2TEMP
      BR      50006$
50005$: INCB    T2TEMP
50006$: BR      50003$
50004$:

```


G06

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SEQ 0071

2162	011726				50002\$:	
2163				12600		
2164	011726			12650	T22:	: IF THE LINE HAS BEEN SIZED, BUT NO
2165				12700		: SELECT CODE HAS BEEN MAPPED NOTIFY THE
2166				12750		: OPERATOR .
2167				12800		
2168	011726	123727	016134	000200		CMPB DLOTH, #200
(9)	011734	001015				BNE 50007\$
2169				12900		: ERROR #0 NO ANSWERBACK FROM TERMINAL
2170				12950		: *****
2171				13000		
2172	011736	012765	012530	000010		MOV #T24, RPC(R5)
2173	011744	052765	100000	000004		BIS #MERR, MFLAGS(R5)
2174	011752	105065	000004			CLRB MFLAGS(R5)
2175	011756	012765	013356	000006		MOV #E14, POINT(R5)
2176	011764	000207		13250		RTS PC
2177	011766	000463				BR 50010\$
(3)	011770				50007\$:	
2178	011770	012701	013220			MOV #T2BUF, R1
2179				13400		: GET THE SELECT CODE FROM THE LINE TABLE &
2180				13450		: REQUEST AN ANSWERBACK.
2181				13500		
2182	011774	113737	016134	020424		MOVB DLOTH, SCODE+3
2183	012002	012700	020421			MOV #SCODE, R0
2184	012006	004737	007110			JSR PC, TYPES
2185	012012	012703	000310			MOV #200, R3
2186	012016	105037	013212			CLRB T2CNT1
2187	012022	004737	011216			JSR PC, GETANS
2188				13850		: CHECK FOR ANY RESPONSE FROM TERMINAL
2189				13900		
2190	012026	105737	013212			TSTB T2CNT1
(9)	012032	001015				BNE 50011\$
2191				14000		: ERROR #1 NO ANSWERBACK RECIEVED.
2192				14050		: *****
2193				14100		
2194	012034	012765	012530	000010		MOV #T24, RPC(R5)
2195	012042	052765	100000	000004		BIS #MERR, MFLAGS(R5)
2196	012050	112765	000001	000004		MOVB #1, MFLAGS(R5)
2197	012056	012765	013356	000006		MOV #E14, POINT(R5)
2198	012064	000424				BR 50012\$
(3)	012066				50011\$:	
2199	012066	012765	012140	000010		MOV #T23, RPC(R5)
2200				14450		: TEST LENGTH OF ANSWERBACK SHOULD BE 20 MAX.
2201				14500		
2202	012074	123727	013212	000024		CMPB T2CNT1, #20.
(9)	012102	003411				BLE 50013\$
2203				14600		: ERROR #2 ANSWERBACK OVER 20 CHARS LONG.
2204				14650		: *****
2205				14700		
2206	012104	052765	100000	000004		BIS #MERR, MFLAGS(R5)
2207	012112	112765	000002	000004		MOVB #2, MFLAGS(R5)
2208	012120	012765	013404	000006		MOV #E15, POINT(R5)
2209	012126				50013\$:	
2210	012126	012701	013220			MOV #T2BUF, R1
2211	012132	004737	011306			JSR PC, TYPANS
2212	012136				50012\$:	

H06

SEQ 0072

2213	012136				500105:	RTS PC
2214	012136	000207		15150	T23:	:SAVE COPIES OF THE ANSWERBACK AND IT'S LENGTH
2215	012140			15200		:THEN READ ANSWERBACKS 10 TIMES MORE.
2216				15250		:VERIFY THEY ARE ALL THE SAME.
2217				15300		
2218				15350		
2219	012140	012765	012206	000010		MOV #T23A, RPC(R5)
2220	012146	113737	013212	013213		MOVB T2CNT1, T2CNT2
2221	012154	012701	013220			MOV #T2BUF, R1
2222	012160	012700	020574			MOV #STACK3, R0
2223	012164				500145:	
2224				15650		:COPY ANSWERBACK TO STACK3 FOR COMPARISONS
2225	012164	105737	013212			TSTB T2CNT1
(5)	012170	001404				BEQ 500155
2226	012172	112120				MOVB (R1)+, (R0)+
2227	012174	105337	013212			DECB T2CNT1
2228	012200	000771				BR 500145
(3)	012202				500155:	
2229	012202	105037	013210			CLRB T2SAV1
2230				15950		
2231	012206			16000	T23A:	:RESET INPUT BUFFER POINTER AND ZERO COUNTER
2232				16050		
2233	012206	012701	013220			MOV #T2BUF, R1
2234	012212	105037	013212			CLRB T2CNT1
2235				16200		:SEND SELECT SEQUENCE TO TERMINAL
2236				16250		:THEN READ ANSWER
2237	012216	012700	020421			MOV #SCODE, R0
2238	012222	012703	000310			MOV #200, R3
2239	012226	004737	011216			JSR PC, GETANS
2240	012232	105237	013210			INCB T2SAV1
2241				16500		:IF NO ANSWER NOTIFY OPERATOR
2242				16550		:IF OLD ANSWER DIFFERENT FROM NEW ANSWER
2243				16600		:NOTIFY OPERATOR.
2244				16650		
2245	012236	105737	013212			TSTB T2CNT1
(9)	012242	001012				BNE 500165
2246				16750		: ERROR #30 NO ANSWERBACK DURING TEN READ LOOP
2247				16800		:*****
2248				16850		
2249	012244	052765	100000	000004		BIS #MERR, MFLAGS(R5)
2250	012252	012765	013356	000006		MOV #E14, POINT(R5)
2251	012260	112765	000030	000004		MOVB #30, MFLAGS(R5)
2252	012266	000500				BR 500175
(3)	012270				500165:	
2253	012270	105011				CLRB (R1)
2254				17150		:COMPARE LENGTHS OF ANSWERS
2255	012272	123737	013212	013213		CMPB T2CNT1, T2CNT2
(9)	012300	001416				BEQ 500205
2256	012302	012701	013220			MOV #T2BUF, R1
2257	012306	004737	007110			JSR PC, TYPES
2258				17350		:ERROR #31 INCONSISTANT ANSWERBACKS
2259				17400		:*****
2260				17450		
2261	012312	052765	100000	000004		BIS #MERR, MFLAGS(R5)
2262	012320	112765	000031	000004		MOVB #31, MFLAGS(R5)
2263	012326	012765	013356	000006		MOV #E14, POINT(R5)

2264	012334	000455			50020\$: BR 50021\$
(3)	012336				MOV #T2BUF,R1
2265	012336	012701	013220		MOV #STACK3,R0
2266	012342	012700	020574		:COMPARE MASSAGES FOR SAME DATA
2267				17800	
2268				17850	
2269	012346	005037	013214		CLR T2TEMP
2270	012352	113737	013212	013214	MOV T2CNT1,T2TEMP
2271	012360	005037	013216		CLR T2TEMP+2
2272	012364	012737	000001	013216	MOV #1,T2TEMP+2
(5)	012372	000402			BR 50022\$
(4)	012374				
(7)	012374	005237	013216		50023\$: INC T2TEMP+2
(5)	012400				50022\$: CMP T2TEMP+2,T2TEMP
(5)	012400	023737	013216	013214	BGT 50024\$
(7)	012406	003024			CMPB (R0)+(R1)+
2273	012410	122021			BEQ 50025\$
(9)	012412	001421			:ERROR #32 INCONSISTANT ANSWERBACKS
2274				18150	:*****
2275				18200	
2276				18250	
2277	012414	052765	100000	000004	BIS #MERR,MFLAGS(R5)
2278	012422	112765	000032	000004	MOV #32,MFLAGS(R5)
2279	012430	012765	013575	000006	MOV #E21,POINT(R5)
2280	012436	012701	013220		MOV #T2BUF,R1
2281	012442	113737	013213	013212	MOV T2CNT2,T2CNT1
2282	012450	013737	013214	013216	MOV T2TEMP,T2TEMP+2
2283	012456				
2284	012456	000746			50025\$: BR 50023\$
(3)	012460				50024\$: :ECHO ANSWER TO TERMINAL IN ASCII AND
2285				18700	:OCTAL FORMATT.
2286				18750	MOV #T2BUF,R1
2287	012460	012701	013220		JSR PC,TYPANS
2288	012464	004737	011306		
2289	012470				50021\$:
2290	012470				50017\$:
2291	012470	032765	100000	000004	BIT #MERR,MFLAGS(R5)
(9)	012476	001401			BEQ 50026\$
2292	012500	000207			RTS PC
2293	012502			19050	
2294				19150	50026\$: :CHECK FOR TEN ITERATIONS
2295	012502	123727	013210	000010	CMPB T2SAV1,#10
(9)	012510	001005			BNE 50027\$
2296	012512	012765	012530	000010	MOV #T24,RPC(R5)
2297	012520	000207			RTS PC
2298	012522	000402		19300	BR 50030\$
(3)	012524				
2299	012524	000137	012206	19400	50027\$: JMP T23A
2300	012530				50030\$:
2301				19500	
2302	012530			19550	T24: :RESTORE POINTERS & TEST THE BROADCAST (BEL)
2303				19600	:WON'T ACTIVATE THE AUTOANSWER.
2304				19650	
2305	012530	012701	013220		MOV #T2BUF,R1
2306	012534	105037	013212		CLRB T2CNT1
2307	012540	012702	000002		MOV #STX,R2

2308	012544	004737	006654			JSR	PC, SECHO
2309	012550	012700	020421			MOV	#SCODE, R0
2310	012554	112737	000007	020424		MOVB	#7, SCODE+3
2311	012562	004737	007110			JSR	PC, TYPES
2312	012566	012703	000310			MOV	#200, R3
2313	012572	004737	011216			JSR	PC, GETANS
2314	012576	105737	013212			TSTB	T2CNT1
(9)	012602	001415				BEQ	50031\$
2315				20050		; ERROR #4	RECVD ANSWERBACK FROM BROADCAST
2316				20100		; *****	
2317				20150			
2318	012604	052765	100000	000004		BIS	#MERR, MFLAGS(R5)
2319	012612	112765	000004	000004		MOVB	#4, MFLAGS(R5)
2320	012620	012765	013632	000006		MOV	#E22, POINT(R5)
2321	012626	012765	012636	000010		MOV	#T25, RPC(R5)
2322	012634	000207			20400	RTS	PC
2323	012636					50031\$:	
2324	012636				20500	T25:	; IF IN MULTI LINE MODE SETUP NEXT LINE POINTERS
2325					20550		; IF SINGLE LINE MODE TEST KEYBOARD STUFF.
2326					20600		
2327	012636	032737	000040	001364		BIT	#MULTI, PCFLAG
(9)	012644	001424				BEQ	50032\$
2328	012646	004737	002110			JSR	PC, LINMON
2329	012652	012765	012734	000010		MOV	#T25A, RPC(R5)
2330	012660	032737	000400	001364		BIT	#LDONE, PCFLAG
(9)	012666	001406				BEQ	50033\$
2331	012670	042737	000400	001364		BIC	#LDONE, PCFLAG
2332	012676	052765	020000	000004		BIS	#TDONE, MFLAGS(R5)
2333	012704				50033\$:		
2334	012704	012765	011546	000010		MOV	#T21, RPC(R5)
2335	012712	000207			21000	RTS	PC
2336	012714	000512				BR	50034\$
(3)	012716					50032\$:	
2337	012716	113737	016134	020424		MOVB	DLOTH, SCODE+3
2338	012724	012700	020421			MOV	#SCODE, R0
2339	012730	004737	007110			JSR	PC, TYPES
2340	012734				21100	T25A:	
(4)	012734	012765	013034	000010		MOV	#T26, RPC(R5)
2341	012742	012701	013220			MOV	#T2BUF, R1
2342	012746	012702	000002			MOV	#STX, R2
2343	012752	004737	006654			JSR	PC, SECHO
2344					21300	; SET UP	TO TEST HERE-IS KEY SINGLE LINE ONLY
2345					21350		
2346	012756	012700	013252			MOV	#HI, R0
2347	012762	004737	007110			JSR	PC, TYPES
2348	012766	105037	013212			CLRB	T2CNT1
2349	012772	012703	007640			MOV	#4000, R3
2350					21600	; READ ANSWERBACK	
2351	012776	004737	011216			JSR	PC, GETANS
2352	013002	105737	013212			TSTB	T2CNT1
(9)	013006	001012				BNE	50035\$
2353					21750	; ERROR #5	NO ANSWERBACK FROM HERE-IS KEY
2354					21800	; *****	
2355					21850		
2356	013010	052765	100000	000004		BIS	#MERR, MFLAGS(R5)
2357	013016	112765	000005	000004		MOVB	#5, MFLAGS(R5)

K06

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2358	013024	012765	013475	000006		MOV	#E17,POINT(R5)	
2359	013032	000207			22050	RTS	PC	
2360	013034					50035\$:		
2361					22150			
2362	013034				22200	T26:	;TEST CTL-E FUNCTION	
2363					22250			
2364					22300		;SET UP TO TEST CTL-E FUNCTION	
2365					22350			
2366	013034	012765	011726	000010		MOV	#T22,RPC(R5)	
2367	013042	012701	013220			MOV	#T28UF,R1	
2368	013046	012700	013305			MOV	#CE,R0	
2369	013052	012703	007640			MOV	#4000,R3	
2370	013056	105037	013212			CLRB	T2CNT1	
2371	013062	004737	007110			JSR	PC,TYPES	
2372	013066	004737	011216			JSR	PC,GETANS	
2373	013072	105737	013212			TSTB	T2CNT1	
(9)	013076	001013				BNE	50036\$	
2374					22800		; ERROR #6 NO ANSWERBACK FROM CTL-E KEY	
2375					22850		;*****	
2376					22900			
2377	013100	052765	100000	000004		BIS	#MERR,MFLAGS(R5)	
2378	013106	112765	000006	000004		MOVB	#6,MFLAGS(R5)	
2379	013114	012765	013540	000006		MOV	#E18,POINT(R5)	
2380	013122	000207			23100	RTS	PC	
2381	013124	000406				BR	50037\$	
(3)	013126					50036\$:		
2382	013126	052765	020000	000004		BIS	#TDONE,MFLAGS(R5)	
2383	013134	012765	011726	000010		MOV	#T22,RPC(R5)	
2384	013142					50037\$:		
2385	013142					50034\$:		
2386	013142	000207			23400	RTS	PC	
2387					23450			
2388					23500	;*****		
2389					23550	;THIS ROUTINE IS THE KEYBOARD INTERRUPT HANDLER		
2390					23600	;FOR TESTS #1 AND #2		
2391					23650	;*****		
2392	013144	117721	002766		23700	T220: MOVB	ADVCRXB,(R1)+	;STORE CHAR IN POINTER
2393	013150	052737	004000	001364	23750	BIS	#DATAIN,PCFLAG	;SET DATA-IN FLAG
2394	013156	012777	000101	002744	23800	MOV	#101,ADLADR	;REENABLE THE RECVR
2395	013164	005037	007564		23850	CLR	DELAYT	;ABORT THE TIMEOUT
2396	013170	000002			23900	RTI		
2397					23950			
2398	013172					50000\$:		
(3)	013172					50001\$:		
(2)	013172	000207				RTS	PC	
2399					24050	;*****		
2400					24100	.DSABL LSB		
2401	013174	000	003		24150	.BYTE	0,3	; ITERATION COUNTS
2402	013176	000000			24200	T02BLK: .WORD	0	;CTLCNT
2403	013200	000000			24250	.WORD	0	;PASS COUNT
2404	013202	000000			24300	.WORD	0	;STATUS FLAGS
2405	013204	000000			24350	.WORD	0	;POINTER
2406	013206	011546			24400	.WORD	T21	;RETURN PC
2407	013210	000000			24450	T2SAV1: .WORD	0	
2408	013212	000			24500	T2CNT1: .BYTE	0	
2409	013213	000			24550	T2CNT2: .BYTE	0	

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```

2410 013214 000000 000000 - 24600 T2TEMP: .WORD 0,0
2411 013220 000000 000000 000000 24605 T2BUF: .WORD 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0 ; BUFFER FOR ANSWERBACK
      013226 000000 000000 000000
      013234 000000 000000 000000
      013242 000000 000000 000000
      013250 000000

