.REM &

IDENTIFICATION

PRODUCT CODE : AC T343D MC

PRODUCT NAME: CZLNADO LN01 DIAG

MAINTAINER: SMALL SYSTEMS DIAGNOSTICS

PRODUCT DATE: FEBRUARY 1984

AUTHOR: GLENN A. PERNA

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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS DIAGNOSTIC PROGRAM VERIFIES PROPER PROPER OPERATION OF THE LN01 ELECTRONIC PRINTER AND ITS ASSOCIATED M7258 CONTROL UNIT WHICH INTERFACES TO THE PDP-11 CPU. THE BROAD RANGE OF TESTS ASSURES A COMPREHENSIVE TEST OF THE FUNCTIONAL CAPABILITY OF THE PRINTER. THE INDIVIDUAL TESTS ARE IDENTIFIED AS FOLLOWS:

TEST 1	INTERFACE LOGIC
TEST 2	DATA TRANSFER PATHS
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TEST 6	MULTIPLE LINE ADVANCE
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TEST 16	DRAW VECTORS
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TEST 20	MISCELLANEOUS CONTROL FUNCTIONS

THIS DIAGNOSTIC HAS BEEN WRITTEN FOR USE WITH THE DIAGNOSTIC RUNTIME SERVICES SOFTWARE (SUPERVISOR). THESE SERVICES PROVIDE THE INTERFACE TO THE OPERATOR AND TO THE SOFTWARE ENVIRONMENT. THIS PROGRAM CAN BE USED WITH XXDP+.
FOR A COMPLETE DESCRIPTION OF THE RUNTIME SERVICES, REFER TO THE XXDP+ USER'S MANUAL. THERE IS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES IN SECTION 2 OF THIS DOCUMENT.

1.2 SYSTEM REQUIREMENTS

1.2 SYSTEM REQUIREMENTS

A TEST STATION IS REQUIRED CONSISTING OF A PDP-11 CPU WITH A MINIMUM OF 28K WORDS OF MEMORY AND A CONSOLE TERMINAL WITH INTERFACE AT DEVICE ADDRESS 777560. THE SYSTEM ALSO REQUIRES AN XXDP SUPPORTED DEVICE SUCH AS AN RK05/RK11 DISK DRIVE TO AFFORD A MEANS TO LOAD THE DIAGNOSTIC PROGRAM.

1.3 RELATED DOCUMENTS AND STANDARDS

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

THIS DIAGNOSTIC IS COMPATIBLE WITH ALL MEMBERS OF THE PDP 11 COMPUTER FAMILY. THE DIAGNOSTIC IS INTERFACED TO THE PDP 11 DIAGNOSTIC SUPERVISOR THROUGH WHICH IT INTERFACES TO THE ENVIRONMENT.

THE APPLICABLE PDP-11 CPU, MEMORY, AND PERIPHERALS SHOULD BE RUN TO VALIDATE PROPER OPERATION OF THE SYSTEM BEFORE RUNNING THIS DIAGNOSTIC.

1.5 ASSUMPTIONS

THE PRINTERS UNDER TEST SHOULD HAVE POWER APPLIED AND BE PLACED ON LINE IN READINESS FOR TESTING. THE LINE PRINTER MUST HAVE ITS OWN M7258 CONTROLLER SET UP AT A DEVICE ADDRESS. THE DIAGNOSTIC PROVIDES A DEFAULT DEVICE ADDRESS OF 777514 WHICH CAN BE USED WHEN A LINE PRINTER IS BEING TESTED. IT WILL BE NECESSARY FOR THE OPERATOR TO RUN THE LINE PRINTER OFF LINE IN THE SELF TEST MODE BEFORE RUNNING THE DIAGNOSTIC.

2.0 OPERATING INSTRUCTIONS

THIS SECTION CONTAINS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES. FOR DETAILED INFORMATION, REFER TO THE XXDP+ USER'S MANUAL (CHQUS).

2.1 COMMANDS

THERE ARE ELEVEN LEGAL COMMANDS FOR THE DIAGNOSTIC RUNTIME SERVICES (SUPERVISOR). THIS SECTION LISTS THE COMMANDS AND GIVES A VERY BRIEF DESCRIPTION OF THEM. THE XXDP+ USER'S MANUAL HAS MORE DETAILS.

COMMAND	EFFECT
START	START THE DIAGNOSTIC FROM AN INITIAL STATE
RESTART	START THE DIAGNOSTIC WITHOUT INITIALIZING
CONTINUE	CONTINUE AT TEST THAT WAS INTERRUPTED (AFTER ^C)
PROCEED	CONTINUE FROM AN ERROR HALT
EXIT	RETURN TO XXDP+ MONITOR (XXDP+ OPERATION ONLY!)
ADD	ACTIVATE A UNIT FOR TESTING (ALL UNITS ARE CONSIDERED TO BE ACTIVE AT START TIME
DROP	DEACTIVATE A UNIT
PRINT	PRINT STATISTICAL INFORMATION (IF IMPLEMENTED BY THE DIAGNOSTIC - SECTION 4.0)
DISPLAY	TYPE A LIST OF ALL DEVICE INFORMATION
FLAGS	TYPE THE STATE OF ALL FLAGS (SEE SECTION 2.3)
ZFLAGS	CLEAR ALL FLAGS (SEE SECTION 2.3)

A COMMAND CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. SO YOU MAY, FOR EXAMPLE, TYPE "STA" INSTEAD OF "START".

2.2 SWITCHES

THERE ARE SEVERAL SWITCHES WHICH ARE USED TO MODIFY SUPERVISOR OPERATION. THESE SWITCHES ARE APPENDED TO THE LEGAL COMMANDS. ALL OF THE LEGAL SWITCHES ARE TABULATED BELOW WITH A BRIEF DESCRIPTION OF EACH.

IN THE DESCRIPTIONS BELOW, A DECIMAL NUMBER IS DESIGNATED BY "DDDDD".

SWITCH	EFFECT
/TESTS:LIST	EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS, FOR EXAMPLE - /TESTS:1:5:7-10. THIS LIST WILL CAUSE TESTS 1,5,7,8,9,10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN.
/PASS:DDDDD	EXECUTE DDDDD PASSES (DDDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:DDDDD	REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDDD = 1 TO 64000)
/UNITS:LIST	TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10 12 USE UNITS 0,5,10,11,12 (UNIT NUMBERS = 0 63)

EXAMPLE OF SWITCH USAGE:

```
START/TESTS:1-5/PASS:1000/EOP:100
```

THE EFFECT OF THIS COMMAND WILL BE: 1) TESTS 1 THROUGH 5 WILL BE EXECUTED, 2) ALL UNITS WILL TESTED 1000 TIMES AND 3) THE END OF PASS MESSAGES WILL BE PRINTED AFTER EACH 100 PASSES ONLY. A SWITCH CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY, FOR EXAMPLE, TYPE "/TES:1-5" INSTEAD OF "/TESTS:1-5".

BELOW IS A TABLE THAT SPECIFIES WHICH SWITCHES CAN BE USED BY EACH COMMAND.

	TESTS	PASS	FLAGS	EOP	UNITS
START	X	X	X	X	X
RESTART	X	X	X	X	X
CONTINUE		X	X	X	
PROCEED			X		
DROP					X
ADD					X
PRINT					
DISPLAY					X
FLAGS					
ZFLAGS					
EXIT					

2.3 FLAGS

FLAGS ARE USED TO SET UP CERTAIN OPERATIONAL PARAMETERS SUCH AS LOOPING ON ERROR. ALL FLAGS ARE CLEARED AT STARTUP AND REMAIN CLEARED UNTIL EXPLICITLY SET USING THE FLAGS SWITCH. FLAGS ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS, NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

FLAG	EFFECT
HOE	HALT ON ERROR CONTROL IS RETURNED TO RUNTIME SERVICES COMMAND MODE
LOE	LOOP ON ERROR
IER*	INHIBIT ALL ERROR REPORTS
IBR*	INHIBIT ALL ERROR REPORTS EXCEPT FIRST LEVEL (FIRST LEVEL CONTAINS ERROR TYPE, NUMBER, PC, TEST AND UNIT)
IXR*	INHIBIT EXTENDED ERROR REPORTS (THOSE CALLED BY PRINTX MACRO'S)
PRI	DIRECT MESSAGES TO LINE PRINTER
PNT	PRINT TEST NUMBER AS TEST EXECUTES
BOE	"BELL" ON ERROR
UAM	UNATTENDED MODE (NO MANUAL INTERVENTION)
ISR	INHIBIT STATISTICAL REPORTS (DOES NOT APPLY TO DIAGNOSTICS WHICH DO NOT SUPPORT STATISTICAL REPORTING)
IDR	INHIBIT PROGRAM DROPPING OF UNITS
ADR	EXECUTE AUTODROP CODE
LOT	LOOP ON TEST
EVL	EXECUTE EVALUATION (ON DIAGNOSTICS WHICH HAVE EVALUATION SUPPORT)

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

SEE THE XXDP+ USER'S MANUAL FOR MORE DETAILS ON FLAGS. YOU MAY SPECIFY MORE THAN ONE FLAG WITH THE FLAG SWITCH. FOR EXAMPLE, TO CAUSE THE PROGRAM TO LOOP ON ERROR, INHIBIT ERROR REPORTS AND TYPE A "BELL" ON ERROR, YOU MAY USE THE FOLLOWING STRING:

```
/FLAGS:LOE:IER:BOE
```

2.4 HARDWARE QUESTIONS

WHEN A DIAGNOSTIC IS STARTED, THE RUNTIME SERVICES WILL PROMPT THE USER FOR HARDWARE INFORMATION BY TYPING "CHANGE HW (L) ?" YOU MUST ANSWER "Y" AFTER A START COMMAND UNLESS THE HARDWARE INFORMATION HAS BEEN "PRELOADED" USING THE SETUP UTILITY (SEE CHAPTER 6 OF THE XXDP+ USER'S MANUAL). WHEN YOU ANSWER THIS QUESTION WITH A "Y", THE RUNTIME SERVICES WILL ASK FOR THE NUMBER OF UNITS (IN DECIMAL). YOU WILL THEN BE ASKED THE FOLLOWING QUESTIONS FOR EACH UNIT.

```
#UNITS (D) ? 1

UNIT 1
LP11 ADDRESS: (O)  (177514) ?
INTERRUPT VECTOR : (O)  (200) ?
```

2.5 SOFTWARE QUESTIONS

AFTER YOU HAVE ANSWERED THE HARDWARE QUESTIONS OR AFTER A RESTART
OR CONTINUE COMMAND, THE RUNTIME SERVICES WILL ASK FOR SOFTWARE
PARAMETERS. THESE PARAMETERS WILL GOVERN SOME DIAGNOSTIC SPECIFIC
OPERATION MODES. YOU WILL BE PROMPTED BY "CHANGE SW (L) ?"
IF YOU WISH TO CHANGE ANY PARAMETERS, ANSWER BY TYPING
"Y". THE SOFTWARE QUESTIONS AND THE DEFAULT VALUES ARE DESCRIBED
IN THE NEXT PARAGRAPH(S).

RUN MANUAL INTERVENTION TESTS (N) ? DEFAULT IS NO

AUTODROP ERROR COUNT (D) 5 ? DROPS ANY UNIT FROM TEST WHICH EXCEEDS SPECIFIED NO. OF ERRORS

2.6 EXTENDED P-TABLE DIALOGUE

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES
IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST
WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH
UNIT TO BE TESTED. IF YOU HAVE A MULTIPLEXED DEVICE SUCH AS
A MASS STORAGE CONTROLLER WITH SEVERAL DRIVES OR A COMMUNICATION
DEVICE WITH SEVERAL LINES, THIS BECOMES TEDIOUS SINCE MOST OF
THE ANSWERS ARE REPETITIOUS.

TO ILLUSTRATE A MORE EFFICIENT METHOD, SUPPOSE YOU ARE TESTING
A FICTIONAL DEVICE, THE XY11. SUPPOSE THIS DEVICE CONSISTS OF
A CONTROL MODULE WITH EIGHT UNITS (SUB-DEVICES) ATTACHED TO IT.
THESE UNITS ARE DESCRIBED BY THE OCTAL NUMBERS 0 THROUGH 7. THERE
IS ONE HARDWARE PARAMETER THAT CAN VARY AMONG UNITS CALLED THE
Q FACTOR. THIS Q-FACTOR MAY BE 0 OR 1. BELOW IS A SIMPLE WAY
TO BUILD A TABLE FOR ONE XY11 WITH EIGHT UNITS.

```
# UNITS (D) ?  8<CR>

UNIT 1
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  0<CR>
Q-FACTOR (O) 0 ?  1<CR>

UNIT 2
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  1<CR>
Q-FACTOR (O) 1 ?  0<CR>

UNIT 3
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  2<CR>
Q-FACTOR (O) 0 ?  <CR>

UNIT 4
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  3<CR>
Q-FACTOR (O) 0 ?  <CR>

UNIT 5
CSR ADDRESS (O) ?  160000<CR>
SUB DEVICE # (O) ?  4<CR>
```

```
? FACTOR (0) 0 ?  <CR>

UNIT 6
CSR ADDRESS (0) ?  160000<CR>
SUB DEVICE # (0) ?  5<CR>
Q FACTOR (0) 0 ?  <CR>

UNIT 7
CSR ADDRESS (0) ?  160000<CR>
SUB DEVICE # (0) ?  6<CR>
Q FACTOR (0) 0 ?  1<CR>

UNIT 8
CSR ADDRESS (0)  160000<CR>
SUB-DEVICE # (0) ?  7<CR>
Q-FACTOR (0) 1 ?  <CR>
```

NOTICE THAT THE DEFAULT VALUE FOR THE Q-FACTOR CHANGES WHEN A NON-DEFAULT RESPONSE IS GIVEN. BE CAREFUL WHEN SPECIFYING MULTIPLE UNITS!

AS YOU CAN SEE FROM THE ABOVE EXAMPLE, THE HARDWARE PARAMETERS DO NOT VARY SIGNIFICANTLY FROM UNIT TO UNIT. THE PROCEDURE SHOWN IS NOT VERY EFFICIENT.

THE RUNTIME SERVICES CAN TAKE MULTIPLE UNIT SPECIFICATIONS HOWEVER. LET S BUILD THE SAME TABLE USING THE MULTIPLE SPECIFICATION FEATURE.

```
# UNITS (0) ?  8<CR>

UNIT 1
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  0,1<CR>
Q-FACTOR (0) 0 ?  1,0<CR>

UNIT 3
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  2-5<CR>
Q FACTOR (0) 0 ?  0<CR>

UNIT 7
CSR ADDRESS (0) ?  160000<CR>
SUB DEVICE # (0) ?  6,7<CR>
Q-FACTOR (0) 0 ?  1<CR>
```

AS YOU CAN SEE IN THE ABOVE DIALOGUE, THE RUNTIME SERVICES WILL BUILD AS MANY ENTRIES AS IT CAN WITH THE INFORMATION GIVEN IN ANY ONE PASS THROUGH THE QUESTIONS. IN THE FIRST PASS, TWO ENTRIES ARE BUILT SINCE TWO SUB-DEVICES AND Q-FACTORS WERE SPECIFIED. THE SERVICES ASSUME THAT THE CSR ADDRESS IS 160000 FOR BOTH SINCE IT WAS SPECIFIED ONLY ONCE. IN THE SECOND PASS, FOUR ENTRIES WERE BUILT. THIS IS BECAUSE FOUR SUB DEVICES WERE SPECIFIED. THE ' - ' CONSTRUCT TELLS THE RUNTIME SERVICES TO INCREMENT THE DATA FROM THE FIRST NUMBER TO THE SECOND. IN THIS CASE, SUB-DEVICES 2, 3, 4 AND 5 WERE SPECIFIED. (IF THE SUB-DEVICE WERE SPECIFIED

BY ADDRESSES, THE INCREMENT WOULD BE BY 2 SINCE ADDRESSES MUST BE ON AN EVEN BOUNDARY.) THE CSR ADDRESSES AND Q-FACTORS FOR THE FOUR ENTRIES ARE ASSUMED TO BE 160000 AND 0 RESPECTIVELY SINCE THEY WERE ONLY SPECIFIED ONCE. THE LAST TWO UNITS ARE SPECIFIED IN THE THIRD PASS.

THE WHOLE PROCESS COULD HAVE BEEN ACCOMPLISHED IN ONE PASS AS SHOWN BELOW.

```
# UNITS (D) ?  8<CR>

UNIT 1
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  0-7<CR>
Q FACTOR (O) 0 ?  0,1,0,,,,1,1<CR>
```

AS YOU CAN SEE FROM THIS EXAMPLE, NULL REPLIES (COMMAS ENCLOSING A NULL FIELD) TELL THE RUNTIME SERVICES TO REPEAT THE LAST REPLY.

2.7 QUICK START-UP PROCEDURE (XXDP+)

TO START-UP THIS PROGRAM:

1. BOOT XXDP+
2. GIVE THE DATE AND ANSWER THE LSI AND 50HZ (IF THERE IS A CLOCK) QUESTIONS
3. TYPE "R NAME", WHERE NAME IS THE NAME OF THE BIN OR BIC FILE FOR THIS PROGRAM
4. TYPE "START"
5. ANSWER THE "CHANGE HW" QUESTION WITH "Y"
6. ANSWER ALL THE HARDWARE QUESTIONS
7. ANSWER THE "CHANGE SW" QUESTION WITH "N"

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS AND SOFTWARE PARAMETERS. THESE DEFAULTS ARE DESCRIBED IN SECTIONS 2.3 AND 2.5.

3.0 ERROR INFORMATION

3.1 TYPES OF ERROR MESSAGES

THERE ARE THREE LEVELS OF ERROR MESSAGES THAT MAY BE ISSUED BY A DIAGNOSTIC: GENERAL, BASIC AND EXTENDED. GENERAL ERROR MESSAGES ARE ALWAYS PRINTED UNLESS THE "IER" FLAG IS SET (SECTION 2.3). THE GENERAL ERROR MESSAGE IS OF THE FORM:

```
NAME  TYPE  NUMBER  ON UNIT NUMBER  TST NUMBER PC:XXXXXX
ERROR MESSAGE
```

,WHERE; NAME = DIAGNOSTIC NAME

TYPE = ERROR TYPE (SYS FATAL, DEV FATAL, HARD OR SOFT)
NUMBER = ERROR NUMBER
UNIT NUMBER = 0 N (N IS LAST UNIT IN PTABLE)
TST NUMBER = TEST AND SUBTEST WHERE ERROR OCCURRED
PC:XXXXXX = ADDRESS OF ERROR MESSAGE CALL

BASIC ERROR MESSAGES ARE MESSAGES THAT CONTAIN SOME ADDITIONAL INFORMATION ABOUT THE ERROR. THESE ARE ALWAYS PRINTED UNLESS THE "IER" OR "IBR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL MESSAGE.

EXTENDED ERROR MESSAGES CONTAIN SUPPLEMENTARY ERROR INFORMATION SUCH AS REGISTER CONTENTS OR GOOD/BAD DATA. THESE ARE ALWAYS PRINTED UNLESS THE "IER", "IBR" OR "IXR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL ERROR MESSAGE AND ANY ASSOCIATED BASIC ERROR MESSAGES.

3.2 SPECIFIC ERROR MESSAGES

ERROR	DESCRIPTION
1	"PRINTER ERROR" ERROR CONDITION IN THE PRINTER.
2	"PRINTER NOT READY" PRINTER NOT READY TO ACCEPT DATA.
3	"PRINTER DID NOT INTERRUPT" FAILURE IN INTERFACE LOGIC.
4	"LOADING PRINTER BUFFER DOES NOT CLEAR READY" FAILURE IN INTERFACE LOGIC.
5	"PRINTER INTERRUPTED AT SAME LEVEL AS THE PROCESSOR" FAILURE IN INTERFACE LOGIC.
6	"PRINTER ERROR" ERROR CONDITION IN THE PRINTER.
7	"PRINTER NOT READY" PRINTER NOT READY TO ACCEPT DATA.
8	"PAPER OUT INTERLOCK SWITCH FAILURE" FAULTY INTERLOCK SWITCH
9	"PAPER TRAY HANDLE INTERLOCK SWITCH FAILURE" FAULTY INTERLOCK SWITCH
10	"FRONT DOOR INTERLOCK SWITCH FAILURE" FAULTY INTERLOCK SWITCH
	"NOTE" ERROR MESSAGES #11 AND #12 HAVE BEEN ELIMINATED

13 "INTERRUPT SERVICING FOR THE FOLLOWING DEVICE DID NOT OCCUR"
GLOBAL ERROR INDICATING INTERRUPT FOR DATA TRANSFER DID NOT OCCUR.

14 "PRINTER STATUS ERROR"
GLOBAL ERROR INDICATING PRINTER ERROR CONDITION.

15 "OUTPUT TIMEOUT ERROR"
GLOBAL ERROR INDICATING TRANSMISSION OF LAST CHARACTER DID NOT OCCUR WITHIN A GIVEN TIME.

4.0 PERFORMANCE AND PROGRESS REPORTS

PERFORMANCE AND PROGRESS REPORTS ARE NOT SUPPLIED.

5.0 DEVICE INFORMATION TABLES

DEVICE INFORMATION APPEARS IN THE GLOBAL DATA SECTION.

6.0 TEST SUMMARIES

NOTE: FOR MORE DETAILED DESCRIPTION OF THE FOLLOWING TESTS, REFER TO THE INDIVIDUAL TEST MODULES LOCATED IN THE ATTACHED LISTING. EACH MODULE CONTAINS A TEST DEFINITION AND PSEUDO CODE FOR THE SPECIFIC TEST.

TEST 1
INTERFACE LOGIC
VERIFIES OPERATION OF INTERFACE LOGIC BETWEEN THE PRINTER AND THE CPU.

TEST 2
DATA TRANSFER PATHS
CHECKS THE DATA TRANSFER PATHS FROM THE PRINTER OUTPUT TO THE PROCESSOR INTERFACE.

TEST 3
PRINTABLE CHARACTERS
CHECKS FOR PROPER PRINTING OF ALL PRINTABLE CHARACTERS.

TEST 4
NON-PRINTABLE CHARACTERS
CHECKS FOR PROPER DETECTION OF ALL NON-PRINTABLE CHARACTERS.

TEST 5
PRINT CONTROL
CHECKS THAT CHARACTERS IN EXCESS OF 132 CHARACTERS ON A LINE ARE DISREGARDED.

TEST 6
MULTIPLE LINE ADVANCE

CHECKS THE MULTIPLE LINE ADVANCE FOR PROPER PAPER MOVEMENT.

TEST 7
OVERSTRIKE
THIS TEST WILL VERIFY CORRECT OPERATION OF THE PRINTER WHILE
OPERATIN JUST WITHIN OVERSTRIKE, LINE BUFFER AND PAGE BUFFER LIMITS.

TEST 8
INTERLOCK TEST
THIS TEST CHECKS TO SEE THAT PRINTER INTERLOCKS ARE FUNCTIONING.
IT CHECKS THE ERROR BIT IN THE M7258 MODULE AFTER TRIPPING INTERLOCK
IN PRINTER.

TEST 9
ABSOLUTE AND RELATIVE POSITION
THIS TEST CHECKS THE ABSOLUTE AND RELATIVE POSITIONING COMMANDS BY
USING THEM TO DRAW A RECTANGLE.

TEST 10
NEWLINE MODE
THIS TEST CHECKS THE MACHINES ABILITY TO ENABLE AND DISABLE NEWLINE MODE.

TEST 11
POWER UP DEFAULTS
THIS TEST VERIFIES THE SPECIFIED POWER UP DEFAULT CONDITIONS OF THE PRINTER.

TEST 12
TABS TEST
THIS TEST DOES A COMPREHENSIVE CHECK OF HORIZONTAL AND VERTICAL TAB
FUNCTIONS OF THE PRINTER. IT USES THEM TO DRAW A RECTANGLE.

TEST 13
MARGINS TEST
THIS TEST DOES A COMPREHENSIVE CHECK OF BOTH TOP AND BOTTOM AND
LEFT AND RIGHT MARGIN FUNCTIONS AS WELL AS PHYSICAL LINES PER PAGE FUNCTIONS.

TEST 14
AUTO-UNDERLINE TEST
THIS TEST EXERCISES THE PRINTER'S AUTO-UNDERLINE FUNCTIONS. MESSAGES ARE
PRINTED WITH UNDERLINING AND WITHOUT. TABS AND SPACES ARE CHECKED FOR BEING
UNDERLINED ALSO.

TEST 15
PARTIAL LINE UP/DOWN TEST
THIS TEST EXERCISES THE PRINTER'S ABILITY TO EXECUTE THE PARTIAL LINE UP
AND DOWN ESCAPE SEQUENCE AND FUNCTION.

TEST 16
DRAW VECTORS TEST
THIS TEST EXERCISES THE DRAW VECTOR FUNCTION BY DRAWING A RECTANGULAR GRID
AND INTERMIXING TEXT WITH THE DRAW VECTOR FUNCTION.

TEST 17
JUSTIFY TEST
THIS TEST EXERCISES THE JUSTIFY FUNCTION AS WELL AS DEMONSTRATING THE
USEFULNESS AND LIMITS.

TEST 18
PORTRAIT TEST
THIS TEST DOES A QUICK VERIFY OF THE PRINTER MAJOR FUNCTIONS
IN PORTRAIT MODE USING THE RESIDENT PORTRAIT FONT.

TEST 19
FONT TEST
THE FONT TEST TESTS FUNCTIONS ASSOCIATED WITH MULTIPLE FONT USE
ON THE LN01 SUCH AS:
FONT LOADING,FONT ASSIGNMENT AND FONT SELECTION.

TEST 20
MISCELLANEOUS CONTROL FUNCTIONS TEST
THIS TEST CHECKS THE RESULTS OF SENDING SPECIFIC CONTROL CHARACTERS
WITHIN AN ESCAPE OR CONTROL SEQUENCE. THINGS SUCH AS:
CANCEL,SUBSTITUTE,LINE FEED,FORM FEED ETC.

```
                        .TITLE  CZLNADO LN01 DIAGNOSTIC
                        .ENABL AMA
                        .SBTTL  IDENTIFICATION

                        ; PRODUCT CODE:         AC-T343D MC

                        ; PRODUCT NAME:         CZLNADO LN01 DIAG

                        ; MAINTAINER:           SMALL SYSTEMS DIAGNOSTICS

                        ; AUTHORS:              GLENN A. PERNA

                        ; DATE                  FEBRUARY  1984

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;**
; FUNCTIONAL DESCRIPTION
;
; THIS DIAGNOSTIC PROGRAM VERIFIES PROPER OPERATION OF THE LN01
; LINE PRINTER, AND IT'S ASSOCIATED INTERFACE MODULE.
;
; THE PROGRAM CONSISTS OF 20 TESTS.
;
; THE PROGRAM IS COMPATIBLE TO THE PDP 11 DIAGNOSTIC SUPERVISOR AND XXDP+.
;
; -


; VERSION       A-0    JAN  1983        GLENN A. PERNA


; HISTORY       REV. A-0   INITIAL RELEASE        JAN  1983
;                          BASIC LINE PRINTER FUNCTIONS ONLY
;
;               REV. B-0                          MAR  1983
;                          ADDED EXTENDED FUNCTIONALITY TESTING
;
;               REV. C-0                          SEP  1983
;                          RE-RELEASED TO SUPPORT UPGRADED
;                          MEMORY (256K).
;
;               REV. D-0                          FEB 1984
;                          RE RELEASED TO SUPPORT DEC 14/15
;                          ROM'S.
;
```

```
                                        .TITLE  CZLNADO LNO1 TEST
                                .SBTTL PROGRAM HEADER

                                        .MCALL  SVC
000000'                                 SVC                             ;INITIALIZE SUPERVISOR MACROS
                                        .MCALL  STRUCT
000000'                                 STRUCT                          ;STRUCTURED MACRO PACKAGE
000000                                  $LSTIN=         0               ; LIST ASSY CODE LEFT
000000                                  $LSTTAG=        0               ; LIST TAGS LEFT
177777                                  $LOCTAG=        -1

000000                          SVCINS= 0       ;LIST INSTRUCTIONS
000000                          SVCTST= 0       ;LIST TEST TAGS
000000                          SVCSUB= 0       ;LIST SUBTEST TAGS
000000                          SVCGBL= 0       ;LIST GLOBAL TAGS
000000                          SVCTAG= 0       ;LIST OTHER TAGS

                                .ENABL AMA
                                .ENABL ABS
                                .ENABL LC
002000                                  .=2000

002000                                  BGNMOD
002000                                  POINTER BGNSW,BGNSFT

002000                                  HEADER  CZLNA,D,0,60,1,340
002000                          L$NAME::                        ;DIAGNOSTIC NAME
002000  103                             .ASCII /C/
002001  132                             .ASCII /Z/
002002  114                             .ASCII /L/
002003  116                             .ASCII /N/
002004  101                             .ASCII /A/
002005  000                             .BYTE   0
002006  000                             .BYTE   0
002007  000                             .BYTE   0
002010                          L$REV::                         ;REVISION LEVEL
002010  104                             .ASCII  /D/
002011                          L$DEPO::                        ;0
002011  060                             .ASCII  /0/
002012                          L$UNIT::                        ;NUMBER OF UNITS
002012  000000                          .WORD   0
002014                          L$TIML::                        ;LONGEST TEST TIME
002014  000060                          .WORD   60
002016                          L$HPCP::                        ;POINTER TO H.W. QUES.
002016  105314                          .WORD   L$HARD
002020                          L$SPCP::                        ;POINTER TO S.W. QUES.
002020  105374                          .WORD   L$SOFT
002022                          L$HPTP::                        ;PTR. TO DEF. H.W. PTABLE
002022  002252                          .WORD   L$HW
002024                          L$SPTP::                        ;PTR. TO S.W. PTABLE
002024  002264                          .WORD   L$SW
002026                          L$LADP::                        ;DIAG. END ADDRESS
002026  105544                          .WORD   L$LAST
002030                          L$STA::                         ;RESERVED FOR APT STATS
002030  000000                          .WORD   0
002032                          L$CO::
```

```
(4)  002032  000000                    .WORD   0
(5)  002034                     L$DTYP::                ;DIAGNOSTIC TYPE
(4)  002034  000001                    .WORD   1
(5)  002036                     L$APT::                 ;APT EXPANSION
(4)  002036  000000                    .WORD   0
(5)  002040                     L$DTP::                 ;PTR. TO DISPATCH TABLE
(4)  002040  002132                    .WORD   L$DISPATCH
(5)  002042                     L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
(4)  002042  000340                    .WORD   340
(5)  002044                     L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
(4)  002044  000000                    .WORD   0
(5)  002046                     L$EXP1::                ;EXPANSION WORD
(4)  002046  000000                    .WORD   0
(5)  002050                     L$MREV::                ;SVC REV AND EDIT #
(4)  002050     003                    .BYTE   C$REVISION
(3)  002051     003                    .BYTE   C$EDIT
(5)  002052                     L$EF::                  ;DIAG. EVENT FLAGS
(4)  002052  000000                    .WORD   0
(5)  002054  000000                    .WORD   0
(5)  002056                     L$SPC::
(4)  002056  000000                    .WORD   0
(5)  002060                     L$DEVP::                ; POINTER TO DEVICE TYPE LIST
(4)  002060  002242                    .WORD   L$DVTYP
(5)  002062                     L$REPP::                ;PTR. TO REPORT CODE
(4)  002062  000000                    .WORD   0
(5)  002064                     L$EXP4::
(4)  002064  000000                    .WORD   0
(5)  002066                     L$EXP5::
(4)  002066  000000                    .WORD   0
(5)  002070                     L$AUT::                 ;PTR. TO ADD UNIT CODE
(4)  002070  000000                    .WORD   0
(5)  002072                     L$DUT::                 ;PTR. TO DROP UNIT CODE
(4)  002072  000000                    .WORD   0
(5)  002074                     L$LUN::                 ;LUN FOR EXERCISERS TO FILL
(4)  002074  000000                    .WORD   0
(5)  002076                     L$DESP::                ;POINTER TO DIAG. DESCRIPTION
(4)  002076  002202                    .WORD   L$DESC
(5)  002100                     L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
(4)  002100  104035                    EMT     E$LOAD
(5)  002102                     L$ETP::                 ;POINTER TO ERRTBL
(4)  002102  000000                    .WORD   0
(5)  002104                     L$ICP::                 ;PTR. TO INIT CODE
(4)  002104  005516                    .WORD   L$INIT
(5)  002106                     L$CCP::                 ;PTR. TO CLEAN-UP CODE
(4)  002106  007266                    .WORD   L$CLEAN
(5)  002110                     L$ACP::                 ;PTR. TO AUTO CODE
(4)  002110  002256                    .WORD   L$AUTO
(5)  002112                     L$PRT::                 ;PTR. TO PROTECT TABLE
(4)  002112  002122                    .WORD   L$PROT
(5)  002114                     L$TEST::                ;TEST NUMBER
(4)  002114  000000                    .WORD   0
(5)  002116                     L$DLY::                 ;DELAY COUNT
(4)  002116  000000                    .WORD   0
(5)  002120                     L$HIME::                ;PTR. TO HIGH MEM
(4)  002120  000000                    .WORD   0
770
```

```
                                        ;
                                        ; THE FOLLOWING IS A LOAD PROTECTION TABLE
                                        ;
 774  002122                                    BGNPROT
(3)   002122                            L$PROT::
 775  002122  000000                            .WORD   0
 776  002124  177777                            .WORD   -1
 777  002126  177777                            .WORD   -1
 778  002130                                    ENDPROT
 779                                    .SBTTL  DISPATCH TABLE
 780
 781                                    ;++
 782                                    ; THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
 783                                    ; IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
 784                                    ;--
 785
 786  002130                                    DISPATCH        20              ;X= NUMBER OF TESTS
(4)   002130  000024                            .WORD   20
(3)   002132                            L$DISPATCH::
(6)   002132  007456                            .WORD   T1
(6)   002134  011226                            .WORD   T2
(6)   002136  011774                            .WORD   T3
(6)   002140  013204                            .WORD   T4
(6)   002142  015154                            .WORD   T5
(6)   002144  016516                            .WORD   T6
(6)   002146  017316                            .WORD   T7
(6)   002150  020440                            .WORD   T8
(6)   002152  023476                            .WORD   T9
(6)   002154  025724                            .WORD   T10
(6)   002156  027356                            .WORD   T11
(6)   002160  033354                            .WORD   T12
(6)   002162  037460                            .WORD   T13
(6)   002164  045074                            .WORD   T14
(6)   002166  050422                            .WORD   T15
(6)   002170  052016                            .WORD   T16
(6)   002172  054072                            .WORD   T17
(6)   002174  063606                            .WORD   T18
(6)   002176  070254                            .WORD   T19
(6)   002200  101616                            .WORD   T20
 787
 788                                    ;FOR USE ON REVISION C OF THE SUPERVISOR
 789                                    ;
 790  002202                                    DESCRIP         <CZLNADO LINE PRINTER DIAGNOSTIC>
(4)   002202                            L$DESC::
(3)   002202  055103  047114  042101            .ASCIZ  /CZLNADO LINE PRINTER DIAGNOSTIC/
(3)   002210  020060  044514  042516
(3)   002216  050040  044522  052116
(3)   002224  051105  042040  040511
(3)   002232  047107  051517  044524
(3)   002240  000103
(2)                                             .EVEN
 791  002242                                    DEVTYP          <LNO1>
(4)   002242                            L$DVTYP::
(3)   002242  047114  030460      000           .ASCIZ  /LNO1/
(2)           002250                            .EVEN
 792
```

```
                                .SBTTL  DEFAULT HARDWARE P-TABLE

                                ;++
                                ; THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
                                ; THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE
                                ; IS IDENTICAL TO THE RUN-TIME P-TABLE.
                                ;--

002250                                  BGNHW   DFPTBL
(3) 002250  000002                      .WORD   L10001-L$HW/2
(3) 002252                      L$HW::
(3) 002252                      DFPTBL::
002252  177514                          .WORD   177514                  ;LP11 REGISTER ADDRESS
002254  000200                          .WORD   200                     ;LP11 INTERRUPT VECTOR
                                ;
                                ;INTERRUPT VECTOR PRIORITY IS 4 AND CANNOT BE CHANGED


002256                                  ENDHW
(3) 002256                      L10001:


002256                                  BGNAUTO
(3) 002256                      L$AUTO::

002256  000240                          NOP             ; NOT USED

002260                                  ENDAUTO
(3) 002260                      L10002:
(3) 002260  104461                      TRAP    C$AUTO
                                .SBTTL  SOFTWARE P-TABLE

                                ;++
                                ; THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
                                ; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
                                ;--

002262                                  BGNSW   SFPTBL
(3) 002262  000002                      .WORD   L10003 L$SW/2
(3) 002264                      L$SW::
(3) 002264                      SFPTBL::

002264  000000                  INHINT: .WORD   0                       ;0 IF NO INTERVENTION TESTS
                                                                        ;1 IF MANUAL INTERVENTION TESTS
                                                                        ;DEFAULT IS NO

002266  000005                  MAXERR: .WORD   5                       ; AUTODROP ERROR COUNT
                                ; IF ERROR COUNT EXCEEDS MAXERR THE UNIT WILL BE DROPPED FROM TEST

002270                                  ENDSW
(3) 002270                      L10003:

                                .SBTTL  I/O MACRO DEFINITIONS
```

```
838
839                             .MACRO  OUTPUT  ADD,BFCNT,ERR,PRINTS
840                                     MOV     ADD,BUFADD              ;SAVE THE BUFFER ADDRESS
841                             .IF B   BFCNT
842                                     MOV     #1,BUFCNT               ; BYTE COUNT DEFAULT OF 1
843                             .ENDC
844                             .IF NB  BFCNT
845                                     MOV     BFCNT,BUFCNT            ; SUPPLY BYTE COUNT
846                             .ENDC
847                                     MOV     #-1,PRINTR              ; OUTPUT TO ALL UNITS
848                             .IF B   ERR
849                                     MOV     #LPERR,ERRSVC
850                             .ENDC
851                             .IF NB  ERR
852                                     MOV     ERR,ERRSVC
853                             .ENDC
854                             .IF B PRINTS
855                                     MOV     #1,BUFREP               ; PRINT ONCE DEFAULT
856                             .ENDC
857                             .IF NB PRINTS
858                                     MOV     PRINTS,BUFREP           ; SUPPLY PRINT COUNT
859                             .ENDC
860                                     JSR     PC,IOCTRL               ;CALL THE DRIVER
861                             .ENDM   OUTPUT
862
863
864                             .MACRO  OUTPUI  ADD,BFCNT,ERR,UNIT,PRINTS
865                                     MOV     ADD,BUFADD              ;SAVE BUFFER ADDRESS
866                             .IF B   BFCNT
867                                     MOV #1,BUFCNT                   ; DEFAULT BYTE COUNT OF 1
868                             .ENDC
869                             .IF NB  BFCNT
870                                     MOV     BFCNT,BUFCNT            ;BUFFER BYTE COUNT BFCNT
871                             .ENDC
872                             .IF B   ERR
873                                     MOV     #LPERR,ERRSVC
874                             .ENDC
875                             .IF NB  ERR
876                                     MOV     ERR,ERRSVC
877                             .ENDC
878                             .IF B PRINTS
879                                     MOV     #1,BUFREP               ; PRINT ONCE DEFAULT
880                             .ENDC
881                             .IF NB PRINTS
882                                     MOV     PRINTS,BUFREP           ; SUPPLY PRINT COUNT
883                             .ENDC
884                                     MOV     UNIT,PRINTR             ; SUPPLY UNIT NUMBER
885                                     JSR     PC,IOCTRL               ;CALL THE DRIVER
886                             .ENDM
887
888
889                             ; PRINTS IS A PARAMETER CONTROLLING THE NUMBER IF TIMES THE DATA OR
890                             ; MESSAGE IS TO BE PRINTED (SENT TO THE PRINTER). DEFAULT IS 1.
891                             ;
892                             ; A TIMEOUT OF 20. SECONDS IS FURNISHED BASED ON THE FOLLOWING ASSUMPTIONS :
893                             ;       1   A PRINTER SPEED OF 300 LPM
```

```
                              ;       2   A REPEAT COUNT OF 88 MAX. ( 1 PAGE OF LINES AT 8 LPI. )
                              ;       3   AN INITIAL BAND STARTUP TIME OF 2.5 SECONDS.
                              ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
002270                                ENDMOD
                              .SBTTL  GLOBAL , REAS

002270                                BGNMOD

                              ;++
                              ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES
                              ; THAT ARE USED IN MORE THAN ONE TEST.
                              ;--

002270                                EQUALS
                              ;
                              ; BIT DIFINITIONS
                              ;
        100000                BIT15== 100000
        040000                BIT14== 40000
        020000                BIT13== 20000
        010000                BIT12== 10000
        004000                BIT11== 4000
        002000                BIT10== 2000
        001000                BIT09== 1000
        000400                BIT08== 400
        000200                BIT07== 200
        000100                BIT06== 100
        000040                BIT05== 40
        000020                BIT04== 20
        000010                BIT03== 10
        000004                BIT02== 4
        000002                BIT01== 2
        000001                BIT00== 1
                              ;
        001000                BIT9==  BIT09
        000400                BIT8==  BIT08
        000200                BIT7==  BIT07
        000100                BIT6==  BIT06
        000040                BIT5==  BIT05
        000020                BIT4==  BIT04
        000010                BIT3==  BIT03
        000004                BIT2==  BIT02
        000002                BIT1==  BIT01
        000001                BIT0==  BIT00
                              ;
                              ; EVENT FLAG DEFINITIONS
                              ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
                              ;
        000040                EF.START==       32.              ; START COMMAND WAS ISSUED
        000037                EF.RESTART==     31.              ; RESTART COMMAND WAS ISSUED
        000036                EF.CONTINUE==    30.              ; CONTINUE COMMAND WAS ISSUED
        000035                EF.NEW==         29.              ; A NEW PASS HAS BEEN STARTED
        000034                EF.PWR==         28.              ; A POWER FAIL/POWER-UP OCCURRED
                              ;
                              ;
                              ; PRIORITY LEVEL DEFINITIONS
```

```
(1)
(1)          000340                  ;
(1)          000300                  PRIO7== 340
(1)          000240                  PRIO6== 300
(1)          000200                  PRIO5== 240
(1)          000140                  PRIO4== 200
(1)          000100                  PRIO3== 140
(1)          000040                  PRIO2== 100
(1)          000000                  PRIO1== 40
(1)                                  PRIO0== 0
(1)                                  ;
(1)                                  ;OPERATOR FLAG BITS
(1)                                  ;
(1)          000004                  EVL==        4
(1)          000010                  LOT==       10
(1)          000020                  ADR==       20
(1)          000040                  IDU==       40
(1)          000100                  ISR==      100
(1)          000200                  UAM==      200
(1)          000400                  BOE==      400
(1)          001000                  PNT==     1000
(1)          002000                  PRI==     2000
(1)          004000                  IXE==     4000
(1)          010000                  IBE==    10000
(1)          020000                  IER==    20000
(1)          040000                  LOE==    40000
(1)          100000                  HOE==   100000
911
915          000012                  LF==12
916          000014                  FF==14
917          000015                  CR==15
918          000177                  DEL==177
919          000001                  VERS.1== 1
920                                  ;
921                                  ;GLOBAL ERROR CODES FOR USE BY GENERAL ERROR ROUTINE
922                                  ;
923          000001                  STATER= 1                       ;TRANSMITTER STATUS ERROR IN OUTPUT
924          000002                  TIMOUT= 2                       ;TIMEOUT ERROR IN IO DRIVER MODULE
925                                                                  ;THIS ERROR INDICATES THE LAST CHARACTER
926                                                                  ;WAS NOT TRANSMITTED WITHIN A GIVEN TIME
927          000003                  NOINTR= 3                       ;GROSS TIME OUT ERROR. THE SPECIFIED DID NOT
928                                                                  ;INTERRRUPT. THEREFORE IO DRIVER MODULE WAS
929                                                                  ;NOT CALLED
930                                  ;
931                                  .SBTTL  GENERAL REGISTER USAGE DEFINITIONS
932                                  ;
933                                  ;R0     RESERVED FOR USE BY THE MACRO PACKAGES
934                                  ;R1     MAXIMUM NUMBER OF UNITS TO TEST L$UNIT-1
935                                  ;R2     UNIT NUMBER BY 2. USED TO CALCULATE OFFSET INTO PROPER
936                                  ;       PRINTER TABLE
937                                  ;R3     TEMPORARY STORAGE
938                                  ;R4          "      "
939                                  ;R5
940                                  ;R6     STACK POINTER
941                                  ;R7     PROGRAM COUNTER
942                                  ;
943
```

```
944
945
946                             ;
947                             ; LP STATUS TABLE BIT DEFINITIONS
948                             ;
949          100000             ERROR = BIT15
950          040000             DROPED = BIT14
951          020000             ACTIVE = BIT13
952          000377             LOBYTE = 377    ; BIT MASK FOR CLEARING LOBYTE (COUNTER)
953
954                             .SBTTL  GLOBAL DATA SECTION
955
956
957
958  002270  000000             FLAG:   .WORD   0                ;<CR> FLAG FOR USE BY SUPERVISOR
959  002272  000000             LINCNT: .WORD   0                ;LINE COUNTER
960  002274  000000             LSTCNT: .WORD   0
961  002276  000000             COUNT:  .WORD   0
962  002300  000000             CCNT:   .WORD   0
963  002302  000000             STRCNT: .WORD   0
964  002304  000000             CHRGEN: .WORD   0
965  002306  000000             UNIT:   .WORD   0                ;UNIT COUNTER FOR SINGLE UNIT TESTING
966  002310  000000             LUNIT:  .WORD   0                ;UNIT COUNTER FOR ERRORS
967                                                              ;AND TESTS NOT USING THE OUTPUT
968                                                              ;MACROS.
969  002312  000000             PTABAD: .WORD   0                ;P-TABLE ADDRESS RETURNED BY GPHARD
970  002314  000000             PRINTR: .WORD   0                ;SELECTED LINE NO.
971                                                              ;MACRO
972  002316  000000             CLKTYP: .WORD   0                ;CLOCK TYPE CONTROL WORD
973                                                              ;1= NO CLOCK AVAILABLE
974                                                              ;2= KW11-L LINE CLOCK
975                                                              ;3= KW11-P PROGRAMABLE CLOCK
976  002320  000000             CLOCKP: .WORD   0                ; CLOCK P-TABLE ADDRESS
977  002322  000000             CLKCSR: .WORD   0                ;CLOCK CSR ADDRESS
978  002324  000000             CLKSET: .WORD   0                ; CLOCK TIME SET REG ADDRESS
979  002326  000000             CLKVEC: .WORD   0                ;CLOCK VECTOR ADDRESS
980  002330  000000             CLKENA: .WORD   0                ;CLOCK ENABLE BITS
981  002332  000000             ERRCOD: .WORD   0                ;ERROR CODE TYPE FOR GENERAL
982                                                              ;ERROR ROUTINE
983  002334  000000             ERRFLG: .WORD   0                ;EXPECTED ERROR INDICATOR
984  002336  000000             UUT:    .WORD   0                ; # UNITS ACTUALLY UNDER TEST
985                                                              ;EXITS BACK TO IO DRIVER EQUAL
986                                                              ;1 IF ERROR WAS EXPECTED.
987
988  002340  000000             INDEX:  .WORD   0
989  002342  000000             VFUCMD: .WORD   0
990                             ;
991                             ;MACRO  VARIABLES
992
993  002344  000000             BUFADD: .WORD   0                ;BUFFER ADDRESS OF DATA TO BE SENT
994                                                              ;TO THE PRINTER
995  002346  000000             BUFCNT: .WORD   0                ;NUMBER OF BYTES TO TRANSFER
996
997  002350  000000             BUFREP: .WORD   0                ; NUMBER OF TIMES TO PRINT
998                             ;
999                             ;
```

```
1000                                    ;
1001                                    ;LN01 PARAMETER WORD TABLES
1002                                    ;
1003  002352  000020                    LPCSR:  .REPT   16.             ; ADDRESS OF CSR FOR EACH LP11
1004                                            .WORD   0
1005                                            .ENDR
1006  002412  000016                    LPVEC:  .REPT   16              ; INTERRUPT VECTOR ADDRESS
1007                                            .WORD   0
1008                                            .ENDR
1009  002446  000020                    LPBUF:  .REPT 16.               ; DATA BUFFER REGISTER ADDRESS
1010                                            .WORD   0
1011                                            .ENDR
1012  002506  000020                    STATUS: .REPT 16.               ; UNIT STATUS
1013                                            .WORD   0
1014                                            .ENDR
1015  002546  000020                    CURADD: .REPT 16.               ; CURRENT ADDRESS OF OUTPUT DATA BYTE
1016                                            .WORD   0
1017                                            .ENDR
1018  002606  000020                    MSGCNT: .REPT 16.               ; INITIAL BYTE COUNT OF MSG FOR REPEAT RESTORE
1019                                            .WORD 0
1020                                            .ENDR
1021  002646  000020                    REPCNT: .REPT   16.             ; NO. OF TIMES TO REPEAT MESSAGE
1022                                            .WORD   0
1023                                            .ENDR
1024  002706  000020                    MSGADR: .REPT   16.             ; ADDRESS OF DATA TO PRINT START OF DATA
1025                                            .WORD   0
1026                                            .ENDR
1027  002746  000020                    CURCNT: .REPT 16.               ; CURRENT COUNT REMAINING TO OUTPUT
1028                                            .WORD   -1
1029                                            .ENDR
1030  003006  000020                    LPINTR: .REPT 16.               ; INTERRUPT ROUTINE ADDRESS
1031                                            .WORD   0
1032                                            .ENDR
1033                                    ;;;DELCNT:      .REPT 16.
1034                                    ;;;     .WORD   0               ; TIMEOUT DELAY COUNTER
1035                                    ;;;     .ENDR
1036  003046  000000                    ERRSVC: .WORD   0               ; ERROR ROUTINE DISPATCH ADDRESS
1037  003050  000020                    ERRTBL::        .REPT 16.       ; ERROR COUNT FOR EACH UNIT
1038                                            .WORD   0
1039                                            .ENDR
1040
1041  003110  000000                    WORK::  .WORD   0               ; WORK AREA
1042  003112  000000                    WORK1:  .WORD   0
1043
1044
1045
1046                                    .SBTTL  OUTPUT BUFFER
1047                                    ;
1048                                    ;150 BYTES IS RESERVED FOR THE OUTPUT BUFFER AREA
1049                                    ;
1050
1051                                            .EVEN
1052  003114  000226                    OUTBUF: .REPT   150.
1053                                            .BYTE   0
1054                                            .ENDR
1055
```

```
1056
1057                                    .SBTTL  GLOBAL TEXT SECTION
1058
1059                                    .NLIST BEX
1060                                    ;++
1061                                    ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
1062                                    ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
1063                                    ; MORE THAN ONE TEST.
1064                                    ;--
1065  003342  051120  047111  042524    CSRERR: .ASCIZ /PRINTER ERROR/
1066  003360  051120  047111  042524    RDYERR: .ASCIZ /PRINTER NOT READY/
1067  003402  040520  042520  020122    PAPSWI: .ASCIZ /PAPER OUT INTERLOCK SWITCH FAILURE - MAKE SURE PAPER IS RESTORED/
1068  003503     120  050101  051105    HANSWI: .ASCIZ /PAPER TRAY HANDLE INTERLOCK SWITCH FAILURE/
1069  003556  051106  047117  020124    DOOSWI: .ASCIZ /FRONT DOOR INTERLOCK SWITCH FAILURE/
1070  003622  051124  047101  046523    INTER1: .ASCIZ  /TRANSMIT INTERRUPT TIMEOUT/
1071  003655     120  044522  052116    TXERR:  .ASCIZ  /PRINTER STATUS ERROR/
1072  003702  052517  050124  052125    OUTTIM: .ASCIZ  /OUTPUT TIMEOUT ERROR/
1073  003727     125  044516  020124    TXNOIN: .ASCIZ  /UNIT FAILED TO INTERRUPT/
1074  003760  046101  020114  047125    UUTEQO: .ASCIZ  /ALL UNITS HAVE BEEN DROPPED..RESTART../
1075  004027     033     143            REINIT: .BYTE   33,143                          ; RESETS DEFAULT CONDITIONS IN LNO1
1076  004031     033     133     062    SELDEC: .BYTE   33,133,62,40,111                ; SELECT DECIPOINTS AS PARAMETER
1077  004036     033     133     067    SELPIX: .BYTE   33,133,67,40,111                ; SELECT PIXELS AS PARAMETER
1078  004043     015     012     000    ACRLF:: .BYTE   15,12,0
1079  004046     015     012     012    SKIP3:: .BYTE   15,12,12,12
1080  004052     033     133     061    DECFIN:: .BYTE  33,133,61,41,175                        ; SEQUENCE FOR TOGGLING PAPER OF
1081          004060                     .EVEN
1082
1083
1084                                    ;
1085                                    ;
1086
1087                                    .LIST BEX
1088                                    ;
1089                                    ; FORMAT STATEMENTS USED IN PRINT CALLS
1090                                    ;
1091
1092  004060  040445  050114  030461    LPDROP: .ASCIZ  /%ALP11 UNIT %D2%A DROPPED FROM TEST%N/
      004066  052440  044516  020124
      004074  042045  022462  020101
      004102  051104  050117  042520
      004110  020104  051106  046517
      004116  052040  051505  022524
      004124  000116
1093
1094
1095
1096
1097                                    .SBTTL  GLOBAL SUBROUTINES  SECTION
1098
1099                                    ;++
1100                                    ; THE GLOBAL SUBROUTINE SECTION CONTAINS THE SUBROUTINES
1101                                    ; THAT ARE USED BY MORE THAN ONE TEST.
1102                                    ; -
1103
1104
1105                                    ;++
```

```
1106                                    ; FUNCTIONAL DESCRIPTION:
1107                                    ;    SUBROUTINE TO PRINT THE GENERAL ERROR INFORMATION.
1108                                    ;       PRINTS THE ERROR MESSAGE IN THE FOLLOWING FORMAT:
1109                                    ;
1110                                    ;       "ERROR AT CSR XXXXXX UNIT YY"
1111                                    ;
1112                                    ;       WHERE XXXXXX=   DEVICE CSR ADDRESS
1113                                    ;                 YY=   UNIT NUMBER THAT FAILED
1114                                    ;
1115                                    ;       CALLING SEQUENCE
1116                                    ;               JSR PC,LPERR
1117                                    ;       REQUIRED PARAMETERS
1118                                    ;               ERRCOD MUST BE SET TO ONE OF THE ERROR CODES DESCRIBED
1119                                    ;               UNDER ERROR CODES.
1120                                    ;
1121                                    ;--
1122                                    ;
1123                                    ;
1124                                    ;               R2 IS USED INTERNAL TO THE ROUTINE.
1125                                    ;               THE ROUTINE DOES A SAVE ON R2
1126                                    ;               AND RESTORES IT PRIOR TO EXITING.
1127                                    ;
1128
1129  004126                            LPERR:  SELECT ERRCOD OF 3 VERIFY       ;SELECT PROPER MESSAGE FORMAT
 (2)  004126  013746  002332                    MOV     ERRCOD,-(SP)
 (6)  004132  002455                            BLT     50005$
 (3)  004134  023727  002332  000003           CMP     ERRCOD,#3
 (7)  004142  003051                            BGT     50005$
 (2)  004144  006316                            ASL     (SP)
 (3)  004146  062716  004154                    ADD     #50000$,(SP)
 (2)  004152  013607                            MOV     @(SP)+,PC
 (3)  004154                            50000$:
 (5)  004154  004272                            .WORD   50004$
 (5)  004156  004164                            .WORD   50003$
 (5)  004160  004212                            .WORD   50002$
 (5)  004162  004240                            .WORD   50001$
1130
1131  004164                                    CASE 1                  ;STATUS ERROR
 (5)  004164                            50003$:
1132  004164                                    LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  004164  005262  003050                    INC     ERRTBL(R2)
1133  004170                                    LET L$LUN := R2 SHIFT -1
 (5)  004170  010237  002074                    MOV     R2,L$LUN
 (8)  004174  006237  002074                    ASR     L$LUN
1134  004200                                    ERRHRD  14,TXERR
 (4)  004200  104456                            TRAP    C$ERHRD
 (5)  004202  000016                            .WORD   14
 (5)  004204  003655                            .WORD   TXERR
 (5)  004206  000000                            .WORD   0
1135
1136  004210                                    CASE 2                  ;OUTPUT TIMEOUT ERROR
 (4)  004210  000430                            BR      50006$
 (5)  004212                            50002$:
1137  004212                                    LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  004212  005262  003050                    INC     ERRTBL(R2)
1138  004216                                    LET L$LUN := R2 SHIFT  1
```

```
 (5)  004216  010237  002074              MOV     R2,L$LUN
 (8)  004222  006237  002074              ASR     L$LUN
1139  004226                             ERRHRD  15,OUTTIM       ;
 (4)  004226  104456                       TRAP    C$ERHRD
 (5)  004230  000017                       .WORD   15
 (5)  004232  003702                       .WORD   OUTTIM
 (5)  004234  000000                       .WORD   0
1140
1141  004236                             CASE 3
 (4)  004236  000415                       BR      50006$
 (5)  004240                        50001$:
1142                                        ;  NEVER RECIEVED THE INTERRUPT
1143  004240                                LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  004240  005262  003050                INC     ERRTBL(R2)
1144  004244                                LET L$LUN := R2 SHIFT -1
 (5)  004244  010237  002074                MOV     R2,L$LUN
 (8)  004250  006237  002074                ASR     L$LUN
1145  004254                                ERRHRD 16,TXNOIN
 (4)  004254  104456                       TRAP    C$ERHRD
 (5)  004256  000020                       .WORD   16
 (5)  004260  003727                       .WORD   TXNOIN
 (5)  004262  000000                       .WORD   0