```

Line	013252	005015	042504	051120	24650	24650	
2412					24700	.NLIST BEX	
2413					24750	HI: .ASCIZ	<15><12>/DEPRESS HERE IS -- KEY/<15><12>
2414	013252	005015	042504	051120	24800	CE: .ASCIZ	<15><12>/TYPE CONTL-E/<15><12>
2415	013305	015	052012	050131	24850		
2416					24900	T2: .ASCIZ	<15><12><12>/TEST 2 AUTO ANSWER/<15><12>
2417	013326	005015	052012	051505	24950	E14: .ASCIZ	/NO ANSWERBACK RECVD/<15><12>
2418	013356	047516	040440	051516	25000	E15: .ASCIZ	/ANSBACK MSG OVER 20 CHARS/<15><12>
2419	013404	047101	041123	041501	25050	E16: .ASCIZ	/ANSBACK MSG CONTAINED NULL/<15><12>
2420	013440	047101	041123	041501	25100	E17: .ASCIZ	/HERE IS KEY DIDN'T TXMIT ANSBACK. <15><12>
2421	013475	110	051105	020105	25150	E18: .ASCIZ	/CTL-E DIDN'T TXMIT ANSBACK/<15><12>
2422	013540	052103	026514	020105	25200	E21: .ASCIZ	/ANSWERBACKS DIDN'T COMPARE/<15><12>
2423	013575	101	051516	042527	25250	E22: .ASCIZ	/ANSBACK RECVD FROM BROADCAST SELECT/<15><12>
2424	013632	047101	041123	041501	25300		
2425					25350	.LIST BEX	
2426							