1146
1147
1148
1149  004264                        ENDSELECT
 (3)  004264  000402                       BR      50006$
 (3)  004266                        50005$:
 (2)  004266  062706  000002                ADD     #2,SP
 (3)  004272                        50004$:
 (3)  004272                        50006$:
1150
1151  004272                                IF ERRTBL(R2) GT MAXERR THEN
 (6)  004272  026237  003050  002266        CMP     ERRTBL(R2),MAXERR
 (10) 004300  003402                       BLE     50007$
1152  004302  004737  005354                   JSR PC,DROPTT       ; MAXIMUM ERROR COUNT EXCEEDED !
1153  004306                                ENDIF
 (4)  004306                        50007$:
1154  004306                                LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR
 (7)  004306  042762  100000  002506        BIC     #ERROR,STATUS(R2)
1155  004314                                LET ERRCOD := #0
 (4)  004314  005037  002332                CLR     ERRCOD
1156  004320                                LET @LPCSR(R2) := #100          ; CLEAR THE ERROR BIT AND ENABLE INTERRUPTS
 (4)  004320  012772  000100  002352        MOV     #100,@LPCSR(R2)
1157  004326  000207                       RTS     PC              ;AND EXIT
1158
1159                                ;-------------------------------------------------------------
1160                                ; BIN2DA        BINARY TO DECIMAL ASCII CONVERSION ROUTINE
1161                                ;               ENTER WITH NUMBER TO BE CONVERTED ON THE STACK
1162                                ;               FOLLOWED BY THE ADDRESS OF A 5 BYTE BUFFER
1163                                ;               FOR THE ASCII STRING. 5 DIGITS WILL BE CONVERTED
1164                                ;               LEADING ZEROES WILL BE CONVERTED TO SPACES.
1165                                ;               CALL BY JSR  PC,BIN2DA
1166                                ;-------------------------------------------------------------
1167
1168  004330                        BIN2DA: PUSH R4,R5
```

```
(2)  004330  010446                        MOV     R4,-(SP)
(3)  004332  010546                        MOV     R5,-(SP)
1169 004334                                LET R4 := 6(SP)          ; GET ADDRESS FOR ASCII STRING
(4)  004334  016604  000006                MOV     6(SP),R4
1170 004340                                LET R5 := #TABLDA        ; GET ADDRESS OF DECIMAL TABLE
(4)  004340  012705  004522                MOV     #TABLDA,R5
1171 004344                                LET FLAGDA := #0         ; LEADING ZERO FLAG
(4)  004344  005037  004534                CLR     FLAGDA
1172 004350                                LET COUNTD := #0
(4)  004350  005037  004536                CLR     COUNTD
1173                                       ; 8.(SP) HAS NUMBER TO BE CONVERTED
1174 004354                                DECR DIGITS FROM #4 TO #0 BY #1 ; DO 5 DIGITS
(5)  004354  012737  000004  004540        MOV     #4,DIGITS
(7)  004362  000402                        BR      50010$
(6)  004364                          50011$:
(10) 004364  005337  004540                DEC     DIGITS
(7)  004370                          50010$:
(7)  004370  005737  004540                TST     DIGITS
(9)  004374  002435                        BLT     50012$
1175 004376                                WHILE 8.(SP) GE (R5) DO      ; CREATE A DIGIT
(4)  004376                          50013$:
(6)  004376  026615  000010                CMP     8.(SP),(R5)
(10) 004402  002405                        BLT     50014$
1176 004404                                    LET 8.(SP) := 8.(SP)   (R5)
(7)  004404  161566  000010                SUB     (R5),8.(SP)
1177 004410                                    LET COUNTD := COUNTD + #1
(7)  004410  005237  004536                INC     COUNTD
1178 004414                                ENDDO
(4)  004414  000770                        BR      50013$
(3)  004416                          50014$:
1179                                          ; CONVERT DIGIT TO ASCII OR SUPPLY A SPACE
1180 004416                                   IF COUNTD GT #0 OR FLAGDA GT #0 THEN
(6)  004416  005737  004536                TST     COUNTD
(8)  004422  003003                        BGT     50015$
(6)  004424  005737  004534                TST     FLAGDA
(10) 004430  003410                        BLE     50016$
(6)  004432                          50015$:
1181 004432                                    LET COUNTD := COUNTD SET.BY #60
(7)  004432  052737  000060  004536        BIS     #60,COUNTD
1182 004440                                    LET (R4)+ :B= COUNTD
(4)  004440  113724  004536                MOVB    COUNTD,(R4)+
1183 004444                                    LET FLAGDA := FLAGDA + #1
(7)  004444  005237  004534                INC     FLAGDA
1184 004450                                ELSE
(4)  004450  000402                        BR      50017$
(3)  004452                          50016$:
1185 004452                                    LET (R4)+ :B= #40
(4)  004452  112724  000040                MOVB    #40,(R4)+
1186 004456                                ENDIF
(4)  004456                          50017$:
1187                                          ; DO THE NEXT DIGIT
1188 004456                                LET R5 := R5 + #2
(7)  004456  062705  000002                ADD     #2,R5
1189 004462                                LET COUNTD := #0
(4)  004462  005037  004536                CLR     COUNTD
1190 004466                                ENDDECR
```

```
 (5)  004466  000736                        BR      50011$
 (4)  004470                          50012$:
1191                                        ; IF NUMBER WAS A ZERO PRINT A '0'
1192  004470                                IF FLAGDA EQ #0 THEN
 (6)  004470  005737  004534                TST     FLAGDA
 (10) 004474  001002                        BNE     50020$
1193  004476                                    LET -(R4) :B= #60
 (4)  004476  112744  000060                MOVB    #60,-(R4)
1194  004502                                ENDIF
 (4)  004502                          50020$:
1195                                        ; CLEAN UP THE STACK AND EXIT
1196  004502                                LET 8.(SP) := 4(SP)
 (4)  004502  016666  000004  000010        MOV     4(SP),8.(SP)
1197  004510                                POP     R5,R4
 (2)  004510  012605                        MOV     (SP)+,R5
 (3)  004512  012604                        MOV     (SP)+,R4
1198  004514                                LET SP := SP + #4
 (7)  004514  062706  000004                ADD     #4,SP
1199  004520  000207                        RTS     PC
1200
1201
1202  004522  023420  001750  000144  TABLDA: .WORD   10000.,1000.,100.,10.,1
      004530  000012  000001
1203  004534  000000                  FLAGDA: .WORD   0
1204  004536  000000                  COUNTD: .WORD   0
1205  004540  000000                  DIGITS: .WORD   0
1206
1207                                        .SBTTL  I/O DRIVER
1208
1209                                        ;
1210                                        ;
1211                                        ;++
1212                                        ;THE I/O DRIVER ROUTINE IS INVOKED BY MEANS OF THE INTERRUPT SYSTEM.
1213                                        ;CALL TO IT IS JMP  IODRV.
1214                                        ;RETURN   RTI.
1215                                        ;ENTER ROUTINE WITH R2 SET UP TO DESIRED UNIT *2. R2 IS USED
1216                                        ;TO CALCULATE OFFSET INTO PROPER TABLE.
1217                                        ;R1 EQUALS MAXIMUM NUMBER OF UNITS ON SYSTEM UNDER TEST.
1218                                        ;
1219                                        ;--
1220                                        ;
1221                                        ; CHECK FOR ERROR FLAG IN STATUS REG.
1222                                        ;
1223  004542                          IODRV:  IF #BIT15 NOTSETIN @LPCSR(R2) THEN
 (6)  004542  032772  100000  002352        BIT     #BIT15,@LPCSR(R2)
 (10) 004550  001061                        BNE     50021$
1224                                        ;
1225                                        ; IF COUNT NOT ZERO SEND NEXT BYTE
1226                                        ;
1227  004552                                    IF CURCNT(R2) GT #0 THEN
 (6)  004552  005762  002746                TST     CURCNT(R2)
 (10) 004556  003416                        BLE     50022$
1228  004560                                    LET @LPBUF(R2) :B= @CURADD(R2)
 (4)  004560  117272  002546  002446        MOVB    @CURADD(R2),@LPBUF(R2)
1229  004566                                    LET CURADD(R2) := CURADD(R2) + #1
 (7)  004566  005262  002546                INC     CURADD(R2)
```

```
1230                                        ;
1231                                        ; ENABLE INTERRUPT FOR NEXT BYTE
1232                                        ;
1233  004572                                            LET STATUS(R2) := STATUS(R2) SET.BY #ACTIVE
 (7)  004572  052762  020000  002506              BIS     #ACTIVE,STATUS(R2)
1234  004600                                            LET CURCNT(R2) := CURCNT(R2) - #1
 (7)  004600  005362  002746                      DEC     CURCNT(R2)
1235  004604                                            LET @LPCSR(R2) := #100
 (4)  004604  012772  000100  002352              MOV     #100,@LPCSR(R2)
1236  004612                                        ELSE
 (4)  004612  000437                              BR      50023$
 (3)  004614                                  50022$:
1237                                         ; CURRENT MSG DONE, IF PRINT COUNT NOT ZERO SEND AGAIN
1238  004614                                                LET REPCNT(R2) := REPCNT(R2)   #1
 (7)  004614  005362  002646                      DEC     REPCNT(R2)
1239  004620                                            IF REPCNT(R2) GT #0 THEN
 (6)  004620  005762  002646                      TST     REPCNT(R2)
 (10) 004624  003424                              BLE     50024$
1240  004626                                                LET CURADD(R2) := MSGADR(R2)  ; RESTORE THE MSG ADDR
 (4)  004626  016262  002706  002546              MOV     MSGADR(R2),CURADD(R2)
1241  004634                                                LET CURCNT(R2) := MSGCNT(R2)  ; RESTORE THE BYTE COUNT
 (4)  004634  016262  002606  002746              MOV     MSGCNT(R2),CURCNT(R2)
1242  004642                                                LET @LPBUF(R2) :B= @CURADD(R2)  ; RESEND THE MESSAGE
 (4)  004642  117272  002546  002446              MOVB    @CURADD(R2),@LPBUF(R2)
1243  004650                                                LET CURADD(R2) := CURADD(R2) + #1 ; BUMP THE POINTER
 (7)  004650  005262  002546                      INC     CURADD(R2)
1244  004654                                                LET CURCNT(R2) := CURCNT(R2) - #1 ; DROP BYTE COUNT
 (7)  004654  005362  002746                      DEC     CURCNT(R2)
1245  004660                                                LET STATUS(R2) := STATUS(R2) SET.BY #ACTIVE
 (7)  004660  052762  020000  002506              BIS     #ACTIVE,STATUS(R2)
1246  004666                                                LET @LPCSR(R2) := #100  ; RE-ENABLE INTERRUPTS
 (4)  004666  012772  000100  002352              MOV     #100,@LPCSR(R2)
1247  004674                                            ELSE
 (4)  004674  000406                              BR      50025$
 (3)  004676                                  50024$:
1248                                         ; CURRENT MSG DONE, REPEAT COUNT =0
1249                                         ; CLEAR ACTIVE AND DISABLE INTERRUPTS.
1250  004676                                                LET STATUS(R2) := STATUS(R2) CLR.BY #ACTIVE
 (7)  004676  042762  020000  002506              BIC     #ACTIVE,STATUS(R2)
1251  004704                                                LET @LPCSR(R2) := #00
 (4)  004704  012772  000000  002352              MOV     #00,@LPCSR(R2)
1252  004712                                            ENDIF
 (4)  004712                                  50025$:
1253  004712                                        ENDIF
 (4)  004712                                  50023$:
1254  004712                                        ELSE
 (4)  004712  000410                              BR      50026$
 (3)  004714                                  50021$:
1255                                         ; CLEAR ERROR CONDITION, ENABLE INTERRUPTS
1256                                         ; SET ERROR FLAG
1257  004714                                            LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
 (7)  004714  052762  100000  002506              BIS     #ERROR,STATUS(R2)
1258  004722                                            LET ERRCOD := #STATER       ; STATUS ERROR
 (4)  004722  012737  000001  002332              MOV     #STATER,ERRCOD
1259  004730  004777  176112                          JSR PC,@ERRSVC
1260                                             ; ERROR SERVICE SHOULD CLEAR ERROR BIT AND ENABLE INTR
```

```
       004734                                  ENDIF
  (4)  004734                         50026$:
       004734                                  POP R2
  (2)  004734  012602                          MOV     (SP)+,R2
       004736  000002                          RTI
                                      .SBTTL I/O CONTROL
                                      ;++
                                      ;
                                      ; THE I/O CONTROL SUBROUTINE IS A SINGLE ENTRY QUEUE MANAGER.
                                      ; THIS ROUTINE IS INVOKED BY A JSR FROM AN I/O CALL.
                                      ; INPUTS:       PRINTR  -1 FOR ALL TERMINALS
                                      ;                       N FOR PRINTER NUMBER 'N'
                                      ;               BUFADD  ADDRESS OF MESSAGE TO PRINT
                                      ;               BUFCNT  BYTE COUNT TO TRANSMIT TO PRINTER
                                      ;
                                      ;               ERRSVC  ADDRESS OF ERROR SERVICE SUBROUTINE
                                      ;               BUFREP IS NO. OF TIMES TO PRINT THE MESSAGE
                                      ;--

       004740                         IOCTRL: PUSH    R2,R3,R4
  (2)  004740  010246                          MOV     R2,-(SP)
  (3)  004742  010346                          MOV     R3,-(SP)
  (4)  004744  010446                          MOV     R4,-(SP)
                                      ;
                                      ; PRINTR CONTAINS THE UNIT NUMBER.  IF
                                      ; PRINTR = -1, THEN QUEUE TO ALL PRINTERS.
                                      ;
       004746                                  IF PRINTR EQ #-1 THEN
  (6)  004746  023727  002314  177777          CMP     PRINTR,#-1
 (10)  004754  001005                          BNE     50027$
       004756                                     LET R3 := L$UNIT
  (4)  004756  013703  002012                  MOV     L$UNIT,R3
       004762  005037  002074                     CLR L$LUN
       004766                                  ELSE
  (4)  004766  000405                          BR      50030$
  (3)  004770                         50027$:
       004770                                     LET R3 := #1
  (4)  004770  012703  000001                  MOV     #1,R3
       004774                                     LET L$LUN := PRINTR
  (4)  004774  013737  002314  002074          MOV     PRINTR,L$LUN
       005002                                  ENDIF
  (4)  005002                         50030$:


                                      ;
                                      ; DO FOR SELECTED PRINTER(S)
                                      ;
       005002                                  WHILE R3 GT #0 DO
  (4)  005002                         50031$:
  (6)  005002  005703                          TST     R3
 (10)  005004  003534                          BLE     50032$
                                      ;
                                      ; USE R2 AS AN INDEX INTO THE UNIT TABLES
                                      ;
       005006                                     LET R2 := L$LUN SHIFT 1
  (5)  005006  013702  0020/4                  MOV     L$LUN,R2
  (8)  005012  006302                          ASL     R2
```

```
1299  005014  005037  002332                      CLR  ERRCOD
1300                                      ;
1301                                      ; IF THE UNIT HAS BEEN DROPPED SELECT THE NEXT UNIT
1302                                      ;
1303  005020                                        IF @DROPED NOTSETIN STATUS(R2) THEN
 (6)  005020  032762  040000  002506          BIT     @DROPED,STATUS(R2)
 (10) 005026  001117                          BNE     50033$
1304                                      ;
1305                                      ;TEST FOR DVC ERROR BIT SET
1306                                      ;
1307  005030                                        IF @BIT15 SETIN @LPCSR(R2) THEN
 (6)  005030  032772  100000  002352          BIT     @BIT15,@LPCSR(R2)
 (10) 005036  001407                          BEQ     50034$
1308  005040                                           LET ERRCOD := @STATER                ; STATUS REG ERROR BIT 15 SET IN
 (4)  005040  012737  000001  002332          MOV     @STATER,ERRCOD
1309  005046                                           LET STATUS(R2) := STATUS(R2) SET.BY @ERROR
 (7)  005046  052762  100000  002506          BIS     @ERROR,STATUS(R2)
1310  005054                                           ELSE
 (4)  005054  000451                          BR      50035$
 (3)  005056                              50034$:
1311                                      ;
1312                                      ; MAKE SURE PREVIOUS MESSAGE IS DONE
1313                                      ;
1314  005056                                           IF @ACTIVE SETIN STATUS(R2) THEN
 (6)  005056  032762  020000  002506          BIT     @ACTIVE,STATUS(R2)
 (10) 005064  001437                          BEQ     50036$
1315  005066                                                LET R4 := @20000.               ; TIMEOUT COUNTER
 (4)  005066  012704  047040                  MOV     @20000.,R4
1316  005072                                                WHILE @ACTIVE SETIN STATUS(R2) DO
 (4)  005072                              50037$:
 (6)  005072  032762  020000  002506          BIT     @ACTIVE,STATUS(R2)
 (10) 005100  001430                          BEQ     50040$
1317  005102                                                     DELAY 2.                   ; WAIT 200 MICROSECONDS
 (2)  005102  012727  000002                  MOV     @2.,(PC)+
 (2)  005106  000000                          .WORD   0
 (2)  005110  013727  002116                  MOV     L$DLY,(PC)+
 (2)  005114  000000                          .WORD   0
 (2)  005116  005367  177772                  DEC     -6(PC)
 (2)  005122  001375                          BNE     .-4
 (2)  005124  005367  177756                  DEC     -22(PC)
 (2)  005130  001367                          BNE     .-20
1318  005132  005304                                                DEC R4                  ; DEC TIMEOUT COUNTER
1319  005134                                                        IFCOND EQ THEN
 (7)  005134  001011                          BNE     50041$
1320  005136                                                             LET ERRCOD := @TIMOUT
 (4)  005136  012737  000002  002332          MOV     @TIMOUT,ERRCOD
1321  005144  042762  020000  002506                                     BIC     @ACTIVE,STATUS(R2)
1322  005152  052762  100000  002506                                     BIS     @ERROR,STATUS(R2)
1323  005160                                                        ENDIF
 (4)  005160                              50041$:
1324  005160                                                ENDDO
 (4)  005160  000744                          BR      50037$
 (3)  005162                              50040$:
1325  005162                                           ELSE
 (4)  005162  000406                          BR      50042$
 (3)  005164                              50036$:
```

```
                                                        IF CURCNT(R2) GT #0 THEN
(6)  005164  005762  002746          TST     CURCNT(R2)
(10) 005170  003403                  BLE     50043$
                                ;
                                ; OUTPUT WAS QUEUED BUT I/O DRIVER WAS NEVER INVOKED (VIA INTERRUPT)
                                ;
                                                        LET ERRCOD := #NOINTR
(4)  005172  012737  000003  002332  MOV     #NOINTR,ERRCOD
                                                        ENDIF
(4)  005200                     50043$:
                                                     ENDIF
(4)  005200                     50042$:
                                                     ENDIF
(4)  005200                     50035$:
                                                     IF ERRCOD NE #0 THEN
(6)  005200  005737  002332          TST     ERRCOD
(10) 005204  001403                  BEQ     50044$
                                                        CALL @ERRSVC                    ; REPORT THE ERROR
(3)  005206  004777  175634          JSR     PC,@ERRSVC
                                                     ELSE
(4)  005212  000425                  BR      50045$
(3)  005214                     50044$:
                                ;
                                ; QUEUE THE MESSAGE AND ENABLE INTERRUPTS -
                                ; THE I/O DRIVER WILL PICK UP FROM HERE.
                                ;
                                                        LET CURADD(R2) := BUFADD        ; BYTE ADDRESS
(4)  005214  013762  002344  002546  MOV     BUFADD,CURADD(R2)
                                                        LET MSGADR(R2) := BUFADD        ; MESSAGE ADDRESS
(4)  005222  013762  002344  002706  MOV     BUFADD,MSGADR(R2)
                                                        LET CURCNT(R2) := BUFCNT        ; OUTPUT COUNT
(4)  005230  013762  002346  002746  MOV     BUFCNT,CURCNT(R2)
                                                        LET MSGCNT(R2) := BUFCNT        ; BYTE COUNT
(4)  005236  013762  002346  002606  MOV     BUFCNT,MSGCNT(R2)
                                                        LET REPCNT(R2) := BUFREP        ; PRINT COUNT
(4)  005244  013762  002350  002646  MOV     BUFREP,REPCNT(R2)
                                                        IF CURCNT(R2) GT #0 THEN
(6)  005252  005762  002746          TST     CURCNT(R2)
(10) 005256  003403                  BLE     50046$
                                                           LET @LPCSR(R2) := #100       ; ENABLE INTERRUPTS
(4)  005260  012772  000100  002352  MOV     #100,@LPCSR(R2)
                                                        ENDIF
(4)  005266                     50046$:
                                                     ENDIF
(4)  005266                     50045$:
                                                  ENDIF
(4)  005266                     50033$:
                                ;
                                ; SELECT THE NEXT UNIT AND DECREMENT THE LINECOUNT
                                ;
1354 005266  005303                  DEC R3
1355 005270  005237  002074          INC L$LUN
1356 005274                     ENDDO
(4)  005274  000642                  BR      50031$
(3)  005276                     50032$:
1357
```

```
 1358  005276                                  POP     R4,R3,R2
  (2)  005276  012604                          MOV     (SP)+,R4
  (3)  005300  012603                          MOV     (SP)+,R3
  (4)  005302  012602                          MOV     (SP)+,R2
 1359  005304  000207                          RTS     PC
 1360
 1361                                 ;++++
 1362                                 ; SUBROUTINE    QUIET
 1363                                 ;
 1364                                 ; THIS SUBROUTINE WILL EFFECTIVLY DELAY UNTIL ALL QUEUED OUTPUT
 1365                                 ; IS FINISHED. THE DELAY IS ACCOMPLISHED BY QUEUEING A NULL
 1366                                 ; MESSAGE TO ALL LINES.
 1367                                 ; - --
 1368
 1369  005306                         QUIET:  OUTPUT  #0,#0           ; NULL MESSAGE OUTPUT
 1370  005350  000240                         NOP
 1371  005352  000207                         RTS     PC
 1372
 1373                                 ;*****************************************************************
 1374                                 ; DROPIT        FUNCTIONAL DESCRIPTION :
 1375                                 ;
 1376                                 ; THIS SUBROUTINE IS USED TO DROP A BAD PRINTER FROM THE TEST
 1377                                 ; DISABLE ANY INTERRUPTS FROM THE PRINTER, AND NOTIFY THE
 1378                                 ; OPERATOR THAT THE PRINTER WAS DROPPED.
 1379                                 ;*****************************************************************
 1380
 1381  005354                         DROPIT: LET STATUS(R2) := STATUS(R2) SET.BY #DROPED
  (7)  005354  052762  040000  002506         BIS     #DROPED,STATUS(R2)
 1382  005362                                 LET CURCNT(R2) := #-1
  (4)  005362  012762  177777  002746         MOV     #-1,CURCNT(R2)
 1383  005370                                 LET @LPCSR(R2) := #0
  (4)  005370  005072  002352                 CLR     @LPCSR(R2)
 1384  005374                                 PRINTF #LPDROP, L$LUN
  (8)  005374  013746  002074                 MOV     L$LUN,-(SP)
  (7)  005400  012746  004060                 MOV     #LPDROP,-(SP)
  (6)  005404  012746  000002                 MOV     #2,-(SP)
  (3)  005410  010600                         MOV     SP,R0
  (4)  005412  104417                         TRAP    C$PNTF
  (4)  005414  062706  000006                 ADD     #6,SP
 1385  005420                                 LET ERRTBL(R2) := #0
  (4)  005420  005062  003050                 CLR     ERRTBL(R2)
 1386  005424                                 LET UUT := UUT - #1
  (7)  005424  005337  002336                 DEC     UUT
 1387  005430                                 IF UUT EQ #0 THEN
  (6)  005430  005737  002336                 TST     UUT
 (10)  005434  001011                         BNE     50047$
 1388  005436                                 PRINTF #UUTEQ0
  (7)  005436  012746  003760                 MOV     #UUTEQ0,-(SP)
  (6)  005442  012746  000001                 MOV     #1,-(SP)
  (3)  005446  010600                         MOV     SP,R0
  (4)  005450  104417                         TRAP    C$PNTF
  (4)  005452  062706  000004                 ADD     #4,SP
 1389  005456                                     DOCLN       ; NOTHING TO TEST
  (3)  005456  104444                         TRAP    C$DCLN
 1390  005460                                 ENDIF
  (4)  005460                         50047$:
```

```
1391  005460  000207                          RTS     PC
1392
1393
1394
1395                                  ;*****************************************************************
1396                                  ; FAKE          FUNCTIONAL DESCRIPTION:
1397                                  ;
1398                                  ; THIS SUBROUTINE IS REQUIRED TO INSURE PROPER PASS COUNT REPORTS
1399                                  ; IN A MULTI UNIT MODE OF OPERATION.
1400                                  ;*****************************************************************
1401
1402  005462                          FAKE:   LET L$LUN := #0
 (4)  005462  005037  002074                  CLR     L$LUN
1403  005466                                  WHILE L$LUN LT L$UNIT DO
 (4)  005466                          50050$:
 (6)  005466  023737  002074  002012          CMP     L$LUN,L$UNIT
 (10) 005474  002007                          BGE     50051$
1404  005476                                      GPHARD      L$LUN, R3
 (3)  005476  013700  002074                  MOV     L$LUN,R0
 (3)  005502  104442                          TRAP    C$GPHRD
 (3)  005504  010003                          MOV     R0,R3
1405  005506                                      LET L$LUN := L$LUN + #1
 (7)  005506  005237  002074                  INC     L$LUN
1406  005512                                  ENDDO
 (4)  005512  000765                          BR      50050$
 (3)  005514                          50051$:
1407  005514  000207                          RTS     PC
1408
1409
1410  005516                                  ENDMOD
1411                                  .SBTTL  INITIALIZATION SECTION
1412                                  ;++
1413                                  ;THE INITIALIZE ROUTINE IS EXECUTED AT THE BEGINNING OF EACH SUB-PASS AND IS
1414                                  ;PRIMARILY USED FOR REQUESTING P-TABLE PARAMETERS. INFORMATION REQUESTED FROM
1415                                  ;THE OPERATOR INCLUDE THE NUMBER OF UNITS UNDER TEST, DEVICE ADDRESSES, VECTORS,
1416                                  ;AND CLOCK TYPE.
1417                                  ;--
1418  005516                          BGNMOD
1419  005516                          BGNINIT
 (3)  005516                          L$INIT::
1420                                  ;RESET EXTERNAL BUS IF START EVENT FLAG IS SET
1421                                  ;OR POWER FAIL RESTART
1422  005516                                  READEF  #EF.START               ;TEST START EF INDICATOR
 (3)  005516  012700  000040                  MOV     #EF.START,R0
 (3)  005522  104447                          TRAP    C$REFG
1423  005524                                  BCOMPLETE 1$                    ;BRANCH IF FROM START UP
 (2)  005524  103466                          BCS     1$
1424  005526                                  READEF  #EF.RESTART             ;NOW THE RESTARTFLAG
 (3)  005526  012700  000037                  MOV     #EF.RESTART,R0
 (3)  005532  104447                          TRAP    C$REFG
1425  005534                                  BCOMPLETE 1$                    ;IF EITHER START OR POWER FAIL RESTART
 (2)  005534  103462                          BCS     1$
1426                                                                          ;DO A BUS RESET
1427  005536  004737  005462                  JSR     PC,FAKE                 ; UPDATE PASS COUNT
1428  005542                                  SETPRI  #PRI00                  ; PRIORITY ZERO
 (3)  005542  012700  000000                  MOV     #PRI00,R0
```

```
 (3)  005546  104441                          TRAP    C$SPRI
1429  005550                                  LET OUTBUF :B= #14
 (4)  005550  112737  000014  003114          MOVB    #14,OUTBUF
1430  005556                                  OUTPUT #OUTBUF,#1
1431  005620                                  DECR WORK1 FROM #6 TO #1 BY #1
 (5)  005620  012737  000006  003112          MOV     #6,WORK1
 (7)  005626  000402                          BR      50052$
 (6)  005630                          50053$:
(10)  005630  005337  003112                  DEC     WORK1
 (7)  005634                          50052$:
 (7)  005634  023727  003112  000001          CMP     WORK1,#1
 (9)  005642  002415                          BLT     50054$
1432  005644                                  DELAY 250
 (2)  005644  012727  000250                  MOV     #250,(PC)+
 (2)  005650  000000                          .WORD   0
 (2)  005652  013727  002116                  MOV     L$DLY,(PC)+
 (2)  005656  000000                          .WORD   0
 (2)  005660  005367  177772                  DEC     -6(PC)
 (2)  005664  001375                          BNE     .-4
 (2)  005666  005367  177756                  DEC     -22(PC)
 (2)  005672  001367                          BNE     .-20
1433  005674                                  ENDDEC
 (5)  005674  000755                          BR      50053$
 (4)  005676                          50054$:
1434  005676                                  EXIT INIT                       ; ELSE EXIT INIT CODE
 (3)  005676  104432                          TRAP    C$EXIT
 (3)  005700  001300                          .WORD   L10004 .
1435                                    ;
1436                                    ;POWER UP RESTART OR START COMMAND ISSUED
1437                                    ;
1438  005702                          1$:     BRESET                          ;RESET THE BUS
 (3)  005702  104433                          TRAP    C$RESET
1439  005704                                  IF L$UNIT GT #16. THEN
 (6)  005704  023727  002012  000020          CMP     L$UNIT,#16.
(10)  005712  003420                          BLE     50055$
1440  005714                                     PRINTF #NRGT16
 (7)  005714  012746  006542                  MOV     #NRGT16,-(SP)
 (6)  005720  012746  000001                  MOV     #1,-(SP)
 (3)  005724  010600                          MOV     SP,R0
 (4)  005726  104417                          TRAP    C$PNTF
 (4)  005730  062706  000004                  ADD     #4,SP
1441  005734                                     PRINTF #NRGT17
 (7)  005734  012746  006625                  MOV     #NRGT17,-(SP)
 (6)  005740  012746  000001                  MOV     #1,-(SP)
 (3)  005744  010600                          MOV     SP,R0
 (4)  005746  104417                          TRAP    C$PNTF
 (4)  005750  062706  000004                  ADD     #4,SP
1442  005754                                  ENDIF
 (4)  005754                          50055$:
1443  005754                                  MANUAL                          ; CHECK FOR UNATTENDED MODE
 (3)  005754  104450                          TRAP    C$MANI
1444  005756                                  BNCOMPLETE      2$              ; IF UNATTENDED BYPASS MANUAL INSTRUCTIONS
 (2)  005756  103024                          BCC     2$
1445
1446  005760                                  PRINTF #RESET1
 (7)  005760  012746  006735                  MOV     #RESET1,-(SP)
```

```
 (6)  005764  012746  000001            MOV     #1,-(SP)
 (3)  005770  010600                     MOV     SP,R0
 (4)  005772  104417                     TRAP    C$PNTF
 (4)  005774  062706  000004            ADD     #4,SP
1447                                    ;
1448                                    ;WAIT FOR A "CR" BEFORE GOING ON
1449                                    ;
1450  006000                            LET FLAG := #0
 (4)  006000  005037  002270            CLR     FLAG
1451  006004                            LET ERRCOD := #0
 (4)  006004  005037  002332            CLR     ERRCOD
1452  006010                            LET UUT := #0
 (4)  006010  005037  002336            CLR     UUT
1453  006014                           100$:
1454  006014                            GMANIL  READY,FLAG,100000,YES
 (3)  006014  104443                     TRAP    C$GMAN
 (3)  006016  000404                     BR      10000$
 (4)  006020  002270                     .WORD   FLAG
 (5)  006022  000130                     .WORD   T$CODE
 (5)  006024  007006                     .WORD   READY
 (5)  006026  100000                     .WORD   100000
 (3)  006030                           10000$:
1455                                    ;
1456                                    ;REQUEST P-TABLE FOR PRINTERS UNDER TEST
1457                                    ;
1458  006030                           2$:     LET R1 := L$UNIT - #1           ;MAXIMUM NUMBER OF UNITS
 (5)  006030  013701  002012            MOV     L$UNIT,R1
 (7)  006034  005301                     DEC     R1
1459  006036                            INCR L$LUN FROM #0 TO R1 BY #1
 (5)  006036  005037  002074            CLR     L$LUN
 (7)  006042  000402                     BR      50056$
 (6)  006044                           50057$:
(10)  006044  005237  002074            INC     L$LUN
 (7)  006050                           50056$:
 (7)  006050  023701  002074            CMP     L$LUN,R1
 (9)  006054  003071                     BGT     50060$
1460  006056                               GPHARD L$LUN,R3             ;REQUEST P TABLE ADDRESS
 (3)  006056  013700  002074            MOV     L$LUN,R0
 (3)  006062  104442                     TRAP    C$GPHRD
 (3)  006064  010003                     MOV     R0,R3
1461  006066                               BNCOMPLETE 3$               ;BRANCH IF DEVICE NOT PRESENT
 (2)  006066  103060                     BCC     3$
1462  006070                               LET R2 := L$LUN SHIFT 1
 (5)  006070  013702  002074            MOV     L$LUN,R2
 (8)  006074  006302                     ASL     R2
1463  006076                               LET ERRTBL(R2) := #0
 (4)  006076  005062  003050            CLR     ERRTBL(R2)
1464  006102                               LET CURCNT(R2) := # 1
 (4)  006102  012762  177777  002746     MOV     #-1,CURCNT(R2)
1465                                    ;;;     LET DELCNT(R2) := #0
1466  006110                               LET REPCNT(R2) := #0
 (4)  006110  005062  002646            CLR     REPCNT(R2)
1467                                    ;
1468                                    ;LOAD CSR ADDRESS INTO TABLE
1469                                    ;
1470  006114                               LET LPCSR(R2) := (R3)+      ;SET UP CSR ADDRESS FOR DEVICE
```