MO6

SEQ 0077

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2428 25450
2429 25500
2430 25550
2431 25600
2432 25650
2433 25700
2434 25750
2435 25800
2436 25850
2437 25900
013700 012700 014376
013704 004737 007010
013710 012705 014342
013714 032737 000040 001364 26000
013722 001424 26100
013724 012701 000102 26150
013730 113702 016167 26200
013734 004737 006270
013740 012702 000006 26300
013744 004737 006270
013750 005301 26400
013752 001372 26450
013754 012700 014427 26500
013760 004737 007010
013764 052765 020000 000004 26600
013772 000207 26650
013774 012765 013774 000010 26700
014002 012737 014610 014356 26750
014010 012737 014362 014354 26800
014016 012700 014443 26850
014022 004737 007110 26900
014026 012700 014646 26950
014032 112037 014564 27000
014036 112037 014565 27050
014042 111037 014566 27100
014046 012700 014557 27150
014052 004737 007110 27200
014056 013700 014356 27250
014062 112037 014564 27300
014066 112037 014565 27350
014072 112037 014566 27400
014076 01C037 014356 27450
014102 012702 014124 27500
014106 004737 007124 27550
014112 012702 035230 27600
014116 004737 007024 27650
014122 000406 27700
014124 005037 007564 27750
014130 052737 004000 001364 27800
014136 000002 27850
014140 012700 017730 27900
014144 004737 007110 27950
014150 042737 004000 001364 28000
28050
28100
28150
28200

*****
TEST3 TOP OF FORM OPTION
OPERATOR INTERVENTION REQUIRED IN SINGLE LINE MODE
*****
.ENABL LSB
TEST3: MOV #T3,RO ;SU FOR TEST HEADER
JSR PC,MTYPE
MOV #T03BLK,R5 ;SET UP POINTER TO MODULE BLOCK
BIT #MULTI,PCFLAG ;CHECK FOR SINGLE LINE MODE
BEQ 3$ ;SINGLE MODE - BRANCH
1$: MOV #66,R1 ;FILL COUNT FOR 11" FORMS
MOVE FF,R2 ;MOVE TO TOP OF FJRM
JSR PC,MECHO
2$: MOV #ACK,R2
JSR PC,MECHO
DEC R1
BNE 2$
MOV #DAS,RO
JSR PC,MTYPE
BIS #TDONE,MFLAGS(R5) ;SET ATTENTION & DONE FLAGS
RTS PC
*****
;THIS SECTION FOR SINGLE LINE MANUAL INTERVENTION
3$: MOV #3$,RPC(R5) ;SET RETURN PC TO HERE
MOV #HDR5,T3SAV1 ;GET LIST OF FORM LENGTHS
MOV #FILL3,T3SAV ;GET FIL COUNT
MOV #HDR3,RO
JSR PC,TYPES
MOV #HDR5A,RO ;SET UP MESSAGE WITH
MOV (RO)+,HDR4+5 ;INSTRUCTIONS FOR 3"
MOV (RO)+,HDR4+6 ;FORMS.
MOV (RO)+,HDR4+7
A3$: MOV #HDR4,RO ;SEND SU MSG
JSR PC,TYPES
MOV T3SAV1,RO
MOV (RO)+,HDR4+5 ;MODIFY INSTRUCTIONS FOR
MOV (RO)+,HDR4+6 ;NEXT LOOP
MOV (RO)+,HDR4+7
5$: MOV RO,T3SAV1 ;SAVE THE LIST POINTER
MOV #6$,R2 ;PASS 6$ AS VECTOR TO READ ROUTINE
JSR PC,READS ;GO SET VECTORS
MOV #15000,R2 ;SET UP 15 SEC DELAY
JSR PC,READ10
BR 9$
6$: CLR DELAYT ;ABORT THE TIMEOUT
BIS #DATAIN,PCFLAG
RTI
9$: MOV #L1,RO
JSR PC,TYPES ;SEND CR/LF
BIC #DATAIN,PCFLAG ;IN CASE LINE 0

```

2484	014156	042765	100000	000004	28250	BIC	#MERR,MFLAGS(R5);	IN CASE OF READ ERROR
2485	014164	117737	000164	014360	28300	MOV8	T3SAV,T3SAV2	;GET FILL COUNT
2486	014172	113702	016167		28350	MOV8	FF,R2	
2487	014176	004737	006654		28400	JSR	PC,SECHO	;DO FORM FEED
2488	014202	012702	000006		28450	MOV	#ACK,R2	
2489	014206	004737	006654		28500	JSR	PC,SECHO	;SEND FILL CHARS
2490	014212	005337	014360		28550	DEC	T3SAV2	
2491	014216	001371			28600	BNE	7\$	;COUNT NOT DONE - BRANCH
2492	014220	012700	014427		28650	MOV	#DAS,R0	;LINE OF DASHES
2493	014224	004737	007110		28700	JSR	PC,TYPES	
2494	014230	012702	000012		28750	MOV	#LF,R2	;SEND CR/LF
2495	014234	004737	006654		28800	JSR	PC,SECHO	
2496	014240	117737	000110	014360	28850	MOV8	T3SAV,T3SAV2	;GET FILL COUNT
2497	014246	113702	016167		28900	MOV8	FF,R2	;DO FORM FEED
2498	014252	004737	006654		28950	JSR	PC,SECHO	
2499	014256	012702	000006		29000	MOV	#ACK,R2	;SEND ACK CHARS
2500	014262	004737	006654		29050	JSR	PC,SECHO	
2501	014266	005337	014360		29100	DEC	T3SAV2	
2502	014272	001371			29150	BNE	8\$	;COUNT NOT DONE - BRANCH
2503	014274	012700	014427		29200	MOV	#DAS,R0	
2504	014300	004737	007110		29250	JSR	PC,TYPES	;LINE OF DASHES
2505	014304	012702	000012		29300	MOV	#LF,R2	
2506	014310	004737	006654		29350	JSR	PC,SECHO	
2507					29400			
2508	014314	005237	014354		29450	INC	T3SAV	;GET NEW FILL COUNT
2509	014320	023727	014356	014651	29500	CMP	T3SAV1,#HDR5E	;END OF INSTRUCTION LIST?
2510	014326	001247			29550	BNE	A3\$	;NO - DO NEXT
2511	014330	052765	020000	000004	29600	BIS	#TDONE,MFLAGS(R5)	;SET ATTENTION & DONE FLAGS
2512					29650			
2513	014336	000207			29700	RTS	PC	
2514					29750			
2515	014340	000	003		29800			
2516	014342	000000			29850	T03BLK:	.BYTE 0,3	;ITERATION COUNT
2517	014344	000000			29900		.WORD 0	;CTLCNT
2518	014346	000000			29950		.WORD 0	;PASS COUNT
2519	014350	000000			30000		.WORD 0	;STATUS FLAGS
2520	014352	013724			30050		.WORD 0	;POINTER
2521					30100		.WORD 1\$	;RETURN PC
2522	014354	000000			30150	T3SAV:	.WORD 0	;STORAGE
2523	014356	000000			30200	T3SAV1:	.WORD 0	
2524	014360	000000			30250	T3SAV2:	.WORD 0	
2525					30300			
2526					30350			
2527					30400	.NLIST BEX		
2528	014362	022	025	030	30450	FILL3:	.BYTE 18.,21.,24.,33.,36.,42.	;FILL COUNTS FOR TEST 3
2529	014370	060	063	102	30500		.BYTE 48.,51.,66.,72.,84.,18.	
2530	014376	005015	052012	051505	30550	T3:	.ASCIZ <15><12><12>/TEST 3 TOP OF FORMS/<15><12>	
2531	014427	075	036475	036475	30600	DAS:	.ASCIZ /=====/<15>	
2532	014443	120	042522	051523	30650	HDR3:	.ASCIZ /PRESS TOF RESET SWITCH/<15><12>	
2533	014473	101	052106	051105	30700		.ASCIZ /AFTER EACH SWITCH SETTING/<15><12>	
2534	014526	054524	042520	042040	30750		.ASCIZ /TYPE DELETE WHEN READY/<15><12>	
2535	014557	055	042523	020124	30800	HDR4:	.ASCIZ /-SET 3 INCH FORM FEED/	
2536		014610			30850		.EVEN	
2537	014610	027063	065		30900	HDR5:	.ASCIZ /3.5/	
2538	014613	040	032040		30950		.ASCIZ / 4/	
2539	014616	027065	065		31000		.ASCIZ /5.5/	

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SEQ 0079

2540	014621	040	033040	31050	.ASCII	/	6/
2541	014624	020040	067	31100	.ASCII	/	7/
2542	014627	040	034040	31150	.ASCII	/	8/
2543	014632	027070	065	31200	.ASCII	/	8.5/
2544	014635	040	030461	31250	HDRSB: .ASCII	/	11/
2545	014640	030440	062	31300	.ASCII	/	12/
2546	014643	040	032061	31350	.ASCII	/	14/
2547	014646	020040	063	31400	HDRSA: .ASCII	/	3/
2548	014651			31450	HDRSE: .ASCII	/	
2549		014652		31500	.EVEN		
2550				31550	.LIST BEX		

.DSABL LSB

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2552 31650
2553 31700
2554 31750
2555 31800
2556 31850
2557 31900
2558 31950
2559 32000
2560 32050
2561 32100
2562 014652 012705 015246 32150
2563 014656 012700 015320 32200
2564 32250
2565 014662 004737 007010 32350
2566 014666 012737 015270 015264 32400
2567 014674 012765 014702 000010 32450
2568 014702 012702 000033 32500
2569 014706 013737 016146 015262 32550
2570 32650
2571 014714 004737 006270
2572 014720 012702 000062
2573 014724 004737 006270
2574 014730 117737 000330 015316 32750
2575 014736 005237 015264 32800
2576 014742 105077 000316 32850
2577 014746 013701 015316 32900
2578 014752 012700 017730 32950
2579 33000
2580 014756 004737 007010
2581 014762 163737 015316 015262 33100
2582 014770 002434 33150
2583 33200
2584 014772 005301 33250
2585 014774 001405 33300
2586 014776 012702 000056 33350
2587 015002 004737 006270
2588 015006 000771
2589 015010 012702 000033 33450
2590 33500
2591 015014 004737 006270 33550
2592 015020 012702 000061
2593 015024 004737 006270
2594 33750
2595 015030 012702 000010 33800
2596 015034 004737 006270
2597 33900
2598 015040 012702 000126 33950
2599 015044 004737 006270
2600 015050 105277 000210 34050
2601 015054 013701 015316 34100
2602 015060 000740 34150
2603 34200
2604 34250
2605 015062 012737 000003 015266 34300
2606 015070 117737 000170 015316 34350
2607 015076 001440 34400

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```

*****
TEST4 HORIZONTAL TAB OPTION
      IF USING OTHER THAN 132 COL PAPER CHANGE LOC "WIDTH"
      TO APPROPRIATE VALUE. SEE WN COMMAND.
*****

TEST4: MOV      #T04BLK,R5          ;SET UP POINTER TO MODULE BLOCK
      MOV      #T4,R0
; PRINT TEST HEADER
      JSR      PC, MTYPE
T41:   MOV      #TABL4,T4SAV2
      MOV      #T42,RPC(R5)
T42:   MOV      #ESC,R2
      MOV      WIDTH,T4SAV1
; SEND ESC-2 TO RESET ALL TABS.
      JSR      PC, MECHO
      MOV      #2,R2
      JSR      PC, MECHO
      MOV      #T4SAV2,TAB          ;GET TAB COUNT FROM TABL4
      INC      T4SAV2              ;INITIALIZE COUNT TO ZIP
      CLRB     #T4SAV2
      MOV      TAB,R1
      MOV      #L1,R0
; SEND CR/LF
      JSR      PC, MTYPE
3$:   SUB      TAB,T4SAV1
      BLY      B5                  ;FINISHED THIS LINE - BRANCH
;TYPE (TAB-1) PERIODS
;AS A FORMATT FOR
;COMPARISON
;PRINT PERIOD
4$:   DEC      R1
      BEQ      5$
      MOV      #1,R2
      JSR      PC, MECHO
      BR       4$
5$:   MOV      #ESC,R2
; SEND ESC-1 TO SET A TAB
      JSR      PC, MECHO
      MOV      #1,R2
      JSR      PC, MECHO
; SEND A BACKSPACE
      MOV      #10,R2
      JSR      PC, MECHO
; PRINT A V FOR REFERENCE
      MOV      #V,R2
      JSR      PC, MECHO
      INCB     #T4SAV2
      MOV      TAB,R1
      BR       3$
;LINE SHOULD LOOK LIKE THIS: .....V.....V.....V..ETC
6$:   MOV      #3,COUNT
7$:   MOV      #T4SAV2,TAB
      BEQ      11$
;DO 3 LINES OF TABS
;GET TAB COUNT
;=0? - BRANCH OUT