M3


```
 (4)   006114  012362  002352                    MOV     (R3)+,LPCSR(R2)
       006120                                         LET LPBUF(R2) := LPCSR(R2) + #2
 (5)   006120  016262  002352  002446            MOV     LPCSR(R2),LPBUF(R2)
 (7)   006126  062762  000002  002446            ADD     #2,LPBUF(R2)
                                         ;
                                         ;SET UP VECTOR ADDRESS INTO GIVEN TABLE
                                         ;
       006134                                         LET LPVEC(R2) := (R3)+
 (4)   006134  012362  002412                    MOV     (R3)+,LPVEC(R2)
                                         ;
                                         ;SET UP DEVICE INTERRUPT VECTOR INFORMATION
                                         ;
       006140                                    LET WORK := R2 SHIFT 3
 (5)   006140  010237  003110                    MOV     R2,WORK
 (8)   006144  006337  003110                    ASL     WORK
 (8)   006150  006337  003110                    ASL     WORK
 (8)   006154  006337  003110                    ASL     WORK
       006160                                    LET WORK := WORK + #INTOO
 (7)   006160  062737  104624  003110            ADD     #INTOO,WORK
       006166                                    LET LPINTR(R2) := WORK
 (4)   006166  013762  003110  003006            MOV     WORK,LPINTR(R2)
       006174                                    SETVEC LPVEC(R2), LPINTR(R2), #PRI04
 (7)   006174  012746  000200                    MOV     #PRI04,-(SP)
 (6)   006200  016246  003006                    MOV     LPINTR(R2),-(SP)
 (5)   006204  016246  002412                    MOV     LPVEC(R2),-(SP)
 (4)   006210  012746  000003                    MOV     #3,-(SP)
 (3)   006214  104437                            TRAP    C$SVEC
 (2)   006216  062706  000010                    ADD     #10,SP
                                         ;
                                         ; ADD ONE TO UNIT UNDER TEST COUNT
                                         ;
       006222                                    LET UUT := UUT + #1
 (7)   006222  005237  002336                    INC     UUT
       006226  000403                                 BR  4$
                                         ;
                                         ;INDICATE L$LUN NOT AVAILABLE FOR TESTING
                                         ;
       006230                            3$:          LET STATUS(R2) := STATUS(R2) SET.BY #DROPED
 (7)   006230  052762  040000  002506            BIS     #DROPED,STATUS(R2)
       006236                            4$:     ENDINC                          ;GO BACK AND DO IT AGAIN
 (5)   006236  000702                            BR      50057$
 (4)   006240                            50060$:
                                         ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
                                         ; SETUP TO HANDLE CLOCK INTERRUPTS
                                         ; IF AN L-CLOCK IS ON THE SYSTEM THEN SETUP A NOOP INTERRUPT
                                         ; HANDLER BECAUSE LSI SYSTEMS MAY HAVE THE CLOCK ENABLED AT ALL TIMES.
       006240                                    LET CLKTYP := #1         ; DEFAULT FOR NO CLOCK ON SYSTEM
 (4)   006240  012737  000001  002316            MOV     #1,CLKTYP
       006246                                    CLOCK   L,R4             ; TEST FOR L-CLOCK
 (3)   006246  012700  000114                    MOV     #'L,R0
 (3)   006252  104462                            TRAP    C$CLCK
 (3)   006254  010004                            MOV     R0,R4
       006256                                    IFCOND CS THEN           ; WE HAVE AN L-CLOCK
 (7)   006256  103031                            BCC     50061$
       006260                                         LET CLKTYP := #2
 (4)   006260  012737  000002  002316            MOV     #2,CLKTYP
```

```
1501  006266                                        LET CLOCKP := R4
 (4)  006266  010437  002320                  MOV     R4,CLOCKP
1502  006272                                        LET CLKCSR := @CLOCKP
 (4)  006272  017737  174022  002322          MOV     @CLOCKP,CLKCSR
1503  006300                                        LET @CLKCSR := #00  ; TRY TO DISABLE INTERRUPTS
 (4)  006300  012777  000000  174014          MOV     #00,@CLKCSR
1504                                               ; SETUP THE NOOP HANDLER
1505  006306                                        LET CLKVEC := 4(R4)
 (4)  006306  016437  000004  002326          MOV     4(R4),CLKVEC
1506  006314                                        SETVEC  CLKVEC,#IGNORE,#PRI06
 (7)  006314  012746  000300                  MOV     #PRI06,-(SP)
 (6)  006320  012746  007202                  MOV     #IGNORE,-(SP)
 (5)  006324  013746  002326                  MOV     CLKVEC,-(SP)
 (4)  006330  012746  000003                  MOV     #3,-(SP)
 (3)  006334  104437                          TRAP    C$SVEC
 (2)  006336  062706  000010                  ADD     #10,SP
1507  006342                                        ENDIF
 (4)  006342                              50061$:
1508                                        ; IF A P-CLOCK IS ON THE SYSTEM UPGRADE CLOCK TYPE TO 3
1509  006342                              CK1:    CLOCK   P,R4
 (3)  006342  012700  000120                  MOV     #'P,R0
 (3)  006346  104462                          TRAP    C$CLCK
 (3)  006350  010004                          MOV     R0,R4
1510  006352                                        IFCOND CS THEN          ; WE HAVE A P-CLOCK
 (7)  006352  103016                          BCC     50062$
1511  006354                                        LET CLKTYP := #3
 (4)  006354  012737  000003  002316          MOV     #3,CLKTYP
1512  006362                                        LET CLOCKP := R4
 (4)  006362  010437  002320                  MOV     R4,CLOCKP
1513  006366                                        LET CLKCSR := @CLOCKP
 (4)  006366  017737  173726  002322          MOV     @CLOCKP,CLKCSR
1514  006374                                        LET CLKVEC := 4(R4)
 (4)  006374  016437  000004  002326          MOV     4(R4),CLKVEC
1515                                               ; TRY TO DISABLE THE P-CLOCK
1516  006402                                        LET @CLKCSR := #00
 (4)  006402  012777  000000  173712          MOV     #00,@CLKCSR
1517  006410                                        ENDIF
 (4)  006410                              50062$:
1518                                        ; IF NO CLOCKS ON THE SYSTEM NOTIFY THE OPERATOR
1519  006410                                        IF CLKTYP EQ #1 THEN
 (6)  006410  023727  002316  000001          CMP     CLKTYP,#1
 (10) 006416  001020                          BNE     50063$
1520  006420                                        PRINTF #NOCLCK
 (7)  006420  012746  007043                  MOV     #NOCLCK,-(SP)
 (6)  006424  012746  000001                  MOV     #1,-(SP)
 (3)  006430  010600                          MOV     SP,R0
 (4)  006432  104417                          TRAP    C$PNTF
 (4)  006434  062706  000004                  ADD     #4,SP
1521  006440                                        PRINTF #NOTIM
 (7)  006440  012746  007105                  MOV     #NOTIM,-(SP)
 (6)  006444  012746  000001                  MOV     #1,-(SP)
 (3)  006450  010600                          MOV     SP,R0
 (4)  006452  104417                          TRAP    C$PNTF
 (4)  006454  062706  000004                  ADD     #4,SP
1522  006460                                        ENDIF
 (4)  006460                              50063$:
```

```
006460                                       SETPRI #PRIO0
006460  012700  000000                       MOV     #PRIO0,R0
006464  104441                               TRAP    C$SPRI
006466                               LET OUTBUF :B= #14
006466  112737  000014  003114               MOVB    #14,OUTBUF
006474                               OUTPUT #OUTBUF,#1
006536                               EXIT INIT
006536  104432                               TRAP    C$EXIT
006540  000440                               .WORD   L10004-.
                                     .NLIST BEX

006542  047045  040445  052516       NRGT16: .ASCIZ  /#N#ANUMBER OF LINE PRINTERS UNDER TEST EXCEEDS 16./
006625     045  022516  047501       NRGT17: .ASCIZ  /#N#AONLY 16 WILL BE TESTED./
006661     045  022516  051101       MRESET: .ASCIZ  /#N#ARESET PRINTER(S),  AND PLACE ON LINE.#N/
006735     045  022516  051101       RESET1: .ASCIZ /#N#ARESET PRINTER(S) AND PLACE ON LINE#N/

007006  042504  051120  051505       READY:  .ASCIZ  /DEPRESS "RETURN" WHEN READY./
007043     045  022516  044101       NOCLCK: .ASCIZ  /#N#AHARDWARE CLOCK NOT AVAILABLE./
007105     045  022516  040501       NOTIM:  .ASCIZ  /#N#AAUTO PRINTING SPEED MEASUREMENT CANNOT BE PERFORMED./
                                     .EVEN
007176  000000                       PLOC:   .WORD   0

                                     .LIST BEX
007200                               ENDINIT
007200                               L10004:
007200  104411                               TRAP    C$INIT

                                     ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
                                     ; IGNORE        AN INTERRUPT CATCHER FOR THE L CLOCK
                                     ;               THAT IGNORES THE INTERRUPT.
                                     ;               USED FOR SYSTEMS WHERE CLOCK CANNOT BE TURNED OFF.
                                     ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;

007202                               IGNORE:         ; NOOP
007202  000002                               RTI




                                     ;- -- - - -- - ---    -   - - -         -- -   -   - -
                                     ;
                                     ; RESVEC        FUNCTIONAL DESCRIPTION
                                     ;
                                     ;       THIS SUBROUTINE WILL SETUP ALL UNITS VECTOR AREAS
                                     ;       TO THE 'NORMAL' INTERRUPT ROUTINES STARTING AT INT00.
                                     ;--  -  --  -   - - -   --  -   -------  - - -     -  -

007204                               RESVEC::        PUSH    R3,R4
007204  010346                               MOV     R3,-(SP)
007206  010446                               MOV     R4,-(SP)
007210                                               LET  R4 := #0
007210  005004                               CLR     R4
007212                                               LET R3 := L$UNIT
007212  013703  002012                       MOV     L$UNIT,R3
007216                                               WHILE R3 GT #0 DO
007216                               50064$:
007216  005703                               TST     R3
```

```
 (10) 007220  003417                    BLE     50065$
1566  007222                                SETVEC LPVEC(R4), LPINTR(R4), #PRIO4
 (7)  007222  012746  000200             MOV     #PRIO4,-(SP)
 (6)  007226  016446  003006             MOV     LPINTR(R4),-(SP)
 (5)  007232  016446  002412             MOV     LPVEC(R4),-(SP)
 (4)  007236  012746  000003             MOV     #3, (SP)
 (3)  007242  104437                     TRAP    C$SVEC
 (2)  007244  062706  000010             ADD     #10,SP
1567  007250                                LET R4 := R4 + #2
 (7)  007250  062704  000002             ADD     #2,R4
1568  007254                                LET R3 := R3   #1
 (7)  007254  005303                     DEC     R3
1569  007256                             ENDDO
 (4)  007256  000757                     BR      50064$
 (3)  007260                        50065$:
1570  007260                             POP R4,R3
 (2)  007260  012604                     MOV     (SP)+,R4
 (3)  007262  012603                     MOV     (SP)+,R3
1571  007264  000207                     RTS     PC
1572
1573                                    .SBTTL  CLEANUP CODING SECTION
1574  007266                            STARS
 (2)                                    ;;**********************************************************************
1575                                    ;++
1576                                    ;THE PURPOSE OF THE CLEANUP SECTION IS TO CLEANUP ALL PRINTERS UNDER TEST
1577                                    ;AND RETEST ANY UNITS WHICH HAVE BEEN DROPPED FROM  TESTING TO INSURE THAT
1578                                    ;THEY HAVE NOT COME BACK ON LINE. IF THE DEVICE HAS COME BACK ON LINE
1579                                    ;TESTING WILL BE RESTARTED ON THE DEVICE. THIS INSURES THAT
1580                                    ;IN THE EVENT A PAPER OUT OCCURRED AND THE OPERATOR HAS PUT ADDITIONAL PAPER
1581                                    ;INTO THE UNIT UNDER TEST, THE INITIALIZATION SEQUENCE DOES NOT
1582                                    ;HAVE TO BE DONE AGAIN IN ORDER TO GET THE DEVICE ACTIVE.
1583                                    ;--
1584  007266                            STARS
 (2)                                    ;;**********************************************************************
1585  007266                            BGNCLN
 (3)  007266                            L$CLEAN::
1586  007266                                SETPRI #PRIO7
 (3)  007266  012700  000340             MOV     #PRIO7,R0
 (3)  007272  104441                     TRAP    C$SPRI
1587  007274                                BRESET
 (3)  007274  104433                     TRAP    C$RESET
1588
1589  007276                            CLEAN:  LET R1 := L$UNIT - #1   ;NUMBER OF UNITS-1
 (5)  007276  013701  002012             MOV     L$UNIT,R1
 (7)  007302  005301                     DEC     R1
1590  007304                                INCR L$LUN FROM #0 TO R1 BY #1
 (5)  007304  005037  002074             CLR     L$LUN
 (7)  007310  000402                     BR      50066$
 (6)  007312                        50067$:
 (10) 007312  005237  002074             INC     L$LUN
 (7)  007316                        50066$:
 (7)  007316  023701  002074             CMP     L$LUN,R1
 (9)  007322  003016                     BGT     50070$
1591                                    ; DISABLE ALL INTERRUPTS, SELECT ALL LINES
1592                                    ; ZERO ALL ERROR COUNTS
1593  007324                                LET R2 := L$LUN SHIFT 1
```

```
 (5)  007324  013702  002074                    MOV     L$LUN,R2
 (8)  007330  006302                            ASL     R2
1594                                                ; CLEAR ALL BITS IN STATUS EXCEPT DEVICE TYPE
1595  007332                                        LET STATUS(R2) := STATUS(R2) CLR.BY @ERROR!DROPED!ACTIVE!LOBYTE
 (7)  007332  042762  160377  002506              BIC     @ERROR!DROPED!ACTIVE!LOBYTE,STATUS(R2)
1596  007340                                        LET CURCNT(R2) := @-1
 (4)  007340  012762  177777  002746              MOV     @-1,CURCNT(R2)
1597  007346                                        LET ERRTBL(R2) := @0
 (4)  007346  005062  003050                    CLR     ERRTBL(R2)
1598                                        ;;;         LET DELCNT(R2) := @0
1599  007352                                        LET REPCNT(R2) := @0
 (4)  007352  005062  002646                    CLR     REPCNT(R2)
1600  007356                                    ENDINC
 (5)  007356  000755                            BR      50067$
 (4)  007360                                50070$:
1601  007360  004737  007204                    JSR     PC,RESVEC               ; RESET THE VECTORS
1602  007364                                    IF CLKTYP EQ @3 THEN
 (6)  007364  023727  002316  000003            CMP     CLKTYP,@3
(10)  007372  001006                            BNE     50071$
1603  007374                                        CLRVEC @CLKVEC
 (3)  007374  017700  172726                    MOV     @CLKVEC,R0
 (3)  007400  104436                            TRAP    C$CVEC
1604  007402                                        LET @CLKCSR := @00
 (4)  007402  012777  000000  172712            MOV     @00,@CLKCSR
1605  007410                                    ENDIF
 (4)  007410                                50071$:
1606  007410                                    IF CLKTYP EQ @2 THEN
 (6)  007410  023727  002316  000002            CMP     CLKTYP,@2
(10)  007416  001013                            BNE     50072$
1607  007420                                        SETVEC CLKVEC,@IGNORE,@PRIO6
 (7)  007420  012746  000300                    MOV     @PRIO6,-(SP)
 (6)  007424  012746  007202                    MOV     @IGNORE,-(SP)
 (5)  007430  013746  002326                    MOV     CLKVEC,-(SP)
 (4)  007434  012746  000003                    MOV     @3,-(SP)
 (3)  007440  104437                            TRAP    C$SVEC
 (2)  007442  062706  000010                    ADD     @10,SP
1608  007446                                    ENDIF
 (4)  007446                                50072$:
1609  007446                                    SETPRI @PRI00
 (3)  007446  012700  000000                    MOV     @PRI00,R0
 (3)  007452  104441                            TRAP    C$SPRI
1610  007454                                ENDCLN
 (3)  007454                                L10005:
 (3)  007454  104412                            TRAP    C$CLEAN
1611
1612  007456                                ENDMOD
1613                                        .SBTTL  INTERFACE LOGIC
1614                                        ;MODULE         INLOG.P11
1615
1616  007456                                BGNMOD
1617                                        ;++
1618                                        ;THIS TEST VERIFIES THE OPERATION OF THE INTERFACE LOGIC. TESTS ARE
1619                                        ;PERFORMED FOR PRINTER ERROR, PRINTER READY, AND CLEARING PRINTER READY
1620                                        ;BY LOADING A CHARACTER INTO THE OUTPUT BUFFER. ALSO IT IS VERIFIED
1621                                        ;THAT THE PRINTER WILL NOT INTERRUPT IF IT IS AT THE SAME PRIORITY LEVEL
1622                                        ;AS THE PROCESSOR, BUT WILL INTERRUPT IF THE PROCESSOR IS AT A LOWER
```

```
1623                                    ;PRIORITY LEVEL. THE PRINTER IS AT PRIORITY LEVEL 4.
1624                                    ;
1625                                    ;
1626                                    ;-
162  007456                             BGNTST  1
 (3) 007456                             T1::
1628 007456                             LET R1 := L$UNIT - #1                   ;MAX NUMBER OF UNITS ON SYSTEM
 (5) 007456  013701  002012                     MOV     L$UNIT,R1
 (7) 007462  005301                             DEC     R1
1629                                    ;
1630                                    ;HARD CODED INCREMEMNT LOOP
1631                                    ;INCR LUNIT FROM #0 TO R1 BY #1         ;START LOOP
1632                                    ;
1633 007464  005037  002310                     CLR     LUNIT                   ;UNIT TO 0
1634 007470  000402                             BR      T1C                     ;DO COMPARE
1635 007472                             T1A:
1636 007472  005237  002310                     INC     LUNIT                   ;UPDATE UNIT NUMBER
1637 007476                             T1C:
1638 007476  023701  002310                     CMP     LUNIT,R1                ;DO COMPARISON OF UNIT NUMBER
1639 007502  003402                             BLE     1$                      ;ONTO NEXT UNIT
1640 007504  000137  010244                     JMP     T1B                     ;EXIT LOOP
1641 007510                             1$:
1642 007510                                     LET R2 := LUNIT SHIFT 1
 (5) 007510  013702  002310                     MOV     LUNIT,R2
 (8) 007514  006302                             ASL     R2
1643 007516                                 IF #BIT15 SETIN @LPCSR(R2) THEN
 (6) 007516  032772  100000  002352             BIT     #BIT15,@LPCSR(R2)
 (10) 007524 001416                             BEQ     50073$
1644 007526                                     LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
 (7) 007526  052762  100000  002506             BIS     #ERROR,STATUS(R2)
1645 007534                                     LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7) 007534  005262  003050                     INC     ERRTBL(R2)
1646 007540                                     LET L$LUN := LUNIT
 (4) 007540  013737  002310  002074             MOV     LUNIT,L$LUN
1647 007546                                     ERRHRD 1,CSRERR         ;ERROR BIT WAS SET. SAY SO
 (4) 007546  104456                             TRAP    C$ERHRD
 (5) 007550  000001                             .WORD   1
 (5) 007552  003342                             .WORD   CSRERR
 (5) 007554  000000                             .WORD   0
1648 007556                                     LET @LPCSR(R2) := #0
 (4) 007556  005072  002352                     CLR     @LPCSR(R2)
1649 007562                                 ENDIF
 (4) 007562                             50073$:
1650                                    ;TIME DELAY
1651                                            ; IF NOT READY ALLOW 3 SECONDS TO COME UP
1652 007562                                     IF #BIT7 NOTSETIN @LPCSR(R2) THEN
 (6) 007562  032772  000200  002352             BIT     #BIT7,@LPCSR(R2)
 (10) 007570 001027                             BNE     50074$
1653 007572                                         DECR WORK1 FROM #30. TO #1 BY #1
 (5) 007572  012737  000036  003112             MOV     #30.,WORK1
 (7) 007600  000402                             BR      50075$
 (6) 007602                             50076$:
 (10) 007602 005337  003112                     DEC     WORK1
 (7) 007606                             50075$:
 (7) 007606  023727  003112  000001             CMP     WORK1,#1
 (9) 007614  002415                             BLT     50077$
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```
1654   007616                                       DELAY 250
 (2)   007616  012727  000250               MOV     #250,(PC)+
 (2)   007622  000000                       .WORD   0
 (2)   007624  013727  002116               MOV     L$DLY,(PC)+
 (2)   007630  000000                       .WORD   0
 (2)   007632  005367  177772               DEC     -6(PC)
 (2)   007636  001375                       BNE     .-4
 (2)   007640  005367  177756               DEC     -22(PC)
 (2)   007644  001367                       BNE     .-20
1655   007646                                   ENDDEC
 (5)   007646  000755                       BR      50076$
 (4)   007650                       50077$:
1656   007650                               ENDIF
 (4)   007650                       50074$:
1657                                ;
1658                                ;NOW TEST FOR PRINTER READY
1659                                ;
1660   007650                           IF #BIT07 NOTSETIN @LPCSR(R2) THEN          ;TEST FOR THE READY BIT
 (6)   007650  032772  000200  002352       BIT     #BIT07,@LPCSR(R2)
 (10)  007656  001014                       BNE     50100$
1661   007660                               LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
 (7)   007660  052762  100000  002506       BIS     #ERROR,STATUS(R2)
1662   007666                               LET L$LUN := LUNIT
 (4)   007666  013737  002310  002074       MOV     LUNIT,L$LUN
1663   007674                               LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)   007674  005262  003050               INC     ERRTBL(R2)
1664   007700                               ERRHRD 2,RDYERR          ;REPORT AN ERROR
 (4)   007700  104456                       TRAP    C$ERHRD
 (5)   007702  000002                       .WORD   2
 (5)   007704  003360                       .WORD   RDYERR
 (5)   007706  000000                       .WORD   0
1665   007710                           ENDIF
 (4)   007710                       50100$:
1666                                ;
1667                                ;INSURE LOADING CHARACTER CAUSES PRINTER READY TO GO AWAY
1668                                ;
1669   007710                           LET @LPBUF(R2) := #12
 (4)   007710  012772  000012  002446       MOV     #12,@LPBUF(R2)
1670   007716                           IF #BIT07 SETIN @LPCSR(R2) THEN
 (6)   007716  032772  000200  002352       BIT     #BIT07,@LPCSR(R2)
 (10)  007724  001416                       BEQ     50101$
1671   007726                               LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
 (7)   007726  052762  100000  002506       BIS     #ERROR,STATUS(R2)
1672   007734                               LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)   007734  005262  003050               INC     ERRTBL(R2)
1673   007740                               LET L$LUN := LUNIT
 (4)   007740  013737  002310  002074       MOV     LUNIT,L$LUN
1674   007746                               ERRHRD 3,ERR11           ;REPORT AN ERROR
 (4)   007746  104456                       TRAP    C$ERHRD
 (5)   007750  000003                       .WORD   3
 (5)   007752  011010                       .WORD   ERR11
 (5)   007754  000000                       .WORD   0
1675   007756                               LET @LPCSR(R2) := #0
 (4)   007756  005072  002352               CLR     @LPCSR(R2)
1676   007762                           ENDIF
 (4)   007762                       50101$:
```

```
1677                                    ;
1678                                    ;VERIFY THAT THE PRINTER WILL NOT INTERRUPT IF IT IS AT A PRIORITY LEVEL
1679                                    ;THE SAME AS THE CPU
1680                                    ;
1681  007762                            SETPRI #PRI04                         ;CPU TO PRIORITY 4
 (3)  007762  012700  000200                MOV     #PRI04,R0
 (3)  007766  104441                        TRAP    C$SPRI
1682  007770                            SETVEC LPVEC(R2),#INTERR,#PRI04       ;LP VECTOR SET UP
 (7)  007770  012746  000200                MOV     #PRI04,-(SP)
 (6)  007774  012746  010516                MOV     #INTERR,-(SP)
 (5)  010000  016246  002412                MOV     LPVEC(R2),-(SP)
 (4)  010004  012746  000003                MOV     #3,-(SP)
 (3)  010010  104437                        TRAP    C$SVEC
 (2)  010012  062706  000010                ADD     #10,SP
1683  010016                            LET &LPCSR(R2) := &LPCSR(R2) SET.BY #100     ;INTERRUPT ENABLE
 (7)  010016  052772  000100  002352        BIS     #100,&LPCSR(R2)
1684  010024                            DECR WORK1 FROM #30. TO #1 BY #1
 (5)  010024  012737  000036  003112        MOV     #30.,WORK1
 (7)  010032  000402                        BR      50102$
 (6)  010034                        50103$:
 (10) 010034  005337  003112                DEC     WORK1
 (7)  010040                        50102$:
 (7)  010040  023727  003112  000001        CMP     WORK1,#1
 (9)  010046  002415                        BLT     50104$
1685  010050                                DELAY   250.                  ; ALLOW FOR DELAY
 (2)  010050  012727  000372                MOV     #250.,(PC)+
 (2)  010054  000000                        .WORD   0
 (2)  010056  013727  002116                MOV     L$DLY,(PC)+
 (2)  010062  000000                        .WORD   0
 (2)  010064  005367  177772                DEC     -6(PC)
 (2)  010070  001375                        BNE     .-4
 (2)  010072  005367  177756                DEC     -22(PC)
 (2)  010076  001367                        BNE     .-20
1686  010100                            ENDDEC
 (5)  010100  000755                        BR      50103$
 (4)  010102                        50104$:
1687                                    ;
1688                                    ;NOW TEST THAT THE PRINTER WILL INTERRUPT IF THE CPU PRIORITY IS LOWER THAN
1689                                    ;THE PRINTER PRIORITY
1690                                    ;
1691  010102                            LET &LPCSR(R2) := &LPCSR(R2) CLR.BY #100     ;CLEAR INTERRUPT ENABLE
 (7)  010102  042772  000100  002352        BIC     #100,&LPCSR(R2)
1692  010110                            SETPRI #PRI03                         ;CPU TO PRIORITY 3
 (3)  010110  012700  000140                MOV     #PRI03,R0
 (3)  010114  104441                        TRAP    C$SPRI
1693  010116                            SETVEC LPVEC(R2),#INTHDL,#PRI04
 (7)  010116  012746  000200                MOV     #PRI04,-(SP)
 (6)  010122  012746  010546                MOV     #INTHDL,-(SP)
 (5)  010126  016246  002412                MOV     LPVEC(R2),-(SP)
 (4)  010132  012746  000003                MOV     #3,-(SP)
 (3)  010136  104437                        TRAP    C$SVEC
 (2)  010140  062706  000010                ADD     #10,SP
1694  010144                            LET &LPCSR(R2) := &LPCSR(R2) SET.BY #100     ;INTERRUPT ENABLE
 (7)  010144  052772  000100  002352        BIS     #100,&LPCSR(R2)
1695  010152                                DELAY 75.                  ; ALLOW FOR DELAY
 (2)  010152  012727  000113                MOV     #75.,(PC)+
```

```
  (2)  010156  000000                          .WORD   0
  (2)  010160  013727  002116                  MOV     L$DLY,(PC)+
  (2)  010164  000000                          .WORD   0
  (2)  010166  005367  177772                  DEC     -6(PC)
  (2)  010172  001375                          BNE     .-4
  (2)  010174  005367  177756                  DEC     -22(PC)
  (2)  010200  001367                          BNE     .-20
1696   010202                                  LET ERRTBL(R2) := ERRTBL(R2) + #1
  (7)  010202  005262  003050                  INC     ERRTBL(R2)
1697   010206                                  LET L$LUN := LUNIT
  (4)  010206  013737  002310  002074          MOV     LUNIT,L$LUN
1698   010214                              ERRHRD 4,ERR13
  (4)  010214  104456                          TRAP    C$ERHRD
  (5)  010216  000004                          .WORD   4
  (5)  010220  011147                          .WORD   ERR13
  (5)  010222  000000                          .WORD   0
1699   010224                          END2:   LET @LPCSR(R2) := #00           ; CLEAR THE LPCSR
  (4)  010224  012772  000000  002352          MOV     #00,@LPCSR(R2)
1700   010232                                  LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR!DROPED!ACTIVE
  (7)  010232  042762  160000  002506          BIC     #ERROR!DROPED!ACTIVE,STATUS(R2)
1701                                    ;;;     LET DELCNT(R2) := #0
1702                                    ;
1703                                    ;END OF HARD CODED INCREMENT LOOP
1704                                    ;ENDINC
1705                                    ;
1706   010240  000137  007472                   JMP     T1A                     ;UPDATE UNIT #
1707   010244  004737  007204           T1B:    JSR     PC,RESVEC       ; RESET STANDARD VECTORS
1708   010250                                  SETPRI #PRI00
  (3)  010250  012700  000000                  MOV     #PRI00,R0
  (3)  010254  104441                          TRAP    C$SPRI
1709   010256                                  OUTPUT #INTFAC,#47.
1710   010320                                  OUTPUT #DFAULT,#107.    ;PRINTS ON A NEW PAGE THE DEFAULT POWER UP
1712   010362                                  OUTPUT #DECFIN,#5               ; TOGGLE THE PAPER OFFSET
1714   010424                                  LET OUTBUF :B= #14
  (4)  010424  112737  000014  003114          MOVB    #14,OUTBUF
1715   010432                                  OUTPUT #OUTBUF,#1
1716   010474  004737  005306                  JSR PC,QUIET
1717   010500                                  WHILE #BIT7 NOTSETIN @LPCSR(R2) DO      ;WAIT FOR READY
  (4)  010500                           50105$:
  (6)  010500  032772  000200  002352          BIT     #BIT7,@LPCSR(R2)
 (10)  010506  001001                          BNE     50106$
1718   010510                                  ENDDO
  (4)  010510  000773                          BR      50105$
  (3)  010512                           50106$:
1719   010512                                  EXIT TST                                ;EXIT THE TEST
  (3)  010512  104432                          TRAP    C$EXIT
  (3)  010514  000510                          .WORD   L10006-.
1720                                    ;
1721                                    ;INTERRUPT HANDLER TO SERVICE FAULTY INTERRUPT FROM LP INTERFACE.
1722                                    ;THIS ROUTINE IS ENTERED ONLY WHEN THE LP INTERRUPTS AT THE SAME LEVEL AS
1723                                    ;THE CPU AND IS CONSIDERED AN ERROR.
1724                                    ;
1725   010516                           BGNSRV
1726   010516                           INTERR: LET ERRTBL(R2) := ERRTBL(R2) + #1
  (7)  010516  005262  003050                  INC     ERRTBL(R2)
1727   010522                                  LET L$LUN := LUNIT
```

```
  (4)  010522  013737  002310  002074          MOV     LUNIT,L$LUN
1728   010530                                  ERRHRD 5,ERR12
  (4)  010530  104456                          TRAP    C$ERHRD
  (5)  010532  000005                          .WORD   5
  (5)  010534  011064                          .WORD   ERR12
  (5)  010536  000000                          .WORD   0
1729   010540                          LET (SP) := @END2
  (4)  010540  012716  010224                  MOV     @END2,(SP)
1730   010544                          ENDSRV
  (3)  010544                          L10007:
  (2)  010544  000002                          RTI
1731                                    ;
1732                                    ;INTERRUPT HANDLER FOR EXPECTED INTERRUPT
1733                                    ;
1734   010546                           BGNSRV
1735                                    ;
1736   010546                           INTHDL: LET (SP) := @END2
  (4)  010546  012716  010224                  MOV     @END2,(SP)
1737   010552                          ENDSRV
  (3)  010552                          L10010:
  (2)  010552  000002                          RTI
1738                                    ;
1739                                    .NLIST BEX
1740   010554  047111  042524  043122  INTFAC: .ASCIZ  /INTERFACE LOGIC TEST 1   ----   TEST COMPLETE/<12><12>
1741
1742   010634  015414  052143  044510  DFAULT: .ASCII  <14><33>/cTHIS IS THE DEFAULT POWER UP FONT./<12>
1743   010702  052111  044440  020123          .ASCII  /IT IS BASED ON SWITCHES.SET ON THE PARALLEL/
1744   010755     040  047111  042524          .ASCIZ  / INTERFACE MODULE BOARD./<12><12>
1745                                    ;
1746                                    ;ERROR MESSAGES ASSOCIATED WITH THIS TEST
1747                                    ;
1748   011010  047514  042101  047111  ERR11:  .ASCIZ  /LOADING PRINTER BUFFER DOES NOT CLEAR READY/
1749   011064  051120  047111  042524  ERR12:  .ASCIZ  /PRINTER INTERRUPTED AT SAME LEVEL AS THE PROCESSOR/
1750   011147     120  044522  052116  ERR13:  .ASCIZ  /PRINTER DID NOT INTERRUPT AT CPU PRIORITY 3/
1751          011224                           .EVEN
1752   011224                          ENDTST
  (3)  011224                          L10006:
  (3)  011224  104401                          TRAP    C$ETST
1753                                    .LIST BEX
1754   011226                           ENDMOD
1755
1756
1757
1758
1759
1760
1761
1762
1763
1764
1765
1766                                    .SBTTL DATA TRANSFER PATHS
1767                                    ;MODULE         DATPAT.P11
1768
1769   011226                           BGNMOD
1770                                    ;**
```

```
 1771                                   ;THIS TEST CHECKS THE DATA TRANSFER
 1772                                   ;PATHS FROM THE PROCESSOR INTERFACE
 1773                                   ;TO THE PRINTER OUTPUT. AN ALTERNATING
 1774                                   ;PATTERN OF ONES AND ZEROES CORRESPONDING
 1775                                   ;TO AN ALTERNATING STRING OF "♠" AND
 1776                                   ;"U" CHARACTERS ARE TRANSMITTED ON THE
 1777                                   ;FULL 132 COLUMNS.  AFTER 16 LINES OF