```

```

2608 015100 005237 015264 34450 INC T4SAV2
2609 015104 012700 017730 34500 MOV #L1,R0
2610 34550 ; SEND A CR/LF
2611 015110 004737 007010 JSR PC,MTYPE
2612 015114 012702 000011 34650 8$: MOV #11,R2
2613 34700 ; SEND A HORIZ-TAB
2614 015120 004737 006270 JSR PC,MECHO
2615 015124 117737 000134 015260 34800 MOVB #T4SAV2,T4SAV ; GET FILL COUNT TABS/2
2616 015132 012702 000006 34850 9$: MOV #ACK,R2
2617 34900 ; SEND FILL CHARACTERS
2618 015136 004737 006270 JSR PC,MECHO
2619 015142 005337 015260 35000 DEC T4SAV
2620 015146 001371 35050 BNE 9$
2621 015150 012702 000130 35100 MOV #X,R2
2622 35150 ; PRINT AN X UNDER EACH V
2623 015154 004737 006270 JSR PC,MECHO
2624 015160 005337 015316 35250 DEC TAB
2625 015164 001353 35300 BNE 8$ ; DEC TAB COUNT
2626 015166 005337 015264 35350 DEC T4SAV2 ; MORE TABS - BRANCH
2627 015172 005337 015266 35400 10$: DEC COUNT ; FIX POINTER
2628 015176 001334 35450 BNE 7$ ; DO 3 LINES
2629 015200 012700 017051 35500 11$: MOV #L3,R0 ; NOT DONE - BRANCH
2630 015204 004737 007010 JSR PC,MTYPE
2631 015210 062737 000002 015264 35600 ADD #2,T4SAV2 ; GET NEXT TABLE ENTRY
2632 015216 023727 015264 015315 35650 CMP T4SAV2,#TAB-1 ; END OF TABLE?
2633 015224 001226 35700 BNE T42 ; NO - DO NEXT SET
2634 35750
2635 015226 052765 020000 000004 35950 BIS #TDONE,MFLAGS(R5) ; SET ATTENTION AND DONE FLAGS
2636 015234 012765 014666 000010 36000 MOV #T41,RPC(R5)
2637 015242 000207 36050 RTS PC
2638 36100
2639 015244 000 004 36150 ; ITERATION COUNTS
2640 015246 000000 36200 T04BLK: .BYTE 0,4 ; CTLCNT
2641 015250 000000 36250 .WORD 0 ; PASS COUNT
2642 015252 000000 36300 .WORD 0 ; STATUS FLAGS
2643 015254 000000 36350 .WORD 0 ; POINTER
2644 015256 014702 36400 .WORD T42 ; RETURN PC
2645 36450
2646 015260 000000 36500 T4SAV: .WORD 0 ; STORAGE
2647 015262 000000 36550 T4SAV1: .WORD 0
2648 015264 000000 36600 T4SAV2: .WORD 0
2649 36650
2650 36700
2651 015266 000002 36750 COUNT: .WORD 2
2652 015270 004 000 002 36800 TABL4: .BYTE 4,0,2 ; TAB, TAB COUNT, FILL COUNT
2653 015273 010 000 004 36850 .BYTE 8,0,4
2654 015276 011 000 005 36900 .BYTE 9,0,5 ; TABLE FOR TEST 4
2655 015301 020 000 010 36950 .BYTE 16,0,8
2656 015304 022 000 012 37000 .BYTE 18,0,10
2657 015307 040 000 021 37050 .BYTE 32,0,17
2658 015312 100 000 041 37100 .BYTE 64,0,33,0
2659 015315 000 37150
2660 015320 005015 052012 051505 37200 TAB: .WORD 0
015326 020124 020064 047510 T4: .ASCII <15><12><12>/TEST 4 HORIZONTAL TAB<15><12>
015334 044522 047532 052116

```

E07

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 3-17
CZLAFAP11 03-JAN-78 11:20 LA36 OPTION TESTS