 1778                                   ;THIS PATTERN, THE OUTPUT PATTERN IS
 1779                                   ;SWITCHED TO AN ALTERNATING PATTERN
 1780                                   ;OF "?" AND "@" CHARACTERS FOR ANOTHER
 1781                                   ;16 LINES.
 1782                                   ;--
 1783
 1784  011226                           BGNTST  2
  (3)  011226                           T2::
 1785
 1787  011226                           OUTPUT #DECFIN,#5                      ; TOGGLE PAPER OFFSET
 1789                                   ;PRINT TEST IDENTIFICATION
 1790  011270                           OUTPUT #REINIT,#2
 1791  011332                           OUTPUT #DATPTH,#34.
 1792                                   ;PRINT ALTERNATING STRINGS OF CHARACTERS
 1793  011374                           INCR PATTERN FROM #1 TO #2 BY #1
  (5)  011374  012737  000001  011770          MOV     #1,PATTERN
  (7)  011402  000402                          BR      50107$
  (6)  011404                           50110$:
 (10)  011404  005237  v11770                  INC     PATTERN
  (7)  011410                           50107$:
  (7)  011410  023727  011770  000002          CMP     PATTERN,#2
  (9)  011416  003111                          BGT     50111$
 1794  011420                               IF PATTERN EQ #1 THEN
  (6)  011420  023727  011770  000001          CMP     PATTERN,#1
 (10)  011426  001004                          BNE     50112$
 1795  011430                                   LET CHAR :B= #'U
  (4)  011430  112737  000125  011722          MOVB    #'U,CHAR
 1796  011436                               ELSE
  (4)  011436  000403                          BR      50113$
  (3)  011440                           50112$:
 1797  011440                                   LET CHAR :B= #'?
  (4)  011440  112737  000077  011722          MOVB    #'?,CHAR
 1798  011446                               ENDIF
  (4)  011446                           50113$:
 1799  011446                                   LET R4 := #OUTBUF
  (4)  011446  012704  003114                  MOV     #OUTBUF,R4
 1800  011452                                   INCR CCNT FROM #1 TO #66. BY #1
  (5)  011452  012737  000001  002300          MOV     #1,CCNT
  (7)  011460  000402                          BR      50114$
  (6)  011462                           50115$:
 (10)  011462  005237  002300                  INC     CCNT
  (7)  011466                           50114$:
  (7)  011466  023727  002300  000102          CMP     CCNT,#66.
  (9)  011474  003017                          BGT     50116$
 1801  011476                                   LET (R4)+ :B= CHAR
  (4)  011476  113724  011722                  MOVB    CHAR,(R4)+
 1802  011502  105137  011722                      COMB CHAR
 1803  011506                                   LET CHAR :B= CHAR CLR.BY #200
  (7)  011506  142737  000200  011722          BICB    #200,CHAR
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1804  011514                                                    LET (R4)+ :B= CHAR
 (4)  011514  113724  011722                              MOVB    CHAR,(R4)+
1805  011520  105137  011722                                   COMB CHAR
1806  011524                                                    LET CHAR :B= CHAR CLR.BY #200
 (7)  011524  142737  000200  011722                       BICB    #200,CHAR
1807  011532                                                    ENDINC
 (5)  011532  000753                                       BR      50115$
 (4)  011534                                          50116$:
1808  011534                                                    LET (R4)+ :B= #15
 (4)  011534  112724  000015                              MOVB    #15,(R4)+
1809  011540                                                    LET (R4) :B= #12
 (4)  011540  112714  000012                              MOVB    #12,(R4)
1810  011544                                                    INCR LINCNT FROM #1 TO #16. BY #1
 (5)  011544  012737  000001  002272                       MOV     #1,LINCNT
 (7)  011552  000402                                       BR      50117$
 (6)  011554                                          50120$:
 (10) 011554  005237  002272                              INC     LINCNT
 (7)  011560                                          50117$:
 (7)  011560  023727  002272  000020                       CMP     LINCNT,#16.
 (9)  011566  003024                                       BGT     50121$
1811  011570                                                    OUTPUT #OUTBUF, #134.
1812  011632  004737  005306                                   JSR PC,     QUIET
1813  011636                                                    ENDINC
 (5)  011636  000746                                       BR      50120$
 (4)  011640                                          50121$:
1814  011640                                          ENDINC
 (5)  011640  000661                                       BR      50110$
 (4)  011642                                          50111$:
1815  011642                                          LET OUTBUF :B= #14
 (4)  011642  112737  000014  003114                       MOVB    #14,OUTBUF
1816  011650                                          OUTPUT  #OUTBUF, #1
1817  011712  004737  005306                           JSR PC,QUIET
1818  011716                                          EXIT TST
 (3)  011716  104432                                       TRAP    C$EXIT
 (3)  011720  000052                                       .WORD   L10011-.
1819                                                    .NLIST BEX
1820  011722  000000                                   CHAR:   .WORD 0
1821  011724  055433  030061  042155                   DATPTH: .ASCIZ <33>/[10mDATA TRANSFER PATHS TEST 2/ <12><12><12>
1822
1823        011770                                      .EVEN
1824  011770  000000                                   PATTERN:        .WORD 0
1825                                                                    .EVEN
1826                                                    .EVEN
1827                                                    .LIST BEX
1828
1829  011772                                          ENDTST
 (3)  011772                                          L10011:
 (3)  011772  104401                                       TRAP    C$ETST
1830
1831  011774                                          ENDMOD
1832
1833
1834
1835
1836
1837
```

```
1838
1839
1840
1841
1842                                    .SBTTL PRINTABLE CHARACTERS
1843                                    ;MODULE         PRICH1.P11
1844
1845  011774                            BGNMOD
1846                                    ;++
1847                                    ; THIS TEST WILL PRINT A FULL LINE OF EACH CHARACTER IN THE DEC MULTINATIONAL SET.
1848                                    ; IT WILL THEN SELECT PORTRAIT MODE AND DO THE SAME THING OVER AGAIN.
1849                                    ;--
1850  011774                            BGNTST  3
 (3)  011774                            T3::
1851  011774                                    OUTPUT @PRTCHR, #35.              ; PRINT TEST ID
1852                                    ;
1853                                    ; PRINT ALL CHARACTERS ON ALL UNITS
1854                                    ;
1855          000001                    $BRJMP=1
1856  012036                            OUTPUT @SELDEC,#5                         ; SELECT DECIPOINTS AS PARAMETER
1857  012100                            OUTPUT @DECFIN,#5                         ; TOGGLE PAPER OFFSET
1858  012142                            INCR WORK1 FROM #0 TO #1 BY #1                    ; DO THIS TWICE
 (5)  012142  005037  003112                    CLR     WORK1
 (7)  012146  000402                            BR      50123$
 (6)  012150                            50122$:
 (8)  012150  005237  003112                    INC     WORK1
 (6)  012154                            50123$:
 (7)  012154  023727  003112  000001            CMP     WORK1,#1
 (9)  012162  003402                            BLE     50124$
 (7)  012164  000137  012640                    JMP     50125$
 (6)  012170                            50124$:
1859  012170                            INCR WORK FROM #40 TO #177 BY #1
 (5)  012170  012737  000040  003110            MOV     #40,WORK
 (7)  012176  000402                            BR      50127$
 (6)  012200                            50126$:
 (8)  012200  005237  003110                    INC     WORK
 (6)  012204                            50127$:
 (7)  012204  023727  003110  000177            CMP     WORK,#177
 (9)  012212  003402                            BLE     50130$
 (7)  012214  000137  012336                    JMP     50131$
 (6)  012220                            50130$:
1860  012220                                LET R4 := #OUTBUF
 (4)  012220  012704  003114                    MOV     #OUTBUF,R4
1861  012224                                INCR COUNT FROM #1 TO #132. BY #1
 (5)  012224  012737  000001  002276            MOV     #1,COUNT
 (7)  012232  000402                            BR      50133$
 (6)  012234                            50132$:
 (8)  012234  005237  002276                    INC     COUNT
 (6)  012240                            50133$:
 (7)  012240  023727  002276  000204            CMP     COUNT,#132.
 (9)  012246  003402                            BLE     50134$
 (7)  012250  000137  012262                    JMP     50135$
 (6)  012254                            50134$:
1862  012254                                    LET (R4)+ :B= WORK
 (4)  012254  113724  003110                    MOVB    WORK,(R4)+
1863  012260                                ENDINC
```

```
   (4)  012260  000765                        BR      50132$
   (4)  012262                        50135$:
  1864  012262                            LET (R4)+ :B= #LF
   (4)  012262  112724  000012           MOVB    #LF,(R4)+
  1865  012266                            OUTPUT #OUTBUF,#133.
  1866  012330  004737  005306            JSR PC,QUIET
  1867  012334                            ENDINC
   (4)  012334  000721                    BR      50126$
   (4)  012336                        50131$:
  1868  012336                            LET OUTBUF :B= #14
   (4)  012336  112737  000014  003114    MOVB    #14,OUTBUF
  1869  012344                            OUTPUT #OUTBUF,#1                       ; EXECUTE TOF
  1870  012406  004737  005306            JSR PC, QUIET
  1871  012412                            INCR WORK FROM #240 TO #377 BY #1       ; FOR EXTENDED VERSION ONLY
   (5)  012412  012737  000240  003110    MOV     #240,WORK
   (7)  012420  000402                    BR      50137$
   (6)  012422                        50136$:
   (8)  012422  005237  003110            INC     WORK
   (6)  012426                        50137$:
   (7)  012426  023727  003110  000377    CMP     WORK,#377
   (9)  012434  003402                    BLE     50140$
   (7)  012436  000137  012560            JMP     50141$
   (6)  012442                        50140$:
  1872  012442                            LET R4 := #OUTBUF
   (4)  012442  012704  003114           MOV     #OUTBUF,R4
  1873  012446                            INCR COUNT FROM #1 TO #132. BY #1
   (5)  012446  012737  000001  002276    MOV     #1,COUNT
   (7)  012454  000402                    BR      50143$
   (6)  012456                        50142$:
   (8)  012456  005237  002276            INC     COUNT
   (6)  012462                        50143$:
   (7)  012462  023727  002276  000204    CMP     COUNT,#132.
   (9)  012470  003402                    BLE     50144$
   (7)  012472  000137  012504            JMP     50145$
   (6)  012476                        50144$:
  1874  012476                            LET (R4)+ :B= WORK
   (4)  012476  113724  003110           MOVB    WORK,(R4)+
  1875  012502                            ENDINC
   (4)  012502  000765                    BR      50142$
   (4)  012504                        50145$:
  1876  012504                            LET (R4)+ :B= #LF
   (4)  012504  112724  000012           MOVB    #LF,(R4)+
  1877  012510                            OUTPUT #OUTBUF,#133.
  1878  012552  004737  005306            JSR PC,QUIET
  1879  012556                            ENDINC
   (4)  012556  000721                    BR      50136$
   (4)  012560                        50141$:
  1880  012560                            IF WORK1 EQ #0 THEN                     ; DO THIS ONLY THE FIRST TIME
   (6)  012560  005737  003112            TST     WORK1
   (8)  012564  001402                    BEQ     .+6
   (9)  012566  000137  012,34            JMP     50146$
  1881  012572                                    OUTPUT #PORSQ,#25.                      ; CHANGE TO PORTRAIT AND
  1882  012634                            ENDIF
   (4)  012634                        50146$:
  1883  012634                            ENDINC
   (4)  012634  000137  012150            JMP     50122$
```

```
CZLNADO LNO1 TEST       DNMAC X24.07 563  10-APR-84  09:07  PAGE 6 36                                                    SEQ 0052
CZLNAD.P11    10 APR 84 08:55           PRINTABLE CHARACTERS

 (4)  012640                            50125$:
1884  012640                            OUTPUT #DONE,#14.                                   ; TEST DONE MESSAGE
1885  012702                            LET OUTBUF :B= #14
 (4)  012702  112737  000014  003114             MOVB    #14,OUTBUF
1886  012710                            OUTPUT #OUTBUF,#1                                   ; EXECUTE TOF
1887  012752                            OUTPUT #REINIT,#2                                   ; GO BACK TO DEFAULT
1888  013014                            OUTPUT #SELDEC,#5
1889  013056  004737  005306           JSR PC, QUIET
1890           177777                   $BRJMP=-1
1891  013062                            EXIT TST
 (3)  013062  104432                             TRAP    C$EXIT
 (3)  013064  000116                             .WORD   L10012-.
1892                                    .NLIST BEX
1893  013066  055433  030061  050155   PRTCHR: .ASCIZ <33>/[10mPRINTABLE CHARACTERS TEST 3/ <12><12><12>
1894  013132  042524  052123  041440   DONE:   .ASCII  /TEST COMPLETE/<12>
1895  013150     033     120     061   PORSQ:  .BYTE   33,120,61,73,61,61,175,104,105,124,151  ; SEQS TO ASSIGN AND SELECT PORT
1896  013163     164     141     156           .BYTE   164,141,156,61,60,55,122,33,134,33,133,61,61,155
1897           013202                           .EVEN
1898
1899  013202                            ENDTST
 (3)  013202                            L10012:
 (3)  013202  104401                             TRAP    C$ETST
1900                                    .LIST BEX
1901  013204                            ENDMOD
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912                                    .SBTTL  NON-PRINTABLE CHARACTERS
1913                                    ;MODULE         NOPRIN.P11
1914
1915  013204                            BGNMOD
1916                                    ;++
1917                                    ;THIS TEST CHECKS FOR DETECTION OF ALL NON-PRINTABLE CHARACTERS
1918                                    ;EXCEPT FOR HORIZONTAL TAB, LINE FEED, VERTICAL TAB, FORM
1919                                    ;FEED, CARRIAGE RETURN, AND ESCAPE WHICH
1920                                    ;WOULD BE INTERPRETED AS VALID CONTROL CHARACTERS BY THE LNO1. EACH
1921                                    ;CHARACTER WILL APPEAR ON THE PRINTER OUTPUT IN THE FORM OF ITS OCTAL
1922                                    ;CODE ACCOMPANIED WITH ITS MNEMONIC.
1923                                    ;122 OF THE TESTED CODE ARE THEN SENT FOLLOWED BY AN "@" CHARACTER.
1924                                    ;IF THE CONTROL CODE HAS TAKEN UP A SPACE IN THE BUFFER THE "@" CHARACTER
1925                                    ;WILL APPEAR AT THE RIGHT MARGIN OF THE PAGE. IF THE CONTROL CODE HAS NOT
1926                                    ;TAKEN UP SPACE IN THE BUFFER THE "@" WILL APPEAR IMMEDIATELY TO THE RIGHT
1927                                    ;OF THE MNEMONIC FOR THE CONTROL CODE.
1928                                    ;
1929                                    ;       "NOTE"
1930                                    ;               IF THIS TEST IS ASSEMBLED AS PART OF VERSION 1 LNO1 DIAGNOSTIC
1931                                    ;               IT WILL ALSO SEND ALL 8 BIT CONTROL CODES.  THE ASSEMBLER
1932                                    ;               WILL SEE THE CONDITIONAL STATEMENT: ".IF DF VERS.1",  AND, IF
1933                                    ;               VERS.1 IS DEFINED IN SKEL 2 THEN IT WILL ASSEMBLE THE CODE
```

```
1934                                    ;               FOR THE 8 BIT CONTROL CODES AS WELL AS THE NORMAL 7 BIT CONTROL
1935                                    ;               CODES.
1936                                    ;
1937
1938  013204                            BGNTST  4
 (3)  013204                            T4:.
1939                                    ;INDICATE TEST CURRENTLY BEING DONE
1940
1941  013204                                    OUTPUT @REINIT,#2
1942  013246                                    OUTPUT @NONCHR,#75.
1943  013310                                    LET R4 := @NONBUF
 (4)  013310  012704  014124                    MOV     @NONBUF,R4
1944  013314                                    LET WORK1 := #27.
 (4)  013314  012737  000033  003112            MOV     #27.,WORK1
1945                                    ;
1946                                    ; DO ONE LINE FOR EACH TABLE ENTRY
1947                                    ;
1948  013322                                    LET COUNT := #0
 (4)  013322  005037  002276                    CLR     COUNT
1949  013326                                    INCR LINCNT FROM #1 TO WORK1 BY #1
 (5)  013326  012737  000001  002272            MOV     #1,LINCNT
 (7)  013334  000402                            BR      50147$
 (6)  013336                            50150$:
(10)  013336  005237  002272                    INC     LINCNT
 (7)  013342                            50147$:
 (7)  013342  023737  002272  003112            CMP     LINCNT,WORK1
 (9)  013350  003063                            BGT     50151$
1950  013352                                        LET R3 := @OUTBUF
 (4)  013352  012703  003114                    MOV     @OUTBUF,R3
1951                                    ;
1952                                    ; MOVE CODE AND MNEMONIC TO PRINT BUFFER
1953                                    ;
1954  013356                                        INCR WORK FROM #1 TO #8. BY #1
 (5)  013356  012737  000001  003110            MOV     #1,WORK
 (7)  013364  000402                            BR      50152$
 (6)  013366                            50153$:
(10)  013366  005237  003110                    INC     WORK
 (7)  013372                            50152$:
 (7)  013372  023727  003110  000010            CMP     WORK,#8.
 (9)  013400  003002                            BGT     50154$
1955  013402                                        LET (R3)+ :B= (R4)+
 (4)  013402  112423                            MOVB    (R4)+,(R3)+
1956  013404                                    ENDINC
 (5)  013404  000770                            BR      50153$
 (4)  013406                            50154$:
1957
1958                                    ;
1959                                    ;  PUT 120 BYTES OF CODE INTO PRINT BUFFER
1960                                    ;
1961  013406                                        INCR WORK FROM #1 TO #122. BY #1
 (5)  013406  012737  000001  003110            MOV     #1,WORK
 (7)  013414  000402                            BR      50155$
 (6)  013416                            50156$:
(10)  013416  005237  003110                    INC     WORK
 (7)  013422                            50155$:
 (7)  013422  023727  003110  000172            CMP     WORK,#122.
```

```
  (9)  013430  003002                        BGT     50157$
1962   013432                                     LET (R3)+,:B+ (R4)
 (4)   013432  111423                        MOVB    (R4),(R3)+
1963   013434                                  ENDINC
 (5)   013434  000770                        BR      50156$
 (4)   013436                          50157$:
1964
1965                                        ;
1966                                        ; FOLLOWED BY AN "@" CHARACTER AND A LF
1967                                        ;
1968   013436                                   LET (R3)+,:B+ #100          ;"@"
 (4)   013436  112723  000100                MOVB    #100,(R3)+
1969   013442                                   LET (R3)+,:B+ #12           ;LF
 (4)   013442  112723  000012                MOVB    #12,(R3)+
1970                                        ;
1971                                        ; PRINT LINE OF OCTAL CODE, MNEMONIC, 120 BYTES(NONPRINTABLE CODE), AND  @
1972                                        ;
1973   013446                                   OUTPUT  #OUTBUF,#132.
1974   013510  004737  005306                  JSR PC,     QUIET
1975   013514                                   LET R4 := R4 + #1
 (7)   013514  005204                        INC     R4
1976   013516                                  ENDINC
 (5)   013516  000707                        BR      50150$
 (4)   013520                          50151$:
1978   013520                                  LET R4 := #NONBF1
 (4)   013520  012704  014507                MOV     #NONBF1,R4
1979   013524                                  LET WORK1 := #32.
 (4)   013524  012737  000040  003112        MOV     #32.,WORK1
1980                                        ;
1981                                        ; DO ONE LINE FOR EACH TABLE ENTRY
1982                                        ;
1983   013532                                  LET COUNT := #0
 (4)   013532  005037  002276                CLR     COUNT
1984   013536                                  INCR LINCNT FROM #1 TO WORK1 BY #1
 (5)   013536  012737  000001  002272        MOV     #1,LINCNT
 (7)   013544  000402                        BR      50160$
 (6)   013546                          50161$:
(10)   013546  005237  002272                INC     LINCNT
 (7)   013552                          50160$:
 (7)   013552  023737  002272  003112        CMP     LINCNT,WORK1
 (9)   013560  003063                        BGT     50162$
1985   013562                                   LET R3 := #OUTBUF
 (4)   013562  012703  003114                MOV     #OUTBUF,R3
1986                                        ;
1987                                        ; MOVE CODE AND MNEMONIC TO PRINT BUFFER
1988                                        ;
1989   013566                                   INCR WORK FROM #1 TO #8. BY #1
 (5)   013566  012737  000001  003110        MOV     #1,WORK
 (7)   013574  000402                        BR      50163$
 (6)   013576                          50164$:
(10)   013576  005237  003110                INC     WORK
 (7)   013602                          50163$:
 (7)   013602  023727  003110  000010        CMP     WORK,#8.
 (9)   013610  003002                        BGT     50165$
1990   013612                                   LET (R3)+,:B+ (R4)+
 (4)   013612  112423                        MOVB    (R4)+,(R3)+
```

```
1991  013614                                          ENDINC
 (5)  013614  000770                                 BR      50164$
 (4)  013616                                 50165$:
1992
1993                                                 ;
1994                                                 ;  PUT 120 BYTES OF CODE INTO PRINT BUFFER
1995                                                 ;
1996  013616                                          INCR WORK FROM #1 TO #122. BY #1
 (5)  013616  012737  000001  003110                 MOV     #1,WORK
 (7)  013624  000402                                 BR      50166$
 (6)  013626                                 50167$:
(10)  013626  005237  003110                         INC     WORK
 (7)  013632                                 50166$:
 (7)  013632  023727  003110  000172                 CMP     WORK,#122.
 (9)  013640  003002                                 BGT     50170$
1997  013642                                          LET (R3)+ :B= (R4)
 (4)  013642  111423                                 MOVB    (R4),(R3)+
1998  013644                                          ENDINC
 (5)  013644  000770                                 BR      50167$
 (4)  013646                                 50170$:
1999
2000                                                 ;
2001                                                 ; FOLLOWED BY AN "@" CHARACTER AND A LF
2002                                                 ;
2003  013646                                          LET (R3)+ :B= #100          ;"@"
 (4)  013646  112723  000100                         MOVB    #100,(R3)+
2004  013652                                          LET (R3)+ :B= #12           ;LF
 (4)  013652  112723  000012                         MOVB    #12,(R3)+
2005                                                 ;
2006                                                 ; PRINT LINE OF OCTAL CODE, MNEMONIC, 120 BYTES(NONPRINTABLE CODE), AND "@"
2007                                                 ;
2008  013656                                          OUTPUT  #OUTBUF,#132.
2009  013720  004737  005306                         JSR PC,     QUIET
2010  013724                                          LET R4 := R4 + #1
 (7)  013724  005204                                 INC     R4
2011  013726                                          ENDINC
 (5)  013726  000707                                 BR      50161$
 (4)  013730                                 50162$:
2013  013730                                          LET OUTBUF :B= #14
 (4)  013730  112737  000014  003114                 MOVB    #14,OUTBUF
2014  013736                                          OUTPUT #OUTBUF,#1
2015  014000  004737  005306                         JSR PC, QUIET
2016  014004                                          EXIT    TST                 ;AND EXIT TEST
 (3)  014004  104432                                 TRAP    C$EXIT
 (3)  014006  001144                                 .WORD   L10013-.
2017                                                 ;
2018                                                 ;CHARACTER BUFFER AND TEST HEADER MESSAGE
2019                                                 ;
2020                                                 .NLIST BEX
2021  014010  055433  030061  047155  NONCHR: .ASCII  <33>/[10mNON-PRINTABLE CHARACTERS TEST 4/<12>
2022  014055     101  043040  046125           .ASCIZ  /A FULL LINE OF EACH CODE WILL BE SENT/<12>
2023
2024  014124  030040  030060  047040  NONBUF: .ASCII  / 000 NUL/<0>
2025  014135     040  030060  020061          .ASCII  / 001 SOH/<1>
2026  014146  030040  031060  051440          .ASCII  / 002 STX/<2>
2027  014157     040  030060  020063          .ASCII  / 003 ETX/<3>
```

```
2028  014170  030040  032060  042440          .ASCII  / 004 EOT/<4>
2029  014201     040  030060  020065          .ASCII  / 005 ENQ/<5>
2030  014212  030040  033060  040440          .ASCII  / 006 ACK/<6>
2031  014223     040  030060  020067          .ASCII  / 007 BEL/<7>
2032  014234  030040  030061  041040          .ASCII  / 010 BS /<10>
2033  014245     040  030460  020066          .ASCII  / 016 SO /<16>
2034  014256  030040  033461  051440          .ASCII  / 017 SI /<17>
2035  014267     040  031060  020060          .ASCII  / 020 DLE/<20>
2036  014300  030040  030462  054040          .ASCII  / 021 XON/<21>
2037  014311     040  031060  020062          .ASCII  / 022 DC2/<22>
2038  014322  030040  031462  054040          .ASCII  / 023 XOF/<23>
2039  014333     040  031060  020064          .ASCII  / 024 DC4/<24>
2040  014344  030040  032462  047040          .ASCII  / 025 NAK/<25>
2041  014355     040  031060  020066          .ASCII  / 026 SYN/<26>
2042  014366  030040  033462  042440          .ASCII  / 027 ETB/<27>
2043  014377     040  031460  020060          .ASCII  / 030 CAN/<30>
2044  014410  030040  030463  042440          .ASCII  / 031 EM /<31>
2045  014421     040  031460  020062          .ASCII  / 032 SUB/<32>
2046  014432  030040  032063  043040          .ASCII  / 034 FS /<34>
2047  014443     040  031460  020065          .ASCII  / 035 GS /<35>
2048  014454  030040  033063  051040          .ASCII  / 036 RS /<36>
2049  014465     040  031460  020067          .ASCII  / 037 US /<37>
2050  014476  030040  033467  042040          .ASCII  / 177 DEL/<177>
2052  014507     040  030062  020060  NONBF1:  .ASCII  / 200    /<200>
2053  014520  031040  030460  020040          .ASCII  / 201    /<201>
2054  014531     040  030062  020062          .ASCII  / 202    /<202>
2055  014542  031040  031460  020040          .ASCII  / 203    /<203>
2056  014553     040  030062  020064          .ASCII  / 204 IND/<204>
2057  014564  031040  032460  047040          .ASCII  / 205 NEL/<205>
2058  014575     040  030062  020066          .ASCII  / 206 SSA/<206>
2059  014606  031040  033460  042440          .ASCII  / 207 ESA/<207>
2060  014617     040  030462  020060          .ASCII  / 210 HTS/<210>
2061  014630  031040  030461  044040          .ASCII  / 211 HTJ/<211>
2062  014641     040  030462  020062          .ASCII  / 212 VTS/<212>
2063  014652  031040  031461  050040          .ASCII  / 213 PLD/<213>
2064  014663     040  030462  020064          .ASCII  / 214 PLU/<214>
2065  014674  031040  032461  051040          .ASCII  / 215 RI /<215>
2066  014705     040  030462  020066          .ASCII  / 216 SS2/<216>
2067  014716  031040  033461  051440          .ASCII  / 217 SS3/<217>
2068  014727     040  031062  020060          .ASCII  / 220    /<220>
2069  014740  031040  030462  050040          .ASCII  / 221 PU1/<221>
2070  014751     040  031062  020062          .ASCII  / 222 PU2/<222>
2071  014762  031040  031462  051440          .ASCII  / 223 STS/<223>
2072  014773     040  031062  020064          .ASCII  / 224 CCH/<224>
2073  015004  031040  032462  046440          .ASCII  / 225 MW /<225>
2074  015015     040  031062  020066          .ASCII  / 226 SPA/<226>
2075  015026  031040  033462  042440          .ASCII  / 227 EPA/<227>
2076  015037     040  031462  020060          .ASCII  / 230    /<230>
2077  015050  031040  030463  020040          .ASCII  / 231    /<231>
2078  015061     040  031462  020062          .ASCII  / 232    /<232>
2079  015072  031040  031463  041440          .ASCII  / 233 CSI/<233>
2080  015103     040  031462  020064          .ASCII  / 234 ST /<234>
2081  015114  031040  032463  047440          .ASCII  / 235 OSC/<235>
2082  015125     040  031462  020066          .ASCII  / 236 PM /<236>
2083  015136  031040  033463  040440          .ASCII  / 237 APC/<237>
2085          015150                          .EVEN
```

```
2086  015150  000000                  NUM:    .WORD 0
2087
2088                                  .LIST BEX
2089  015152                          ENDTST
 (3)  015152                          L10013:
 (3)  015152  104401                          TRAP    C$ETST
2090
2091  015154                          ENDMOD
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102                                  .SBTTL PRINT CONTROL
2103                                  ;MODULE         PRNCON.P11
2104
2105  015154                          BGNMOD
2106                                  ;++
2107                                  ;THIS TEST CHECKS THE PRINT CONTROL BY SENDING MORE THAN 132 CHARACTERS
2108                                  ;BEFORE SENDING A CARRIAGE RETURN AND LINE FEED. ALL CHARACTERS IN EXCESS
2109                                  ;OF 132 CHARACTERS SHOULD BE DISREGARDED.
2110                                  ;
2111                                  ;THREE LINES ARE PRINTED PER ITERATION. THESE LINES WILL IDENTIFY THE
2112                                  ;COLUMN NUMBERS ACROSS THE PAGE. EXAMPLE :
2113                                  ;          0         0         0.....                1
2114                                  ;          1         2         3.....                3
2115                                  ;12345678901234567890123456789O.....                012
2116                                  ;
2117                                  ;NOTICE THAT THE PRINTOUT SHOULD IDENTIFY 132 COLUMNS ACROSS THE PAGE.
2118                                  ;
2119                                  ;THIS OUTPUT IS REPEATED 13 TIMES.
2120                                  ;--
2121  015154                          BGNTST  5
 (3)  015154                          T5::
2123  015154                          OUTPUT #DECFIN,#5                       ; TOGGLE PAPER OFFSET
2125  015216                          OUTPUT #REINIT,#2
2126  015260                          LET R1 := L$UNIT - #1
 (5)  015260  013701  002012                  MOV     L$UNIT,R1
 (7)  015264  005301                          DEC     R1
2127         000001                  $BRJMP=1
2128  015266                          INCR LUNIT FROM #0 TO R1 BY #1
 (5)  015266  005037  002310                  CLR     LUNIT
 (7)  015272  000402                          BR      50172$
 (6)  015274                          50171$:
 (8)  015274  005237  002310                  INC     LUNIT
 (6)  015300                          50172$:
 (7)  015300  023701  002310                  CMP     LUNIT,R1
 (9)  015304  003402                          BLE     50173$
 (7)  015306  000137  016144                  JMP     50174$
 (6)  015312                          50173$:
2129  015312                                  LET R2 := LUNIT SHIFT 1
```

```
  (5)  015312  013702  002310              MOV     LUNIT,R2
  (8)  015316  006302                      ASL     R2
2130   015320                              OUTPUI #PRTCTL,#61.,,LUNIT
2131   015362                              LET COUNT := #13.
  (4)  015362  012737  000015  002276      MOV     #13.,COUNT
2132   015370                              1$:
2133   015370                              LET R5 := #TABLE1
  (4)  015370  012705  016424              MOV     #TABLE1,R5
2134   015374                              WHILE (R5) NE #0 DO
  (4)  015374                      50175$:
  (6)  015374  005715                      TST     (R5)
  (8)  015376  001002                      BNE     .+6
  (9)  015400  000137  015446              JMP     50176$
2135   015404                                  OUTPUI (R5)+,#10.,,LUNIT
2136   015444                              ENDDO
  (3)  015444  000753                      BR      50175$
  (3)  015446                      50176$:
2137   015446                              LET OUTBUF :B= #12
  (4)  015446  112737  000012  003114      MOVB    #12,OUTBUF
2138   015454                              OUTPUI #OUTBUF,#1,,LUNIT
2139
2140   015516                              LET R5 := #TABLE2
  (4)  015516  012705  016460              MOV     #TABLE2,R5
2141   015522                              WHILE (R5) NE #0 DO
  (4)  015522                      50177$:
  (6)  015522  005715                      TST     (R5)
  (8)  015524  001002                      BNE     .+6
  (9)  015526  000137  015574              JMP     50200$
2142   015532                                  OUTPUI (R5)+,#10.,,LUNIT
2143   015572                              ENDDO
  (3)  015572  000753                      BR      50177$
  (3)  015574                      50200$:
2144   015574                              OUTPUI #OUTBUF,#1,,LUNIT
2145
2146   015636                              DECR LINCNT FROM #14. TO #1 BY #1
  (5)  015636  012737  000016  002272      MOV     #14.,LINCNT
  (7)  015644  000402                      BR      50202$
  (6)  015646                      50201$:
  (8)  015646  005337  002272              DEC     LINCNT
  (6)  015652                      50202$:
  (7)  015652  023727  002272  000001      CMP     LINCNT,#1
  (9)  015660  002002                      BGE     50203$
  (7)  015662  000137  015732              JMP     50204$
  (6)  015666                      50203$:
2147   015666                                  OUTPUI #X11,#10.,,LUNIT
2148   015730                              ENDDECR
  (4)  015730  000746                      BR      50201$
  (4)  015732                      50204$:
2149   015732                              OUTPUI #OUTBUF,#1,,LUNIT
2150   015774                              OUTPUI #OUTBUF,#1,,LUNIT
2151   016036                              LET COUNT := COUNT - #1
  (7)  016036  005337  002276              DEC     COUNT
2152   016042                              IF COUNT GT #0 THEN
  (6)  016042  005737  002276              TST     COUNT
  (8)  016046  003002                      BGT     .+6
  (9)  016050  000137  016060              JMP     50205$
```

```
2153  016054  000137  015370                                  JMP 1$
2154  016060                                                  ENDIF
 (4)  016060                          50205$:
2155  016060  004737  005306                                  JSR PC, QUIET
2156  016064                                                  LET OUTBUF :B= 014
 (4)  016064  112737  000014  003114          MOVB            014,OUTBUF
2157  016072                                                  OUTPUT  @OUTBUF,#1,,LUNIT
2158  016134  004737  005306                                  JSR PC,QUIET
2159  016140                          ENDINCR
 (4)  016140  000137  015274                    JMP           50171$
 (4)  016144                          50174$:
2160          177777                  $BRJMP=-1
2161  016144                          EXIT TST
 (3)  016144  104432                            TRAP          C$EXIT
 (3)  016146  000346                            .WORD         L10014-.
2162                                  .NLIST BEX
2163  016150  055433  030061  050155  PRTCTL:    .ASCII <33>/[10mPRINT CONTROL TEST  5/ <12>
2164  016203     123  047510  046125            .ASCIZ  /SHOULD SHOW 132 COLUMNS PRINTED/<12><12><15>
2165
2166  016246  020040  020040  020040  X0:       .ASCII  /          0/
2167  016260  020040  020040  020040  X1:       .ASCII  /          1/
2168  016272  020040  020040  020040  X2:       .ASCII  /          2/
2169  016304  020040  020040  020040  X3:       .ASCII  /          3/
2170  016316  020040  020040  020040  X4:       .ASCII  /          4/
2171  016330  020040  020040  020040  X5:       .ASCII  /          5/
2172  016342  020040  020040  020040  X6:       .ASCII  /          6/
2173  016354  020040  020040  020040  X7:       .ASCII  /          7/
2174  016366  020040  020040  020040  X8:       .ASCII  /          8/
2175  016400  020040  020040  020040  X9:       .ASCII  /          9/
2176
2177  016412  031061  032063  033065  X11:      .ASCII  /1234567890/
2178
2179                                  .EVEN
2180  016424  016246  016246  016246  TABLE1:   .WORD   X0,X0,X0,X0,X0,X0,X0,X0,X0,X1,X1,X1,X1,0
2181  016460  016260  016272  016304  TABLE2:   .WORD   X1,X2,X3,X4,X5,X6,X7,X8,X9,X0,X1,X2,X3,0
2182                                            .EVEN
2183
2184                                  .LIST BEX
2185  016514                          ENDTST
 (3)  016514                          L10014:
 (3)  016514  104401                            TRAP          C$ETST
2186  016516                          ENDMOD
2187
2188
2189
2190
2191
2192
2193
2194
2195
2196
2197                                  .SBTTL  MULTIPLE LINE ADVANCE
2198                                  ;MODULE         MULTLI.P11
2199
2200  016516                          BGNMOD
```

```
2201                                    ;++
2202                                    ;THIS TEST CHECKS THE MULTIPLE LINE ADVANCE OF THE LNO1. A LINE OF
2203                                    ;NUMBERS IS SENT AND THEN A NUMBER OF LINE FEEDS ARE SENT. THUS THE
2204                                    ;NUMBER PRINTED WILL INDICATE THE NUMBER OF BLANK LINES FOLLOWING THAT
2205                                    ;LINE. THE NUMBER OF LINES IS VARIED BETWEEN 2 AND 7 AND A LINE OF
2206                                    ;ALL 0'S WILL INDICATE THE END OF THE TEST  SEQUENCE.
2207                                    ;-
2208
2209
2210  016516                            BGNTST  6
 (3)  016516                            T6::
2211
2212                                    ;PRINT TEST IDENTIFICATION
2213
2215  016516                            OUTPUT #DECFIN,#5                ; TOGGLE PAPER OFFSET
2217  016560                            OUTPUT #REINIT,#2
2218  016622                            OUTPUT #MULINE,#91.
2219
2220  016664                            LET STACHR := #TABSTR            ;OUTPUT CHARACTERS
 (4)  016664  012737  017142  017140          MOV     #TABSTR,STACHR
2221
2222  016672                            REPEAT
 (3)  016672                            50206$:
2223  016672                                LET LINCNT :B= @STACHR               ;GET A CHARACTER TO OUTPUT
 (4)  016672  117737  000242  002272          MOVB    @STACHR,LINCNT
2224  016700                                LET LINCNT := LINCNT AND #7 ;MAKE THE ASCII TO OCTAL
 (7)  016700  013746  002272                  MOV     LINCNT,-(SP)
 (7)  016704  042716  000007                  BIC     #7,(SP)
 (7)  016710  042637  002272                  BIC     (SP)+,LINCNT
2225  016714                                LET R3 := #OUTBUF                ;SET UP OUTPUT BUFFER
 (4)  016714  012703  003114                  MOV     #OUTBUF,R3
2226  016720                                INCR CCNT FROM #1 TO #132. BY #1
 (5)  016720  012737  000001  002300          MOV     #1,CCNT
 (7)  016726  000402                          BR      50207$
 (6)  016730                            50210$:
 (10) 016730  005237  002300                  INC     CCNT
 (7)  016734                            50207$:
 (7)  016734  023727  002300  000204          CMP     CCNT,#132.
 (9)  016742  003003                          BGT     50211$
2227  016744                                    LET (R3)+ :B= @STACHR            ;PUT CHARACTER  IN OUTPUT BUFFER
 (4)  016744  117723  000170                  MOVB    @STACHR,(R3)+
2228  016750                                ENDINC
 (5)  016750  000767                          BR      50210$
 (4)  016752                            50211$:
2229  016752                                LET R4 := #0
 (4)  016752  005004                          CLR     R4
2230  016754                                WHILE R4 NE LINCNT DO
 (4)  016754                            50212$:
 (6)  016754  020437  002272                  CMP     R4,LINCNT
 (10) 016760  001404                          BEQ     50213$
2231  016762                                    LET (R3)+ :B= #12                ;FILL WITH LINE FEEDS
 (4)  016762  112723  000012                  MOVB    #12,(R3)+
2232  016766                                    LET R4 := R4 + #1
 (7)  016766  005204                          INC     R4
2233  016770                                ENDDO
 (4)  016770  000771                          BR      50212$
```

```
 (3)  016772                          50213$:
2234
2235                                 ;NOW OUTPUT THE ACTUAL LINE
2236
2237  016772                             LET R4 := LINCNT + #132.          ;NUMBER OF CHARACTERS TO OUTPUT
 (5)  016772  013704  002272                MOV     LINCNT,R4
 (7)  016776  062704  000204                ADD     #132.,R4
2238  017002                             LET STACHR := STACHR + #1          ; UPDATE CHARACTER COUNT
 (7)  017002  005237  017140                INC     STACHR
2239  017006                             OUTPUT #OUTBUF,R4                  ;OUTPUT THE LINE
2240  017046  004737  005306             JSR PC,     QUIET
2241
2242  017052                             UNTIL LINCNT EQ #0
 (3)  017052  005737  002272                TST     LINCNT
 (7)  017056  001305                        BNE     50206$
2243  017060                             LET OUTBUF :B= #14
 (4)  017060  112737  000014  003114        MOVB    #14,OUTBUF
2244  017066                             OUTPUT #OUTBUF,#1
2245  017130  004737  005306             JSR PC,QUIET
2246  017134                             EXIT TST
 (3)  017134  104432                        TRAP    C$EXIT
 (3)  017136  000156                        .WORD   L10015-.
2247
2248
2249  017140  000000                     STACHR: .WORD 0
2250                                     .NLIST BEX
2251  017142  033462  033062  033463     TABSTR: .ASCIZ  /272637463540/
2252  017157     033  030533  066460     MULINE: .ASCII  <33>/[10mMULTIPLE LINE ADVANCE TEST  6/<12>
2253  017222  052516  041115  051105             .ASCIZ  /NUMBERS PRINTED REPRESENT # LINES TO NEXT LINE PRINTED/<12><12>
2254
2255
2256
2257          017314                     .EVEN
2258                                     .LIST BEX
2259
2260  017314                             ENDTST
 (3)  017314                             L10015:
 (3)  017314  104401                        TRAP    C$ETST
2261  017316                             ENDMOD
2262
2263
2264
2265
2266
2267
2268
2269
2270
2271
2272                                     .SBTTL DVSTRIKE
2273  017316                             BGNMOD
2274                                     ;++
2275                                     ;THIS TEST WILL VERIFY CORRECT OPERATION OF THE PRINTER WHILE OPERATING
2276                                     ;JUST WITHIN OVERSTRIKE, LINE BUFFER AND PAGE BUFFER LIMITS.
2277                                     ;
2278                                     ;IN LANDSCAPE, UP TO 142 PRINTABLE CHARS/LINE ARE PERMITTED. WITH
```

```
2279                                ;A MAXIMUM OF FIVE CARRIAGE RETURNS/LINE. IN PORTRAIT, UP TO 150
2280                                ;CHARS/LINE WITH A MAXIMUM OF TWO CARRIAGE RETURNS/LINE ARE ALLOWED.
2281                                ;
2282                                ;       NOTE:
2283                                ;               THIS TEST IN A SOMEWHAT MODIFIED FORM IS BEING USED ALSO FOR
2284                                ;               THE VAX VERSION OF THE LN01 EXTENDED DIAGNOSTIC.
2285                                ;
2286                                ;
2287
2288  017316                        BGNTST 7
 (3)  017316                        T7::
2289
2291  017316                        OUTPUT #DECFIN,#5                               ; TOGGLE PAPER OFFSET
2293  017360                                OUTPUT #REINIT,#2
2294  017422                                OUTPUT #VPA,#6                          ; SET VERTICAL POSITION
2295  017464                                OUTPUT #PORSEL,#5                       ; SELECT PORTRAIT MODE
2296  017526                                OUTPUT #OVTEST,#19.                     ; IDENTIFY TEST
2297                                ;
2298                                ; OVERLAY TWO LINES OF SEVENTY-FIVE CHARS
2299                                ;
2300  017570                                INCR R1 FROM #1 TO #50. BY #1           ; 50 LINES
 (5)  017570  012701  000001                MOV     #1,R1
 (7)  017574  000401                        BR      50214$
 (6)  017576                        50215$:
 (10) 017576  005201                        INC     R1
 (7)  017600                        50214$:
 (7)  017600  020127  000062                CMP     R1,#50.
 (9)  017604  003105                        BGT     50216$
2301  017606                                   LET R4 := #OUTBUF
 (4)  017606  012704  003114                MOV     #OUTBUF,R4
2302  017612                                   INCR R2 FROM #1 TO #75. BY #1
 (5)  017612  012702  000001                MOV     #1,R2
 (7)  017616  000401                        BR      50217$
 (6)  017620                        50220$:
 (10) 017620  005202                        INC     R2
 (7)  017622                        50217$:
 (7)  017622  020227  000113                CMP     R2,#75.
 (9)  017626  003003                        BGT     50221$
2303  017630                                   LET (R4)+ :B= #57
 (4)  017630  112724  000057                MOVB    #57,(R4)+
2304  017634                                   ENDINC
 (5)  017634  000771                        BR      50220$
 (4)  017636                        50221$:
2305  017636                                   LET (R4)+ :B= #15
 (4)  017636  112724  000015                MOVB    #15,(R4)+
2306  017642                                   OUTPUT #OUTBUF,#76.
2307  017704  004737  005306                   JSR PC, QUIET
2308  017710                                   LET R4 := #OUTBUF
 (4)  017710  012704  003114                MOV     #OUTBUF,R4
2309  017714                                   INCR R2 FROM #1 TO #75. BY #1
 (5)  017714  012702  000001                MOV     #1,R2
 (7)  017720  000401                        BR      50222$
 (6)  017722                        50223$:
 (10) 017722  005202                        INC     R2
 (7)  017724                        50222$:
 (7)  017724  020227  000113                CMP     R2,#75.
```

```
 (9)  017730  003003                          BGT     50224$
                                                  LET (R4)+ :B= #134
 (4)  017732  112724  000134                  MOVB    #134,(R4)+
                                                ENDINC
 (5)  017736  000771                          BR      50223$
 (4)  017740                                50224$:
                                                LET (R4)+ :B= #15
 (4)  017740  112724  000015                  MOVB    #15,(R4)+
                                                LET (R4)+ :B= #12
 (4)  017744  112724  000012                  MOVB    #12,(R4)+
                                                OUTPUT #OUTBUF,#77.
                                                JSR PC, QUIET
                                              ENDINC
 (5)  020016  000667                          BR      50215$
 (4)  020020                                50216$:
                                              LET OUTBUF :B= #14
 (4)  020020  112737  000014  003114          MOVB    #14,OUTBUF
                                              OUTPUT #OUTBUF,#1
                                              JSR PC, QUIET
                                            ;
                                            ; OVERLAY TWO LINES OF SEVENTY-ONE CHARS
                                            ;
                                              OUTPUT #LANSEL,#5                    ; SELECT LANDSCAPE MODE
                                              INCR R3 FROM #1 TO #66. BY #1        ; 66 LINES OF OVERPRINTING
 (5)  020136  012703  000001                  MOV     #1,R3
 (7)  020142  000401                          BR      50225$
 (6)  020144                                50226$:
 (10) 020144  005203                          INC     R3
 (7)  020146                                50225$:
 (7)  020146  020327  000102                  CMP     R3,#66.
 (9)  020152  003105                          BGT     50227$
                                                LET R4 := #OUTBUF
 (4)  020154  012704  003114                  MOV     #OUTBUF,R4
                                                INCR R2 FROM #1 TO #71. BY #1
 (5)  020160  012702  000001                  MOV     #1,R2
 (7)  020164  000401                          BR      50230$
 (6)  020166                                50231$:
 (10) 020166  005202                          INC     R2
 (7)  020170                                50230$:
 (7)  020170  020227  000107                  CMP     R2,#71.
 (9)  020174  003003                          BGT     50232$
                                                  LET (R4)+ :B= #57
 (4)  020176  112724  000057                  MOVB    #57,(R4)+
                                                ENDINC
 (5)  020202  000771                          BR      50231$
 (4)  020204                                50232$:
                                                LET (R4)+ :B= #15
 (4)  020204  112724  000015                  MOVB    #15,(R4)+
                                                OUTPUT #OUTBUF,#72.
                                                JSR PC, QUIET
                                                LET R4 := #OUTBUF
 (4)  020256  012704  003114                  MOV     #OUTBUF,R4
                                                INCR R2 FROM #1 TO #71. BY #1
 (5)  020262  012702  000001                  MOV     #1,R2
 (7)  020266  000401                          BR      50233$
 (6)  020270                                50234$:
```

```
 (10) 020270  005202                    INC     R2
  (7) 020272                        50233$:
  (7) 020272  020227  000107            CMP     R2,#71.
  (9) 020276  003003                    BGT     50235$
2334  020300                                LET (R4)+ :B= #134
  (4) 020300  112724  000134            MOVB    #134,(R4)+
2335  020304                                ENDINC
  (5) 020304  000771                    BR      50234$
  (4) 020306                        50235$:
2336  020306                                LET (R4)+ :B= #15
  (4) 020306  112724  000015            MOVB    #15,(R4)+
2337  020312                                LET (R4)+ :B= #12
  (4) 020312  112724  000012            MOVB    #12,(R4)+
2338  020316                                OUTPUT #OUTBUF,#73.
2339  020360  004737  005306                JSR PC, QUIET
2340  020364                                ENDINC
  (5) 020364  000667                    BR      50226$
  (4) 020366                        50227$:
2341  020366                            EXIT TST
  (3) 020366  104432                        TRAP    C$EXIT
  (3) 020370  000046                        .WORD   L10016-.
2342                                .NLIST BEX
2343  020372  053117  051105  052123  OVTEST: .ASCIZ  /OVERSTRIKE TEST 7/<12><12>
2344  020416     033     133     061  LANSEL: .BYTE 33,133,61,60,155
2345  020423     033     133     061  PORSEL: .BYTE 33,133,61,61,155
2346  020430     033     133     063  VPA:    .BYTE 33,133,63,60,60,104
2347                                .EVEN
2348  020436                            ENDTST
  (3) 020436                        L10016:
  (3) 020436  104401                        TRAP    C$ETST
2349                                .LIST BEX
2350  020440                            ENDMOD
2351                                .SBTTL  READY LINE INTERLOCKS   TEST 8
2352                                ;MODULE         OLDLCK.P11
2353
2354  020440                            BGNMOD
2355                                ;++
2356                                ;THIS TEST CHECKS THE OPERATION OF THE
2357                                ;PRINTER READY INTERLOCK SWITCHES.
2358                                ;MANUAL INTERVENTION IS USED TO
2359                                ;OPEN THE INTERLOCKS TO PRODUCE FAULTS
2360                                ;IN THE PRINTER AFTER WHICH THE RESULTANT ERROR
2361                                ;INDICATION IS VERIFIED.
2362                                ;--
2363
2364  020440                            BGNTST  8.
  (3) 020440                        T8::
2365                                ;DETERMINE IF MANUAL INTERVENTION IS ALLOWED
2366  020440                                MANUAL
  (3) 020440  104450                        TRAP    C$MANI
2367  020442                                BCOMPLETE 11$
  (2) 020442  103402                        BCS     11$
2368  020444                                EXIT TST
  (3) 020444  104432                        TRAP    C$EXIT
  (3) 020446  003026                        .WORD   L10017-.
2369                                ;EXIT TEST IF MANUAL INTERVENTION TESTS ARE NOT SPECIFIED
```

```
2370  020450                          11$:    IF INHINT EQ #0 THEN
 (6)  020450  005737  002264                  TST     INHINT
 (10) 020454  001002                  BNE     50236$
2371  020456                          EXIT TST
 (3)  020456  104432                  TRAP    C$EXIT
 (3)  020460  003014                  .WORD   L10017-.
2372  020462                          ENDIF
 (4)  020462                     50236$:
2373  020462                          LET FLAG := #0
 (4)  020462  005037  002270          CLR     FLAG
2374  020466                          LET R1 := L$UNIT - #1
 (5)  020466  013701  002012          MOV     L$UNIT,R1
 (7)  020472  005301                  DEC     R1
2375
2376                                 ;CHECK FOR ERROR IN EACH PRINTER UNDER TEST
2377  020474                             INCR LUNIT FROM #0 TO R1 BY #1
 (5)  020474  005037  002310          CLR     LUNIT
 (7)  020500  000402                  BR      50237$
 (6)  020502                     50240$:
 (10) 020502  005237  002310          INC     LUNIT
 (7)  020506                     50237$:
 (7)  020506  023701  002310          CMP     LUNIT,R1
 (9)  020512  003020                  BGT     50241$
2378  020514                          LET R2 := LUNIT SHIFT 1
 (5)  020514  013702  002310          MOV     LUNIT,R2
 (8)  020520  006302                  ASL     R2
2379  020522                          IF #BIT15 SETIN @LPCSR(R2) THEN
 (6)  020522  032772  100000  002352  BIT     #BIT15,@LPCSR(R2)
 (10) 020530  001410                  BEQ     50242$
2380  020532                                  LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  020532  005262  003050          INC     ERRTBL(R2)
2381  020536                                  ERRHRD 6, CSRERR
 (4)  020536  104456                  TRAP    C$ERHRD
 (5)  020540  000006                  .WORD   6
 (5)  020542  003342                  .WORD   CSRERR
 (5)  020544  000000                  .WORD   0
2382  020546                                  LET @LPCSR(R2) := #0
 (4)  020546  005072  002352          CLR     @LPCSR(R2)
2383  020552                          ENDIF
 (4)  020552                     50242$:
2384  020552                         ENDINC
 (5)  020552  000753                  BR      50240$
 (4)  020554                     50241$:
2385                                 ;
2386                                 ; PRINT TEST NAME
2387                                 ;
2388  020554                             OUTPUT #INTLK,#28.
2389  020616                             OUTPUT #BLANK,#44.
2390                                 ;VERIFY OPERATION OF PAPER OUT INTERLOCK SWITCH
2391                                 ;HARD CODED INCREMENT LOOP
2392                                 ;
2393  020660                                 LET ERRFLG := #0
 (4)  020660  005037  002334          CLR     ERRFLG
2394  020664  005037  002310             CLR LUNIT
2395  020670  000405                     BR  1$
2396  020672                         2$:
```

```
2397  020672  005237  002310            INC LUNIT
2398  020676                            LET R2 := LUNIT SHIFT 1
 (5)  020676  013702  002310                MOV     LUNIT,R2
 (8)  020702  006302                        ASL     R2
2399  020704                        1$:
2400  020704  023701  002310            CMP LUNIT,R1
2401  020710  003402                    BLE 3$
2402  020712  000137  021444            JMP 4$
2403  020716                        3$:
2404  020716                            LET FLAG := #0
 (4)  020716  005037  002270                CLR     FLAG
2405  020722                            PRINTF #PAPRSW
 (7)  020722  012746  022356                MOV     #PAPRSW,-(SP)
 (6)  020726  012746  000001                MOV     #1,-(SP)
 (3)  020732  010600                        MOV     SP,R0
 (4)  020734  104417                        TRAP    C$PNTF
 (4)  020736  062706  000004                ADD     #4,SP
2406  020742                            PRINTF #PAPSW1,LUNIT
 (8)  020742  013746  002310                MOV     LUNIT,-(SP)
 (7)  020746  012746  022462                MOV     #PAPSW1,-(SP)
 (6)  020752  012746  000002                MOV     #2,-(SP)
 (3)  020756  010600                        MOV     SP,R0
 (4)  020760  104417                        TRAP    C$PNTF
 (4)  020762  062706  000006                ADD     #6,SP
2407  020766                            PRINTF #PAPSW2
 (7)  020766  012746  022542                MOV     #PAPSW2,-(SP)
 (6)  020772  012746  000001                MOV     #1,-(SP)
 (3)  020776  010600                        MOV     SP,R0
 (4)  021000  104417                        TRAP    C$PNTF
 (4)  021002  062706  000004                ADD     #4,SP
2408  021006                            GMANIL READY, FLAG, 100000, YES
 (3)  021006  104443                        TRAP    C$GMAN
 (3)  021010  000404                        BR      10000$
 (4)  021012  002270                        .WORD   FLAG
 (5)  021014  000130                        .WORD   T$CODE
 (5)  021016  007006                        .WORD   READY
 (5)  021020  100000                        .WORD   100000
 (3)  021022                        10000$:
2409  021022                            LET LINCNT := #2        ; LINE COUNT WILL ALLOW FOR 3 PAGES OF PAPER
 (4)  021022  012737  000002  002272        MOV     #2,LINCNT
2410  021030                            LET ERRFLG := #0
 (4)  021030  005037  002334                CLR     ERRFLG
2411  021034                            REPEAT
 (3)  021034                        50243$:
2412  021034                                OUTPUI #PAPTST,#2,#5$,LUNIT
2413  021076                                LET LINCNT := LINCNT + #1
 (7)  021076  005237  002272                INC     LINCNT
2414  021102                                IF LINCNT EQ #65. OR LINCNT EQ #130. OR LINCNT EQ #195. THEN
 (6)  021102  023727  002272  000101        CMP     LINCNT,#65.
 (8)  021110  001410                        BEQ     50244$
 (6)  021112  023727  002272  000202        CMP     LINCNT,#130.
 (8)  021120  001404                        BEQ     50244$
 (6)  021122  023727  002272  000303        CMP     LINCNT,#195.
 (10) 021130  001024                        BNE     50245$
 (6)  021132                        50244$:
2415  021132                                LET OUTBUF := #14                       ; FORM FEED
```

```
 (4)  021132  012737  000014  003114          MOV     #14,OUTBUF
2416  021140                                      OUTPUI #OUTBUF,#1,5$,LUNIT              ; OUTPUT THE FORM FEED
2417  021202                                  ENDIF
 (4)  021202                              50245$:
2418  021202                                  UNTIL LINCNT EQ #260. OR ERRFLG NE #0       ; UNTIL FOUR PAGES PRINTED OR IN
 (4)  021202  023727  002272  000404          CMP     LINCNT,#260.
 (6)  021210  001403                          BEQ     50246$
 (4)  021212  005737  002334                  TST     ERRFLG
 (8)  021216  001706                          BEQ     50243$
 (4)  021220                              50246$:
2419  021220                                  IF ERRFLG EQ #0 THEN
 (6)  021220  005737  002334                  TST     ERRFLG
(10)  021224  001035                          BNE     50247$
2420  021226                                      LET OUTBUF := #14                       ; FORM FEED
 (4)  021226  012737  000014  003114          MOV     #14,OUTBUF
2421  021234                                      OUTPUI #OUTBUF,#1,5$,LUNIT              ; OUTPUT THE FF
2422  021276                                      ERRHRD 8,PAPSWI
 (4)  021276  104456                          TRAP    C$ERHRD
 (5)  021300  000010                          .WORD   8
 (5)  021302  003402                          .WORD   PAPSWI
 (5)  021304  000000                          .WORD   0
2423  021306                                      LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  021306  005262  003050                  INC     ERRTBL(R2)
2424  021312                                      INLINE      <JMP    11002$>
 (2)  021312  000137  021324                  JMP     11002$
2425  021316                                  ELSE
 (4)  021316  000402                          BR      50250$
 (3)  021320                              50247$:
2426  021320                                      LET ERRFLG := #0
 (4)  021320  005037  002334                  CLR     ERRFLG
2427  021324                                  ENDIF
 (4)  021324                              50250$:
2428  021324                              11002$: PRINTF #PAPRDY,LUNIT
 (8)  021324  013746  002310                  MOV     LUNIT,-(SP)
 (7)  021330  012746  022604                  MOV     #PAPRDY,-(SP)
 (6)  021334  012746  000002                  MOV     #2,-(SP)
 (3)  021340  010600                          MOV     SP,R0
 (4)  021342  104417                          TRAP    C$PNTF
 (4)  021344  062706  000006                  ADD     #6,SP
2429  021350                                  LET FLAG := #0
 (4)  021350  005037  002270                  CLR     FLAG
2430  021354                                  GMANIL READY,FLAG,100000,YES
 (3)  021354  104443                          TRAP    C$GMAN
 (3)  021356  000404                          BR      10001$
 (4)  021360  002270                          .WORD   FLAG
 (5)  021362  000130                          .WORD   T$CODE
 (5)  021364  007006                          .WORD   READY
 (5)  021366  100000                          .WORD   100000
 (3)  021370                              10001$:
2431  021370                                  LET R2 := LUNIT SHIFT 1
 (5)  021370  013702  002310                  MOV     LUNIT,R2
 (8)  021374  006302                          ASL     R2
2432  021376                                  LET @LPCSR(R2) := #0                    ; RESET THE LP CSR
 (4)  021376  005072  002352                  CLR     @LPCSR(R2)
2433  021402  000137  020672                  JMP 2$
2434                                    ;EXPECTED ERROR HANDLER.
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2435                                    ;JUST SET EXPECTED ERROR INDICATOR.
2436                                    ;
2437  021406                            5$:     LET ERRFLG := #1
 (4)  021406  012737  000001  002334           MOV     #1,ERRFLG
2438  021414                                    LET ERRCOD := #0
 (4)  021414  005037  002332                    CLR     ERRCOD
2439  021420                                    LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR!ACTIVE
 (7)  021420  042762  120000  002506           BIC     #ERROR!ACTIVE,STATUS(R2)
2440  021426                                    LET CURCNT(R2) := #0    ; CLEAN UP THE DRIVER PARAMETERS
 (4)  021426  005062  002746                    CLR     CURCNT(R2)
2441  021432                                    LET CURADD(R2) := #0
 (4)  021432  005062  002546                    CLR     CURADD(R2)
2442  021436                                    LET REPCNT(R2) := #0
 (4)  021436  005062  002646                    CLR     REPCNT(R2)
2443  021442  000207                           RTS PC                          ;AND RETURN
2444                                    ;VERIFY OPERATION OF PAPER TRAY HANDLE INTERLOCK SWITCH.
2445  021444                            4$:    INCR LUNIT FROM #0 TO R1 BY #1
 (5)  021444  005037  002310                    CLR     LUNIT
 (7)  021450  000402                           BR      50251$
 (6)  021452                            50252$:
 (10) 021452  005237  002310                    INC     LUNIT
 (7)  021456                            50251$:
 (7)  021456  023701  002310                    CMP     LUNIT,R1
 (9)  021462  003117                            BGT     50253$
2446  021464                                    LET R2 := LUNIT SHIFT 1
 (5)  021464  013702  002310                    MOV     LUNIT,R2
 (8)  021470  006302                            ASL     R2
2447  021472                                    LET L$LUN := LUNIT
 (4)  021472  013737  002310  002074           MOV     LUNIT,L$LUN
2448  021500                                    LET FLAG := #0
 (4)  021500  005037  002270                    CLR     FLAG
2449  021504                                    PRINTF #HANRSW
 (7)  021504  012746  022675                    MOV     #HANRSW,-(SP)
 (6)  021510  012746  000001                    MOV     #1,-(SP)
 (3)  021514  010600                            MOV     SP,R0
 (4)  021516  104417                            TRAP    C$PNTF
 (4)  021520  062706  000004                    ADD     #4,SP
2450  021524                                    PRINTF #HANSW1,LUNIT
 (8)  021524  013746  002310                    MOV     LUNIT,-(SP)
 (7)  021530  012746  023006                    MOV     #HANSW1,-(SP)
 (6)  021534  012746  000002                    MOV     #2,-(SP)
 (3)  021540  010600                            MOV     SP,R0
 (4)  021542  104417                            TRAP    C$PNTF
 (4)  021544  062706  000006                    ADD     #6,SP
2451  021550                                    PRINTF #HANSW2
 (7)  021550  012746  023073                    MOV     #HANSW2,-(SP)
 (6)  021554  012746  000001                    MOV     #1,-(SP)
 (3)  021560  010600                            MOV     SP,R0
 (4)  021562  104417                            TRAP    C$PNTF
 (4)  021564  062706  000004                    ADD     #4,SP
2452  021570                                    GMANIL READY, FLAG, 100000, YES
 (3)  021570  104443                            TRAP    C$GMAN
 (3)  021572  000404                            BR      10002$
 (4)  021574  002270                            .WORD   FLAG
 (5)  021576  000130                            .WORD   T$CODE
 (5)  021600  007006                            .WORD   READY
```

```
  (5)  021602  100000                          .WORD   100000
  (3)  021604                          10002$:
2453   021604                                 IF @BIT15 SETIN @LPCSR(R2) THEN
  (6)  021604  032772  100000  002352         BIT     @BIT15,@LPCSR(R2)
  (10) 021612  001431                         BEQ     50254$
2454   021614                                 PRINTF @HANRDY
  (7)  021614  012746  023132                MOV     @HANRDY,-(SP)
  (6)  021620  012746  000001                MOV     #1,-(SP)
  (3)  021624  010600                        MOV     SP,R0
  (4)  021626  104417                        TRAP    C$PNTF
  (4)  021630  062706  000004                ADD     #4,SP
2455   021634                                 PRINTF @HANRD1,LUNIT
  (8)  021634  013746  002310                MOV     LUNIT,-(SP)
  (7)  021640  012746  023217                MOV     @HANRD1,-(SP)
  (6)  021644  012746  000002                MOV     #2,-(SP)
  (3)  021650  010600                        MOV     SP,R0
  (4)  021652  104417                        TRAP    C$PNTF
  (4)  021654  062706  000006                ADD     #6,SP
2456   021660                                 GMANIL READY, FLAG, 100000, YES
  (3)  021660  104443                        TRAP    C$GMAN
  (3)  021662  000404                        BR      10003$
  (4)  021664  002270                        .WORD   FLAG
  (5)  021666  000130                        .WORD   T$CODE
  (5)  021670  007006                        .WORD   READY
  (5)  021672  100000                        .WORD   100000
  (3)  021674                          10003$:
2457   021674                                 ELSE
  (4)  021674  000411                        BR      50255$
  (3)  021676                          50254$:
2458   021676                                 LET ERRTBL(R2) := ERRTBL(R2) + #1
  (7)  021676  005262  003050                INC     ERRTBL(R2)
2459   021702                                 LET L$LUN := LUNIT
  (4)  021702  013737  002310  002074         MOV     LUNIT,L$LUN
2460   021710                                 ERRHRD 9,HANSWI
  (4)  021710  104456                        TRAP    C$ERHRD
  (5)  021712  000011                        .WORD   9
  (5)  021714  003503                        .WORD   HANSWI
  (5)  021716  000000                        .WORD   0
2461   021720                                 ENDIF
  (4)  021720                          50255$:
2462   021720                              ENDINC
  (5)  021720  000654                        BR      50252$
  (4)  021722                          50253$:
2463                                   ;VERIFY OPERATION OF FRONT DOOR INTERLOCK SWITCH.
2464   021722                              INCR LUNIT FROM #0 TO R1 BY #1
  (5)  021722  005037  002310                CLR     LUNIT
  (7)  021726  000402                        BR      50256$
  (6)  021730                          50257$:
  (10) 021730  005237  002310                INC     LUNIT
  (7)  021734                          50256$:
  (7)  021734  023701  002310                CMP     LUNIT,R1
  (9)  021740  003107                        BGT     50260$
2465   021742                                 LET R2 := LUNIT SHIFT 1
  (5)  021742  013702  002310                MOV     LUNIT,R2
  (8)  021746  006302                        ASL     R2
2466   021750                                 LET FLAG := #0
```