SEQ 0082

2661 015342 046101 052040 041101
015350 005015 000
015354 37250 .EVEN


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2663 37350
2664 37400
2665 37450
2666 37500
2667 37550
2668 37600
2669 37650
2670 37700
2671 37750
2672 015354 012700 016040 37800
2673 015360 012705 016014 37850
2674 015364 004737 007010
2675 015370 032737 000040 001364 37950
2676 015376 001046 38000
2677 015400 012700 014635 38050
2678 015404 112037 014564 38100
2679 015410 112037 014565 38150
2680 015414 112037 014566 38200
2681 38250
2682 015420 012700 014443 38300
2683 015424 004737 007110
2684 015430 012700 014557 38400
2685 015434 004737 007110
2686 015440 012702 015500 38500
2687 015444 004737 007124 38550
2688 015450 012702 035230 38600
2689 015454 004737 007024 38650
2690 015460 032737 004000 001364 38700
2691 015466 001770 38750
2692 015470 042737 004000 001364 38800
2693 015476 000406 38850
2694 38900
2695 38950
2696 015500 005037 007564 001364 39000
2697 015504 052737 004000 001364 39050
2698 015512 000002 39100
2699 39150
2700 39200
2701 39250
2702 015514 012737 000002 015266 39300
2703 015522 012765 015514 000010 39350
2704 015530 012737 000001 016032 39400
2705 015536 005037 016036 39450
2706 015542 012737 000014 016034 39500
2707 015550 012702 000033 39550
2708 39600
2709 015554 004737 006270 39700
2710 015560 012702 000064
2711 015564 004737 006270
2712 015570 013701 016032
2713 015574 012702 000012
2714 39800
2715 015600 004737 006270 39850
2716 015604 005301 40000
2717 015606 001372 40050
2718 015610 012702 000033 40100

*****
TESTS VERTICAL TAB OPTION
SINGLE LINE TEST REQUIRES OPERATOR INTERVENTION
*****
ENABL LSB

TESTS: MOV #TS, R0 ;SU TEST HEADER
MOV #TOSBLK, R5 ;SET UP POINTER TO MODULE BLOCK
JSR PC, MTYPE
BIT #MULTI, PCFLAG ;MULTI LINE MODE?
BNE 4$ ;YES - BRANCH OVER INTERVENTION
MOV #HDR5B, R0 ;SET UP INSTRUCTIONS
MOVB (R0)+, HDR4+5
MOVB (R0)+, HDR4+6
MOVB (R0)+, HDR4+7

; TYPE INSTRUCTIONS
1$: MOV #HDR3, R0
JSR PC, TYPES
MOV #HDR4, R0
JSR PC, TYPES
MOV #3$, R2 ;SU FOR INTERRUPT TO 3$
JSR PC, READS ;INITIALIZE VECTOR AREA
2$: MOV #15000, R2 ;ALLOW 15 SEC.
JSR PC, READ10
BIT #DATAIN, PCFLAG
BEQ 2$
BIC #DATAIN, PCFLAG
BR 4$

***** THIS SECTION HANDLES RECVR INTERRUPTS*****
3$: CLR DELAYT ;ABORT THE TIMEOUT
BIS #DATAIN, PCFLAG ; FLAG RECIEVED CHAR.
10$: RTI

*****
4$: MOV #2, COUNT
MOV #4$, RPC(R5) ;SET RETURN TO 4$
MOV #1, LINES
CLR TABS
MOV #12, MAX
MOV #ESC, R2 ;RESET ALL TABS
; ESC-4 RESETS THE TABS.
JSR PC, MECHO
MOV #4, R2
JSR PC, MECHO
5$: MOV LINES, R1 ;GET LINE COUNT
6$: MOV #12, R2
; SEND LINE FEED.
JSR PC, MECHO
DEC R1
BNE 6$
MOV #ESC, R2 ;SET TAB

```

G07

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 3-19
CZLAFAP11 03-JAN-78 11:20 LA36 OPTION TESTS

SEQ 0084

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2719 015614 004737 006270      JSR    PC,MECHO
2720 015620 012702 000063      MOV    #3,R2
2721      40200      ; ESC-3  SETS A TAB LOCATION.
2722 015624 004737 006270      JSR    PC,MECHO
2723 015630 012700 014427      MOV    #DAS,R0
2724      40350
2725      40400
2726 015634 004737 007010      JSR    PC,MTYPE
2727 015640 005237 016032      INC    LINES
2728 015644 023737 016032 016034 40550      CMP    LINES,MAX      ; 11 TABS YET?
2729 015652 001346      40600      BNE    SS      ; NO - BRANCH
2730 015654 012737 000001 016032 40650      7S:    MOV    #1,LINES      ; RESET LINE COUNT
2731 015656 012737 000001 016030 40700      MOV    #1,TSSAV1      ; FILL COUNT
2732 015670 012702 000013      40750      8S:    MOV    #13,R2
2733      40800      ; SEND A VERT-TAB COMMAND.
2734 015674 004737 006270      JSR    PC,MECHO
2735 015700 012702 000006      40900      9S:    MOV    #ACK,R2
2736      40950      ; SEND A FILL CHARACTER.
2737 015704 004737 006270      JSR    PC,MECHO
2738 015710 005337 016030      DEC    TSSAV1
2739 015714 001371      41050      BNE    9S
2740      41100
2741      41150      ; CONVERT NO. OF LINES FOR OUTPUT MSG.
2742      41200
2743      41250
2744 015716 013746 016032      MOV    LINES,-(SP)
2745 015722 012746 016071      MOV    #T52,-(SP)
2746 015726 004737 010006      JSR    PC,BIN2DA
2747 015732 012700 016071      MOV    #T52,R0
2748 015736 004737 007010      JSR    PC,MTYPE
2749 015742 012700 014427      MOV    #DAS,R0      ; SU LINE OF DASHES
2750 015746 004737 007010      JSR    PC,MTYPE
2751 015752 005237 016032      INC    LINES      ; NEW LINE COUNT
2752 015756 013737 016032 016030 41700      MOV    LINES,TSSAV1      ; FILL COUNT = #LINES
2753 015764 023737 016032 016034 41750      CMP    LINES,MAX      ; 11 TABS DONE?
2754 015772 001336      41800      BNE    8S      ; NO - CONTINUE
2755 015774 005337 015266      41850      DEC    COUNT      ; DO 2 PAGES TOTAL
2756 016000 001325      41900      BNE    7S      ; RE-DO PAGE
2757 016002 052765 020000 000004 41950      BIS    #TDONE,MFLAGS(R5) ; SET ATTENTION & DONE FLAGS
2758      42000
2759      42050      RTS    PC
2760      42100
2761      42150
2762      42200
2763      42250      ; .....
2764      42300      TOSBLK: .BYTE 0,2      ; ITERATION COUNTS
2765      42350      .WORD 0      ; CTLCNT
2766      42400      .WORD 0      ; PASS COUNT
2767      42450      .WORD 0      ; STATUS FLAGS
2768      42500      .WORD 0      ; POINTER
2769      42550      .WORD TS1      ; RETURN PC
2770      42600      TSSAV: .WORD 0
2771      42650      TSSAV1: .WORD 0
2772      42700      LINES: .WORD 0
2773      42750      MAX: .WORD 0
2774      42800      TABS: .WORD 0
2775      42850      TS: .ASCIZ <15><12><12>/TEST 5 VERTICAL TAB/<15><12>
2776      42900
2777
2778
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2780
2781
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CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 3-20
CZLAFAP11 03-JAN-78 11:20 LA36 OPTION TESTS

SEQ 0085

	016054	052122	041511	046101				
	016062	052040	041101	005015				
	016070	000						
2774	016071	060	030060	030060	42950	T52:	.ASCIZ	/00000/
	016076	000						
2775		016100			43000		.EVEN	
2776					43050		.DSHBL	LSB

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 3-21
 CZLAFAP11 03-JAN-78 11:20 STORAGE & CONSTANTS

SEQ 0086

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2778      43150      .SBTTL STORAGE & CONSTANTS
2779      43200      ;*****
2780      43250      ;*****
2781      43300      ;*****
2782      43350      ;*****
2783      016100 000000 000000 000000 000000 43400 TEMP: .EVEN 0,0,0,0,0,0 ;TEMPORARY WORK AREA
          016106 000000 000000 000000 000000
2784      016114 000004 43450 INBUF: .BLKW 4 ;INPUT BUFFER
2785      016124 177570 43500 SWR: 177570 ;SWITCH REGISTER POINTER
          43550 ;MAY BE CHANGED TO 176
2786      43600 ;***** I/O DRIVER WORK AREA *****
2787      43650
2788      43700
2789      016126 000000 43750 DLFLAG: .WORD 0 ;LINE FLAG WORD
2790      016130 000000 43800 DLADR: .WORD 0 ;LINE ADDR WORD
2791      016132 000000 43850 DLVEC: .WORD 0 ;LINE VECTOR WORD
2792      016134 000000 43900 DLOTH: .WORD 0 ;LINE "OTHER WORD
2793      016136 000000 43950 DVCAXB: .WORD 0 ;RECIEVER DATA BUFFER
2794      016140 000000 44000 DVCTXS: .WORD 0 ;TRANSMI STATUS REGISTER
2795      016142 000000 44050 DVCTXB: .WORD 0 ;TRANSMIT DATA BUFFER
2796      016144 000000 44100 TXVEC: .WORD 0 ;TRANSMIT INTERRUPT VECTOR
2797      44150
2798      44200 ;***** GENERAL USE *****
2799      016146 000204 44250 WIDTH: .WORD 132.
2800      016150 000000 44300 SAVE: .WORD 0
2801      016152 000000 44350 NEXT: .WORD 0 ;NEXT TEST NO.
2802      016154 000000 44400 INTEST: .WORD 0 ;CURRENT TEST
2803      016156 000000 44450 TESTAD: .WORD 0 ;CURRENT TEST PC.
2804      016160 000000 44500 ONLIN: .WORD 0 ;CURRENT LINE UNDER TEST
2805      016162 000000 44550 NXTLIN: .WORD 0 ;NEXT LINE TO TEST
2806      016164 016114 44600 PTR: INBUF ;INPUT BUFFER POINTER
2807      016166 177 44650 DEL: .BYTE 177
2808      016167 014 44700 FF: .BYTE 14
2809      44750
2810      44800

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2812      44900  ; * * * * *
2813      44950  ; * * * * *
2814      45000  ; * * * * *
2815      45050  ; * * * * *
2816      45100  ; * * * * *
016170 000000 177560 000000 45100 LIN00: .WORD 0,177560,0,0 ;CONSOLE INTERFACE
016176 000000
2817      45150  ; * * * * *
016200 000000 175610 000000 45150 LIN01: .WORD 0,175610,0,400 ;DL11-C,D,E LINES
016206 000400
2818      45200  ; * * * * *
016210 000000 175620 000000 45200 LIN02: .WORD 0,175620,0,1000
016216 001000
2819      45250  ; * * * * *
016220 000000 175630 000000 45250 LIN03: .WORD 0,175630,0,1400
016226 001400
2820      45300  ; * * * * *
016230 000000 175640 000000 45300 LIN04: .WORD 0,175640,0,2000
016236 002000
2821      45350  ; * * * * *
016240 000000 176500 000000 45350 LIN05: .WORD 0,176500,0,2400
016246 002400
2822      45400  ; * * * * *
016250 000000 176510 000000 45400 LIN06: .WORD 0,176510,0,3000
016256 003000
2823      45450  ; * * * * *
016260 000000 176520 000000 45450 LIN07: .WORD 0,176520,0,3400 ;FIRST WORD : FLAGS
016266 003400 ;BIT 15 = DVC PRESENT
2824      45500  ; * * * * *
016270 000000 176530 000000 45500 LIN10: .WORD 0,176530,0,4000 ;BIT 7 = DVC SELECTED
016276 004000 ;BIT 4 = ABORT FLAG
2825      45550  ; * * * * *
016300 000000 176550 000000 45550 LIN11: .WORD 0,176550,0,4400 ;BIT 3 THRU
016306 004400 ;BIT 0 = ERROR COUNT
2826      45600  ; * * * * *
016310 000000 176560 000000 45600 LIN12: .WORD 0,176560,0,5000
016316 005000
2827      45650  ; * * * * *
016320 000000 176570 000000 45650 LIN13: .WORD 0,176570,0,5400
016326 005400
2828      45700  ; * * * * *
016330 000000 176700 000000 45700 LIN14: .WORD 0,176700,0,6000
016336 006000
2829      45750  ; * * * * *
016340 000000 176710 000000 45750 LIN15: .WORD 0,176710,0,6400
016346 006400
2830      45800  ; * * * * *
016350 000000 176720 000000 45800 LIN16: .WORD 0,176720,0,7000
016356 007000
2831      45850  ; * * * * *
016360 000000 176730 000000 45850 LIN17: .WORD 0,176730,0,7400 ;THIRD WORD WILL CONTAIN
016366 007400 ;THE DEVICES INTERRUPT
2832      45900  ; * * * * *
016370 000000 176740 000000 45900 LIN20: .WORD 0,176740,0,10000 ;VECTOR (SUPPLIED BY PROGRAM)
016376 010000
2833      45950  ; * * * * *
016400 000000 176540 000000 45950 LIN21: .WORD 0,176540,0,10400
016406 010400
2834      46000  ; * * * * *
016410 000000 176550 000000 46000 LIN22: .WORD 0,176550,0,11000
016416 011000
2835      46050  ; * * * * *
2836      46100  ; * * * * *
016420 000000 176560 000000 46100 LIN23: .WORD 0,176560,0,11400
016426 011400
2837      46150  ; * * * * *
016430 000000 176570 000000 46150 LIN24: .WORD 0,176570,0,12000 ;WORD FOUR :
016436 012000 ;BITS 7 THRU 0
2838      46200  ; * * * * *
016440 000000 176600 000000 46200 LIN25: .WORD 0,176600,0,12400 ;WILL BE SET TO
016446 012400 ;UNIQUE SELECT CODE
2839      46250  ; * * * * *
016450 000000 176610 000000 46250 LIN26: .WORD 0,176610,0,13000
016456 013000
2840      46300  ; * * * * *
016460 000000 176750 000000 46300 LIN27: .WORD 0,176750,0,13400
016466 013400
2841      46350  ; * * * * *
016470 000000 176760 000000 46350 LIN30: .WORD 0,176760,0,14000
016476 014000
2842      46400  ; * * * * *
016500 000000 176770 000000 46400 LIN31: .WORD 0,176770,0,14400 ;BITS 13 THRU 8

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K07

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 3-23
 CZLAFAP11 03-JAN-78 11:20 STORAGE & CONSTANTS

SEQ 0088

2843	016506	014400	176000	000000	46450	LIN32: .WORD	0,176000,0,15000
	016510	000000					
	016516	015000					
2844	016520	000000	176010	000000	46500	LIN33: .WORD	0,176010,0,15400
	016526	015400					
2845	016530	000000	176020	000000	46550	LIN34: .WORD	0,176020,0,16000
	016536	016000					
2846	016540	000000	176030	000000	46600	LIN35: .WORD	0,176030,0,16400
	016546	016400					
2847	016550	000000	176040	000000	46650	LIN36: .WORD	0,176040,0,17000
	016556	017000					
2848	016560	000000	176620	000000	46700	LIN37: .WORD	0,176620,0,17400
	016566	017400					
2849	016570	000000	176630	000000	46750	LIN40: .WORD	0,176630,0,20000
	016576	020000					
2850	016600	000000	176640	000000	46800	LIN41: .WORD	0,176640,0,20400
	016606	020400					
2851	016610	000000	176650	000000	46850	LIN42: .WORD	0,176650,0,21000
	016616	021000					
2852	016620	000000	176660	000000	46900	LIN43: .WORD	0,176660,0,21400
	016626	021400					
2853	016630	000000	176670	000000	46950	LIN44: .WORD	0,176670,0,22000
	016636	022000					
2854	016640	000000	176050	000000	47000	LIN45: .WORD	0,176050,0,22400
	016646	022400					
2855	016650	000000	176060	000000	47050	LIN46: .WORD	0,176060,0,23000
	016656	023000					
2856	016660	000000	176070	000000	47100	LIN47: .WORD	0,176070,0,23400
	016666	023400					
2857	016670	000000	176100	000000	47150	LIN50: .WORD	0,176100,0,24000
	016676	024000					
2858	016700	000000	176110	000000	47200	LIN51: .WORD	0,176110,0,24400
	016706	024400					
2859	016710	000000	176120	000000	47250	LIN52: .WORD	0,176120,0,25000
	016716	025000					
2860	016720	000000	176130	000000	47300	LIN53: .WORD	0,176130,0,25400
	016726	025400					
2861	016730	000000	176140	000000	47350	LIN54: .WORD	0,176140,0,26000
	016736	026000					
2862	016740	000000	176150	000000	47400	LIN55: .WORD	0,176150,0,26400
	016746	026400					
2863	016750	000000	176160	000000	47450	LIN56: .WORD	0,176160,0,27000
	016756	027000					
2864	016760	000000	176170	000000	47500	LIN57: .WORD	0,176170,0,27400
	016766	027400					
2865	016770	177777			47550	TABEND: .WORD	-1
2866					47600		

;BINARY LINE NO.

L07

SEQ 0089

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2868 47700
2869 47750
2870 47800
2871 47850
2872 016772 005015 055103 040514 47900
2873 017030 005015 042522 052123 47950
2874 017051 015 005012 000012 48000
2875 017056 047503 046515 047101 48050
2876 017103 123 020040 020040 48100
2877 017135 115 020040 020040 48150
2878 017166 020121 020040 020040 48200
2879 017216 047122 020040 020040 48250
2880 017245 104 020116 020040 48300
2881 017275 101 020116 020040 48350
2882 017324 020124 020040 020040 48400
2883 017356 047127 020040 020040 48450
2884 017413 114 020040 020040 48500
2885 017443 110 020040 020040 48550
2886 017473 103 020040 020040 48600
2887 017542 020116 020040 020040 48650
2888 017574 020120 020040 020040 48700
2889 017632 051505 020103 020040 48750
2890 017676 005015 046012 047111 48800
2891 017730 005015 000 000 48850
2892 017733 060 020060 020040 48900
2893 017743 060 030060 020060 48950
2894 017752 030060 020060 020040 49000
2895 017761 052 051105 047522 49050
2896 020017 040 020040 037477 49100
2897 020032 026455 046055 047111 49150
2898 020055 116 020117 047111 49200
2899 020105 104 047522 050120 49250
2900 020117 052 005015 000 49300
2901 020123 015 051012 040505 49350
2902 020136 005015 040520 051523 49400
2903 020166 005015 025052 020052 49450
2904 49500
2905 020215 015 050012 043103 49550
2906 020242 054105 042503 051523 49600
2907 020270 030060 042040 047522 49650
2908 020306 047516 046040 047111 49700
2909 020345 114 047111 020105 49750
2910 020370 047503 051516 046117 49800
2911 49850
2912 020411 004 003401 000002 49900
2913 020416 000404 000 000000 49950
2914 020421 004 001401 000000 50000
2915 020426 000404 001003 000 50050
2916 50100
2917 020434 000060 50150
2918 020574 000036 50200
2919 020670 000000 50250
2920 001102 50300
  