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 (4)  021750  005037  002270                    CLR     FLAG
2467  021754                                    PRINTF @DOORSW,LUNIT
 (8)  021754  013746  002310                    MOV     LUNIT,-(SP)
 (7)  021760  012746  023265                    MOV     @DOORSW,-(SP)
 (6)  021764  012746  000002                    MOV     #2,-(SP)
 (3)  021770  010600                            MOV     SP,R0
 (4)  021772  104417                            TRAP    C$PNTF
 (4)  021774  062706  000006                    ADD     #6,SP
2468  022000                                    PRINTF @DOOSW1
 (7)  022000  012746  023342                    MOV     @DOOSW1,-(SP)
 (6)  022004  012746  000001                    MOV     #1,-(SP)
 (3)  022010  010600                            MOV     SP,R0
 (4)  022012  104417                            TRAP    C$PNTF
 (4)  022014  062706  000004                    ADD     #4,SP
2469  022020                                    GMANIL READY, FLAG, 100000, YES
 (3)  022020  104443                            TRAP    C$GMAN
 (3)  022022  000404                            BR      10004$
 (4)  022024  002270                            .WORD   FLAG
 (5)  022026  000130                            .WORD   T$CODE
 (5)  022030  007006                            .WORD   READY
 (5)  022032  100000                            .WORD   100000
 (3)  022034                          10004$:
2470  022034                                    IF @BIT15 SETIN @LPCSR(R2) THEN
 (6)  022034  032772  100000  002352            BIT     @BIT15,@LPCSR(R2)
 (10) 022042  001431                            BEQ     50261$
2471  022044                                    PRINTF @DOORDY,LUNIT
 (8)  022044  013746  002310                    MOV     LUNIT,-(SP)
 (7)  022050  012746  023372                    MOV     @DOORDY,-(SP)
 (6)  022054  012746  000002                    MOV     #2,-(SP)
 (3)  022060  010600                            MOV     SP,R0
 (4)  022062  104417                            TRAP    C$PNTF
 (4)  022064  062706  000006                    ADD     #6,SP
2472  022070                                    PRINTF @DOORD1
 (7)  022070  012746  023441                    MOV     @DOORD1,-(SP)
 (6)  022074  012746  000001                    MOV     #1,-(SP)
 (3)  022100  010600                            MOV     SP,R0
 (4)  022102  104417                            TRAP    C$PNTF
 (4)  022104  062706  000004                    ADD     #4,SP
2473  022110                                    GMANIL READY, FLAG, 100000, YES
 (3)  022110  104443                            TRAP    C$GMAN
 (3)  022112  000404                            BR      10005$
 (4)  022114  002270                            .WORD   FLAG
 (5)  022116  000130                            .WORD   T$CODE
 (5)  022120  007006                            .WORD   READY
 (5)  022122  100000                            .WORD   100000
 (3)  022124                          10005$:
2474  022124                                    ELSE
 (4)  022124  000411                            BR      50262$
 (3)  022126                          50261$:
2475  022126                                    LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  022126  005262  003050                    INC     ERRTBL(R2)
2476  022132                                    LET L$LUN := LUNIT
 (4)  022132  013737  002310  002074            MOV     LUNIT,L$LUN
2477  022140                                    ERRHRD 10, DOOSWI
 (4)  022140  104456                            TRAP    C$ERHRD
 (5)  022142  000012                            .WORD   10
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 (5)  022144  003556                          .WORD   DOOSWI
 (5)  022146  000000                          .WORD   0
2478  022150                                  ENDIF
 (4)  022150                          50262$:
2479  022150                                  LET SLPCSR(R2) := #00
 (4)  022150  012772  000000  002352          MOV     #00,SLPCSR(R2)
2480  022156                              ENDINC
 (5)  022156  000664                          BR      50257$
 (4)  022160                          50260$:
2481  022160                              LET CURCNT(R2) := #0
 (4)  022160  005062  002746                  CLR     CURCNT(R2)
2482  022164                              LET OUTBUF := #14
 (4)  022164  012737  000014  003114          MOV     #14,OUTBUF
2483  022172                              OUTPUT #OUTBUF,#1
2484  022234  004737  005306                JSR PC,QUIET
2485  022240                              EXIT TST
 (3)  022240  104432                          TRAP    C$EXIT
 (3)  022242  001232                          .WORD   L10017-.
2486
2487                                    .NLIST BEX
2488
2489  022244  042522  042101  020131  INTLK:  .ASCIZ  /READY LINE INTERLOCK TEST 8/<12>
2490  022301     124  044510  020123  BLANK:  .ASCIZ  /THIS PAGE WILL BE FOLLOWED BY 3 BLANK PAGES/<12>
2491  022356  047045  040445  043101  PAPRSW: .ASCIZ  /%N%AAFTER PRINTING STOPS - REMOVE ALL PAPER FROM BOTH PAPER TRAYS%N/
2492  022462  040445  044527  044124  PAPSW1: .ASCIZ  /%AWITH EXCEPTION OF ONE PER TRAY ON LUNIT %D2%N/
2493  022542  040445  047524  041440  PAPSW2: .ASCIZ  /%ATO CHECK PAPER OUT INTERLOCK.%N/
2494  022604  047045  040445  042522  PAPRDY: .ASCIZ  /%N%ARESTORE PAPER, CLEAR, PLACE LUNIT %D2%A ON LINE.%N/
2495  022673     040     012          PAPTST: .BYTE   40,12
2496  022675     045  022516  040501  HANRSW: .ASCIZ  /%N%AAFTER PRINTING STOPS - TURN PAPER TRAY HANDLE COUNTER CLOCKWISE TO%
2497  023006  040445  047510  044522  HANSW1: .ASCIZ  /%AHORIZONTAL POSITION UNTIL IT STOPS, ON LUNIT %D2%N/
2498  023073     045  052101  020117  HANSW2: .ASCIZ  /%ATO CHECK INTERLOCK SWITCH.%N/
2499  023132  047045  040445  042522  HANRDY: .ASCIZ  /%N%ARETURN PAPER TRAY HANDLE TO VERTICAL POSITION,%N/
2500  023217     045  041501  042514  HANRD1: .ASCIZ  /%ACLEAR, PLACE LUNIT %D2%A ON LINE.%N/
2501  023265     045  022516  047501  DOORSW: .ASCIZ  /%N%AOPEN FRONT DOOR ON LUNIT %D2%A TO CHECK /
2502  023342  047045  040445  047111  DOOSW1: .ASCIZ  /%N%AINTERLOCK SWITCH.%N/
2503  023372  047045  040445  046103  DOORDY: .ASCIZ  /%N%ACLOSE FRONT DOOR ON LUNIT %D2%A,%N/
2504  023441     045  041501  042514  DOORD1: .ASCIZ  /%ACLEAR, PLACE ON LINE.%N/
2505        023474                          .EVEN
2506
2507                                    .LIST BEX
2508  023474                            ENDTST
 (3)  023474                            L10017:
 (3)  023474  104401                          TRAP    C$ETST
2509
2510  023476                            ENDMOD
2511                                    .SBTTL  ABSOLUTE AND RELATIVE POSITIONING
2512                                    ;MODULE ABREL.P11
2513  023476                            BGNMOD
2514
2515                                    ;**
2516                                    ;       THE OBJECT OF THIS TEST IS TO VERIFY THE CORRECT OPERATION OF
2517                                    ;THE FUNCTIONS CALLED VERTICAL AND HORIZONTAL POSITION ABSOLUTE AND
2518                                    ;RELATIVE.  THE TEST WILL DO THIS BY DRAWING A RECTANGULAR GRID USING
2519                                    ;BOTH HORIZONTAL AND VERTICAL POSITIONING ESCAPE SEQUENCES.  IF THE
2520                                    ;MACHINE HANDLES THE SEQUENCES PROPERLY THE GRID SHOULD HAVE THE FOL
2521                                    ;LOWING CHARACTERISTICS:
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2522                                    ;       THE GRID'S UPPERMOST LEFT CORNER SHOULD BEGIN TWO INCHES FROM
2523                                    ;       THE TOP AND LEFT EDGES OF THE PAPER.
2524                                    ;       THE DIMENSIONS OF THE GRID SHOULD BE FOUR INCHES IN HEIGHT
2525                                    ;       BY SEVEN INCHES IN LENGTH.
2526                                    ;       EACH BLOCK CONTAINED WITHIN THE GRID SHOULD BE ONE INCH SQUARE.
2527                                    ;THE MARGINS WILL BE SET AS FOLLOWS:
2528                                    ;       TOP = 2 INCHES
2529                                    ;       BOTTOM = 6 INCHES
2530                                    ;       LEFT = 2 INCHES
2531                                    ;       RIGHT = 9 INCHES
2532                                    ;
2533                                    ;THE GRID ITSELF WILL BE DRAWN USING THE "X" CHARACTER.  ALL "X"S WILL
2534                                    ;BE INSIDE THE MARGIN BOUNDARIES.
2535                                    ;
2536                                    ;OUTSIDE THE MARGIN BOUNDARIES THE TEST WILL ATTEMPT TO PRINT THE "O"
2537                                    ;CHARACTER 1/2 INCH OUTSIDE THE OUTER EDGES OF THE RECTANGLE.  IF THE
2538                                    ;MARGINS ARE "HARD" THEN THE "O" SHOULD SUPERIMPOSE ALL THE "X"S ON
2539                                    ;THE OUTER EDGES OF THE GRID.  IF THE MARGINS ARE "SOFT" THEN THE
2540                                    ;"O"S WILL BE PRINTED 1/2 INCH OUTSIDE THE OUTER EDGES OF THE GRID.
2541                                    ;THIS IS TRUE FOR TOP, BOTTOM AND LEFT MARGINS ONLY.  THE RIGHT MARGIN
2542                                    ;FUNCTIONS DIFFERENTLY AND, THEREFORE, IS HANDLED DIFFERENTLY.  THE
2543                                    ;RIGHT MARGIN WILL BE OVERPRINTED SO AS TO BE UNIFORM WITH THE OTHERS.
2544                                    ;HOWEVER, IT IS NOT DONE IN THE SAME MANNER.
2545                                    ;--
2546
2547
2548                                    ;       GLOBALS REFERENCED:
2549
2550  000000                            .REPT   0
2551                                    BEGIN TEST
2552                                    :       SELECT DECIPOINTS AS SIZE UNIT
2553                                    :       PRINT TEST ID
2554                                    :       PRINT OPERATOR INSRUCTIONS ON PRINTER
2555                                    :       SET TOP, BOTTOM, LEFT AND RIGHT MARGINS
2556                                    :       WHILE VERTBL NE TO #0 DO                        ;DO FOR EACH ROW OF GRID
2557                                    :               MOVE TO CORRECT VERTICAL POSITION
2558                                    :               PRINT ONE LINE OF THE GRID
2559                                    :       ENDDO
2560                                    :       MOVE VERTICALLY TO 6 1/2 INCH SPOT
2561                                    :       PRINT ROW OF "O"S BELOW BOTTOM MARGIN
2562                                    :       MOVE VERTICALLY TO 1 1/2 INCH SPOT
2563                                    :       PRINT ROW OF "O"S ABOVE TOP MARGIN
2564                                    :       RESET DEFAULT PRINTER CONDITIONS
2565                                    :       SELECT DECIPOINTS AS SIZE UNIT
2566                                    :       DO FORM FEED
2567                                    :       EXIT TEST
2568                                    END TEST
2569                                    .ENDR
2570
2571
2572
2573
2574
2575
2576
2577
```