```

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; * * * * *
; SYSTEM MESSAGES
; .NLIST BEX
PROGID: .ASCII <15><12>/CZLAFAD LA36 OPTIONS TESTS/
L3: .ASCII <15><12>/RESTART AT 1372/
HEADR1: .ASCII <15><12><12>
COMSUM: .ASCII /S SINGLE LINE MODE/<15><12><1>
        .ASCII /M MULTI-LINE MODE/<15><12><1>
        .ASCII /Q SEQUENCE TESTS/<15><12><1>
        .ASCII /RN RUN TEST "N" /<15><12><1>
        .ASCII /DN DROP LINE "N" /<15><12><1>
        .ASCII /AN ADD LINE "N" /<15><12><1>
        .ASCII /T TYPE LINE TABLE /<15><12><1>
        .ASCII /WN CHANGE "WIDTH" TO N/<15><12><1>
        .ASCII /L LOOP ON ERROR /<15><12><1>
        .ASCII /H HALT ON ERROR /<15><12><1>
        .ASCII /C CLEAR : RESETS H & L COMMANDS/<15><12><1>
        .ASCII /N INHIBIT REPORTS /<15><12><1>
        .ASCII /P PRINT ERROR REPORTS /<15><12><1>
        .ASCII /ESC TO EXECUTE COMMAND STRING/<15><12><12>
HEADR2: .ASCII <15><12><12>/LINE# ADDR VECTOR SEL/
L1: .ASCII <15><12>
LIN: .ASCII /00 17/
DLAD: .ASCII /0000 /
DLV: .ASCII /000 /
ER0: .ASCII /*ERROR 000 TEST 00 LINE 00/<15><12><7>
ER1: .ASCII / ????/<15><12><7>
ER2: .ASCII /---LINE INVALID/<15><12><7>
ER7: .ASCII /NO INTERRUPT ON TXMIT/<15><12>
DR: .ASCII /DROPPED/<15><12>
S1: .ASCII /*/<15><12>
RDY: .ASCII <15><12>/READY /<15><12>
EOPM: .ASCII <15><12>/PASS 00000 TEST 00/<15><12>
EOTM: .ASCII <15><12>/*** END OF TEST 00/<15><12>

SW: .ASCII <15><12>/PCFLAG : 000000 /<15><12>
DRO: .ASCII /EXCESSIVE ERRORS..LINE/
DR1: .ASCII /00 DROPPED/<15><12><7>
E19: .ASCII /NO LINES AVAILABLE FOR TEST/<15><12><7>
E20: .ASCII /LINE RE-SELECTED/<15><12>
CTLM: .ASCII /CONSOLE CONTROL?/

ALLON: .ASCII <4><1><7><2> ;SELECT ALL ESCAPE SEQUENCE
ALLOFF: .ASCII <4><1> ;DESELECT ALL SEQUENCE
SCODE: .ASCII <4><1><3><000> ;SELECT UNIQUE SEQUENCE
NSEL: .ASCII <4><1><3><2> ;BAD SELECT SEQUENCE
        .EVEN
STACK2: .BLKW 48.
STACK3: .BLKW 30.
ENDS: .WORD 0
        .END START
  
```

ABO = 000020	CTLBLK 001364	ERRVEC= 000004	ICNT = 177776	LIN44 016630
ACK = 000006	CTLCL = 000003	ERO 017761	INBUF 016114	LIN45 016640
ADDC = 000004	CTLCNT= 000000	ER1 020017	INHR = 000040	LIN46 016650
ALLOFF 020416	CTLG = 000007	ER2 020032	INHRPT= 020000	LIN47 016660
ALLON 020411	CTLGX 003064	ER7 020055	INTEST 016154	LIN50 016670
ANSHDR 011472	CTLH = 000010	ESC = 000033	INTRAP 007162	LIN51 016700
ATTN = 000200	CTLK = 000013	ETX = 000003	IOTVEC= 000020	LIN52 016710
A2BIN 007676	CTLL = 000014	ETYPE 006240	ISP = 005726	LIN53 016720
A2SAV 010004	CTLM 020370	E10 011137	ISP2 = 022626	LIN54 016730
A3S 014046	CTLN = 000016	E12 011045	ITRAP = 104004	LIN55 016740
BIN2DA 010006	CTLP = 000020	E14 013356	LDONE = 000400	LIN56 016750
BIT0 = 000001	DAS 014427	E15 013404	LF = 000012	LIN57 016760
BIT00 = 000001	DATA 004776	E16 013440	LIN = 017733	LOOPC = 000100
BIT01 = 000002	DATAIN= 004000	E17 013475	LINENO 001370	LOOPOE= 040000
BIT02 = 000004	DATA2 005000	E18 013540	LINES 016032	LOOP1 001454
BIT03 = 000010	DDISP = 177570	E19 020306	LINESE 002204	LOOP2 001466
BIT04 = 000020	DECODE 004230	E20 020345	LINMON 002110	L1 017730
BIT05 = 000040	DECSAV 004774	E21 013575	LIN00 016170	L3 017051
BIT06 = 000100	DECTBL 004656	E22 013632	LIN01 016200	MACHER 000004
BIT07 = 000200	DEL 016166	E9 011005	LIN02 016210	MAJOR = 003000
BIT08 = 000400	DELAYM 007530	FF 016167	LIN03 016220	MAX 016034
BIT09 = 001000	DELAYR= 104006	FILL3 014362	LIN04 016230	MECHO 006270
BIT1 = 000002	DELAYT 007564	FLAGDA 010161	LIN05 016240	MERR = 100000
BIT10 = 002000	DIGITS 010162	FLAG1 = 000001	LIN06 016250	MERRN = 100377
BIT11 = 004000	DLAD 017743	FLAG2 = 000002	LIN07 016260	MFLAGS= 000004
BIT12 = 010000	DLADR 016130	GETANS 011216	LIN10 016270	MSAVE 006646
BIT13 = 020000	DLFLAG 016126	GETSRC 003350	LIN11 016300	MTW 002432
BIT14 = 040000	DLOTH 016134	GETSWS 003130	LIN12 016310	MTW1 002452
BIT15 = 100000	DLP = 100000	GNL 002556	LIN13 016320	MTYPE 007010
BIT2 = 000004	DLV 017752	GN1 002600	LIN14 016330	MULTI = 000040
BIT3 = 000010	DLVEC 016132	GN2 002604	LIN15 016340	NEWMOD= 001000
BIT4 = 000020	DR 020105	GN3 002612	LIN16 016350	NEWTST= 002000
BIT5 = 000040	DROPC = 000010	GN4 002644	LIN17 016360	NEXT 016152
BIT6 = 000100	DRO 020242	GN5 002650	LIN20 016370	NOOP = 000240
BIT7 = 000200	DR1 020270	GP 011100	LIN21 016400	NOP = 000240
BIT8 = 000400	DSWR = 177570	GSEL 010734	LIN22 016410	NREQ = 000340
BIT9 = 001000	DTEND 004774	GVL 002332	LIN23 016420	NSEL 020426
BPTVEC= 000014	DVCRXB 016136	G1A 002340	LIN24 016430	NXTLIN 016162
BUILD 005640	DVCTXB 016142	G1B 002344	LIN25 016440	OCTALC 011520
CATCH 006126	DVCTXS 016140	G1C 002356	LIN26 016450	ONLIN 016160
CE 013305	ECHO 005044	G1D 002370	LIN27 016460	O2ASC 007566
CFLAGS 002032	EMTABL 006230	HALTC = 000200	LIN30 016470	PASCNT= 000002
CHARS 010310	EMTBOS 006162	HALTOE= 100000	LIN31 016500	PCFLAG 001364
CHKW 005006	EMTVEC= 000030	HDR3 014443	LIN32 016510	PIRQ = 177772
CMDERR 005062	ENDS 020670	HDR4 014557	LIN33 016520	PIRQVE= 000240
CNTDA 010160	ENO = 000005	HDR5 014610	LIN34 016530	POINT = 000006
COMSUM 017103	EOL = 004000	HDR5A 014646	LIN35 016540	PRI 010424
CON 010662	EOP = 020000	HDR5B 014635	LIN36 016550	PRINT = 000020
CONSON 003332	EOPM 020136	HDR5E 014651	LIN37 016560	PRINTT= 010000
COUNT 015266	EOT = 040000	HEADR1 017056	LIN40 016570	PRI0 = 000000
CR = 000015	EOTM 020166	HEADR2 017676	LIN41 016600	PRI4 = 000200
CRLF = 000200	ERROR 005124	HI 013252	LIN42 016610	PRI7 = 000340
CSI 004000	ERRSAV 005434	HT = 000011	LIN43 016620	PROGID 016772

PRTL8	007212	SWR	016124	TKV	= 000060	T4SAV1	015262	\$NSK0	= 000300
PRTTBL	= 104002	SWRTST	003006	TKVEC	= 000060	T4SAV2	015264	\$NSK1	= 000110
PRO	= 000000	SWTEST	000172	TFB	= 177566	T41	014666	\$NSK10	= 000110
PR1	= 000040	SW0	= 000001	TPS	= 177564	T42	014702	\$NSK11	= 000110
PR2	= 000100	SW00	= 000001	TPVEC	= 000064	T5	016040	\$NSK12	= 000110
PR3	= 000140	SW01	= 000002	TRAPVE	= 000034	T5SAV	016026	\$NSK2	= 000110
PR4	= 000200	SW02	= 000004	TRTVEC	= 000014	T5SAV1	016030	\$NSK3	= 000210
PR5	= 000240	SW03	= 000010	TSCCNT	002036	T51	015420	\$NSK4	= 000110
PR6	= 000300	SW04	= 000020	TSCPTR	002034	T52	016071	\$NSK5	= 000110
PR7	= 000340	SW05	= 000040	TSTBL	002040	UPDATE	002660	\$NSK6	= 000110
PS	= 177776	SW06	= 000100	TSTCTL	001446	WIDTH	016146	\$NSK7	= 000110
PSW	= 177776	SW07	= 000200	TSTMON	= 050000	\$BGNLE	= 177777	\$SAVLE	= 177777
PTR	016164	SW08	= 000400	TXTRAP	007416	\$ERFLG	= 000400	\$SSK0	= 050023
PWRVEC	= 000024	SW09	= 001000	TXVEC	016144	\$FSAND	= 000310	\$SVPC	= 000204
RDSAV	003776	SW1	= 000002	TYPANS	011306	\$FSBAD	= 000401	\$SWR	= 160000
RDY	020123	SW10	= 002000	TYPE	= 104000	\$FSBLA	= 000170	\$TAGLE	= 177777
READIO	007024	SW11	= 004000	TYPES	007110	\$FSCAS	= 000150	\$TAGNU	= 050040
READKB	003466	SW12	= 010000	TO	010366	\$FSDEC	= 000220	\$TEMP	= 000300
READS	007124	SW13	= 020000	TOOBLK	010352	\$FSDO	= 000340	\$TN	= 000001
READY	= 000200	SW14	= 040000	TO1	010200	\$FSFAL	= 000405	\$TSK0	= 050034
REPORT	005436	SW15	= 100000	TO1BLK	010722	\$FSG00	= 000400	\$TSK1	= 050037
RESTR	001372	SW2	= 000004	TO2BLK	013176	\$FSIF	= 000110	\$TSK10	= 050023
RESVEC	= 000010	SW3	= 000010	TO3BLK	014342	\$FSINC	= 000210	\$TSK11	= 050024
RPC	= 000010	SW4	= 000020	TO4BLK	015246	\$FSL00	= 000200	\$TSK2	= 050024
RUB	010364	SW5	= 000040	TO5BLK	016014	\$FSNAM	= 000160	\$TSK3	= 050023
R6	= %000006	SW6	= 000100	T1	010742	\$FSNO	= 000403	\$TSK4	= 050025
R7	= %000007	SW7	= 000200	T1TEMP	010736	\$FSOR	= 000320	\$TSK5	= 050022
SAVE	016150	SW8	= 000400	T11	010460	\$FSRTN	= 000300	\$TSK6	= 050017
SCODE	020421	SW9	= 001000	T12	010554	\$FSSEL	= 000140	\$TSK7	= 050021
SEC	010434	S1	020117	T13	010566	\$FSTHE	= 000330	\$SARGC	= 000000
SECHO	006654	TAB	015316	T16	010634	\$FSTRU	= 000404	\$SBYTE	= 000402
SEL	= 000200	TABDA	010146	T2	013326	\$FSUNT	= 000130	\$SCASE	= 000000
SELERR	005100	TABEND	016770	T2BUF	013220	\$FSWHI	= 000120	\$SDST	= 000000
SEQ	= 000100	TABL1	011176	T2CNT1	013212	\$FSYES	= 000402	\$SELOC	= 000402
SETIO	005600	TABL4	015270	T2CNT2	013213	\$HD	= 000003	\$SERFL	= 000000
SI	= 000017	TABS	016036	T2SAV1	013210	\$IFLEV	= 177777	\$SFLAG	= 000001
SO	= 000016	TBITVE	= 000014	T2TEMP	013214	\$ISK0	= 000001	\$SFROM	= 000000
SOH	= 000001	TDONE	= 020000	T21	011546	\$ISK1	= 000001	\$SLOC	= 013076
SSWR	000176	TEMP	016100	T22	011726	\$ISK10	= 000001	\$SLOCN	= 000000
STACK	= 001100	TEMPF	005002	T220	013144	\$ISK11	= 000001	\$SREG	= 177777
STACK2	020434	TEMPT	005004	T23	012140	\$ISK2	= 000001	\$SRETU	= 000000
STACK3	020574	TESTAD	016156	T23A	012206	\$ISK3	= 000001	\$SRATN1	= 050007
START	001102	TESTNO	001366	T24	012530	\$ISK4	= 000001	\$SRATN2	= 050001
START2	001172	TEST0	010164	T25	012636	\$ISK5	= 000001	\$SSRC	= 000000
START3	001230	TEST1	010444	T25A	012734	\$ISK6	= 000001	\$STGSV	= 000000
STKLMT	= 177774	TEST2	011526	T26	013034	\$ISK7	= 000001	\$STGS1	= 000000
STRAP	007510	TEST3	013700	T3	014376	\$LOCTA	= 177777	\$STGS2	= 000000
STX	= 000002	TEST4	014652	T3SAV	014354	\$LSTCN	= 177777	\$STO	= 000000
SUTEST	002056	TEST5	015354	T3SAV1	014356	\$LSTIN	= 000000	\$STAG	= 050000
SW	020215	TIMER	007562	T3SAV2	014360	\$LSTST	= 177777		= 020672
SWCTL	= 000020	TKB	= 177562	T4	015320	\$LSTTA	= 000000		
SWLINE	000174	TKS	= 177560	T4SAV	015260	\$NESTL	= 177777		

. ABS. 020672 000

CZLAFAD LA36 TERM TST MACY11 30A(1052) 03-JAN-77 00:01 PAGE 4-2
CZLAFAP11 03-JAN-78 11:20 SYMBOL TABLE

SEQ 0092

ERRORS DETECTED: 0

CZLAFAP11, CZLAFAP11.LST=SYSMAC.SML/ML, SPMAC.SML/ML, CZLAFAP11
RUN-TIME: 120 101 .6 SECONDS
RUN-TIME RATIO: 60633/222=272.2
CORE USED: 19K (37 PAGES)

C08