```
2578
2579
2580
2581  023476                                  BGNTST  9.
 (3)  023476                            T9::
2582
2583  023476                                  OUTPUT #REINIT,#2
2584  023540                                  OUTPUT #SELDEC,#5                    ; DECIPOINTS AS SIZE UNIT
2585  023602                                  OUTPUT #ABREL,#59.                   ; TEST ID WITH CRLF
2586  023644                                  OUTPUT #INSTRC,#119.
2587  023706                                  OUTPUT #INSTR1,#110.                 ; DESCRIPTIONS OF GRID
2588  023750                                  OUTPUT #TOPBOT,#12.                  ; SET TOP AND BOTOM MARGINS
2589  024012                                  OUTPUT #LEFRI,#12.                   ; SET LEFT AND RIGHT MARGINS
2590  024054                                  LET R4 := #VERTBL                    ; SET UP TABLE OF VERTICAL SEQUENCES
 (4)  024054  012704  024642                MOV     #VERTBL,R4
2591  024060                                  WHILE (R4) NE #0 DO                  ; DO FOR EACH ENTRY IN TABLE
 (4)  024060                            50263$:
 (6)  024060  005714                        TST     (R4)
 (10) 024062  001471                        BEQ     50264$
2592  024064                                        OUTPUT (R4), #7.               ; MOVE TO CORRECT VERTICAL POS.
2593  024124                                        OUTPUT #GRID,#101.             ; PART 1 OF ONE LINE OF GRID
2594  024166  004737  005306                      JSR PC,QUIET
2595  024172                                        OUTPUT #GRID1,#37.             ; PART 2
2596  024234  004737  005306                      JSR PC,QUIET
2597  024240                                        LET R4 := R4 + #2
 (7)  024240  062704  000002                MOV     #2,R4
2598  024244                                  ENDDO
 (4)  024244  000705                        BR      50263$
 (3)  024246                            50264$:
2599  024246                                  OUTPUT #VSIXHF,#7                    ; MOVE VERTICALLY TO 6 1/2 INCH SPOT
2600  024310                                  OUTPUT #HILOSQ,#48.                  ; PRINT "O"S BELOW BOTTOM MARGIN
2601  024352                                  OUTPUT #VONEHF,#7                    ; MOVE VERTICALLY TO 1 1/2 INCH SPOT
2602  024414                                  OUTPUT #HILOSQ,#48.                  ; PRINT "O"S ABOVE TOP MARGIN
2603  024456                                  LET OUTBUF :B= #14                   ; FORM FEED
 (4)  024456  112737  000014  003114        MOVB    #14,OUTBUF
2604  024464                                  OUTPUT #OUTBUF,#1                    ; DO THE FORM FEED
2605  024526                                  OUTPUT #REINIT,#2                    ; GLOBAL, RESET DEFAULT STATE
2606  024570                                  OUTPUT #SELDEC,#5                    ; DECIPOINTS AS SIZE UNIT
2607  024632  004737  005306                  JSR PC,QUIET                         ; GUARANTEE THE FORM FEED
2608  024636                                  EXIT TST
 (3)  024636  104432                        TRAP    C$EXIT
 (3)  024640  001062                        .WORD   L10020-.
2609                                    ;     DATA TABLES, MESSAGES, SEQUENCES, ETC.
2610
2611                                    .NLIST BEX
2612  024642  025364  025355  025411  VERTBL: .WORD   VTHREE,VTWO,VSIX,VFOUR,VFIVE,0
2613  024656  055433  030061  044155  ABREL:  .ASCII  <33>/[10wHORIZONTAL AND VERTICAL ABSOLUTE AND RELATIVE TEST 9/<15><12>
2614  024751     012  044124  020105  INSTRC: .ASCII  <12>/THE RECTANGULAR GRID WILL BEGIN APPROXIMATELY TWO INCHES FROM THE '
2615  025057     040  047101  020104          .ASCII  / AND TWO INCHES FROM THE LEFT EDGES OF THE PAPER/<12>
2616  025140  044124  020105  044504  INSTR1: .ASCII  /THE DIMENSIONS OF THE GRID WILL BE 4 INCHES HIGH/
2617  025220  040440  042116  033440          .ASCII  / AND 7 INCHES WIDE.  EACH BLOCK WITHIN WILL BE 1 INCH SQUARE./<12>
2618  025316     033     133     061  TOPBOT: .BYTE   33,133,61,64,64,60,73,64,63,62,60,162          ; SET TOP AND BOTTOM MAR
2619  025332     033     133     061  LEFRI:  .BYTE   33,133,61,64,64,60,73,66,70,64,60,163          ; SET LEFT AND RIGHT MAR
2620  025346     033     133     061  VONEHF: .BYTE   33,133,61,60,70,60,144                        ; VERTICAL MOVE TO 1 1 2
2621  025355     033     133     061  VTWO:   .BYTE   33,133,61,64,64,60,144                        ; VERTICAL MOVE TO 2 INC
2622  025364     033     133     062  VTHREE: .BYTE   33,133,62,61,66,60,144                        ; VERTICAL MOVE TO 3 INC
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 2623  025373      033     133     062  VFOUR:  .BYTE   33,133,62,70,70,60,144                          ; VERTICAL MOVE TO 4 INC
 2624  025402      033     133     063  VFIVE:  .BYTE   33,133,63,66,60,60,144                          ; VERTICAL MOVE TO 5 INC
 2625  025411      033     133     064  VSIX:   .BYTE   33,133,64,63,62,60,144                          ; VERTICAL MOVE TO 6 INC
 2626  025420      033     133     064  VSIXHF: .BYTE   33,133,64,66,71,60,144                          ; VERTICAL MOVE TO 6 1/2
 2627  025427      033     133     062  HILOSQ: .BYTE   33,133,62,61,66,60,140,117,33,133,62,70,70,60,140,117   ; PRINTS "0"S FO
 2628  025447      033     133     063          .BYTE   33,133,63,66,60,60,140,117,33,133,64,63,62,60,140,117
 2629  025467      033     133     065          .BYTE   33,133,65,60,64,60,140,117,33,133,65,67,66,60,140,117
 2630  025507      040     033     133  GRID:   .BYTE   40,33,133,61,60,70,60,140,117,33,133,66,64,70,60,140,130
 2631  025530      033     133     061          .BYTE   33,133,61,64,64,60,140,33,133,65,60,64,60,141,117
 2632  025547      033     133     066          .BYTE   33,133,66,70,64,60,140,152                ; THIS HAS BEEN ADDED TO TEST AB
 2633  025557      033     133     065          .BYTE   33,133,65,60,64,60,140,130,33,133,63,66,60,60,140
 2634  025576      033     133     060          .BYTE   33,133,60,60,60,60,141,130,33,133,63,66,60,60,140
 2635  025615      033     133     060          .BYTE   33,133,60,67,62,60,141,130,33,133,65,67,66,60,140,130
 2636  025635      033     133     061          .BYTE   33,133,61,64,64,60,140,33,133,60,60,60,60,141,130
 2637  025654      033     133     061  GRID1:  .BYTE   33,133,61,64,64,60,140,33,133,60,63,66,60,141
 2638  025672      033     133     060          .BYTE   33,133,60,63,66,60,141,130,33,133,62,67,60,60,140,33,133,60,61,70,60,141
 2639          025722                       .EVEN
 2640                                       .LIST BEX
 2641  025722                               ENDTST
  (3)  025722                               L10020:
  (3)  025722  104401                       TRAP    C$ETST
 2642  025724                               ENDMOD
 2643
 2644
 2645
 2646
 2647
 2648
 2649
 2650
 2651
 2652
 2655                                       .SBTTL  NEWLINE MODE ENABLE-DISABLE TEST
 2656                                       ; MODULE LFNLMD.P11
 2657
 2658  025724                               BGNMOD
 2659
 2660
 2661                                      ;++
 2662                                      ; THIS TEST IS AN ALTERED VERSION OF LNMODE.P11 WHICH IS PART OF
 2663                                      ; THE TML LIBRARY.  THE ORIGINAL VERSION OF THIS TEST IS LOCATED
 2664                                      ; IN THE <TML.TESTS>  SUBDIRECTORY OF THE MILL20 DEVELOPMENT SYSTEM.
 2665                                      ; THIS VERSION IS ALTERED FOR USE ON THE LN01 ELECTRONIC PRINTER.
 2666                                      ; THIS IS A TEST OF THE TERMINALS ABILITY TO RECOGNIZE THE ESCAPE
 2667                                      ; SEQUENCES THAT ENABLE AND DISABLE NEWLINE MODE OF OPERATION.
 2668                                      ; OUTPUT WITH NEWLINE DISABLED SHOULD APPEAR AS:
 2669                                      ;       AAAAAAAAAA
 2670                                      ;                 AAAAAAAAAA
 2671                                      ;                           AAAAAAAAAA
 2672                                      ; OUTPUT WITH NEWLINE MODE ENABLED SHOULD APPEAR AS:
 2673                                      ;       AAAAAAAAAA
 2674                                      ;       AAAAAAAAAA
 2675                                      ;       AAAAAAAAAA
 2676                                      ;
 2677
 2678          000000
```

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 2679                                BEGIN NLMODE
 2680                                :   SELECT SIZE UNIT AS DECIPOINTS
 2681                                :   SEND THE TEST NAME TO ALL TERMINALS
 2682                                :   SKIP 2 LINES
 2683                                :   SEND 'NEWLINE MODE BEING DISABLED' MESSAGE
 2684                                :   SEND RMANL TO DISABLE NEWLINE MODE
 2685                                :   REPEAT 3 TIMES
 2686                                :   :   SEND 10 A'S
 2687                                :   :   SEND A LINEFEED
 2688                                :   ENDREPEAT
 2689                                :   SKIP 2 LINES
 2690                                :   SEND 'NEW LINE BEING ENABLED' MESSAGE
 2691                                :   SEND SMANL TO ENABLE NEWLINE MODE
 2692                                :   REPEAT 3 TIMES
 2693                                :   :   SEND 10 A'S
 2694                                :   :   SEND A LINEFEED
 2695                                :   ENDREPEAT
 2696                                :   SEND RMANL TO DISABLE NEWLINE MODE
 2697                                :   DO FORM FEED
 2698                                :   RESET THE PRINTER
 2699                                :   SELECT SIZE UNIT AS DECIPOINTS
 2700                                END TEST
 2701
 2702
 2703
 2704
 2705
 2706
 2707
 2708
 2709
 2710
 2711
 2712  025724                              BGNTST  10.
  (3)  025724                        T10::
 2713
 2714  025724                              OUTPUT #REINIT,#2
 2715  025766                              OUTPUT #SELDEC,#5              ; DECIPOINTS AS SIZE UNIT
 2716  026030                              OUTPUT #NLMODE,#42.            ; IDENTIFY TEST
 2717  026072                              OUTPUT #ACRLF,#2,,#2           ; SKIP 2 LINES
 2718  026134                              OUTPUT #DISANL,#40.            ; DISABLING NL MESSAGE
 2719  026176                              OUTPUT #RMANL,#5               ; TURN T OFF NOW
 2720  026240                              LET R5 := #OUTBUF
  (4)  026240  012705  003114              MOV     #OUTBUF,R5
 2721  026244                              LET (R5)+ :B= #101             ; PUT AN "A" IN BUFFER
  (4)  026244  112725  000101              MOVB    #101,(R5)+
 2722  026250                              LET (R5)+ :B= #12              ; PUT "LF" IN BUFFER
  (4)  026250  112725  000012              MOVB    #12,(R5)+
 2723  026254                              LET (R5)+ :B= #14              ; FORM FEED
  (4)  026254  112725  000014              MOVB    #14,(R5)+
 2724  026260                              DECR WORK FROM #2 TO #0 BY #1
  (5)  026260  012737  000002  003110      MOV     #2,WORK
  (7)  026266  000402                      BR      50265$
  (6)  026270                        50266$:
 (10)  026270  005337  003110              DEC     WORK
  (7)  026274                        50265$:
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  (7)  026274  005737  003110                  TST     WORK
  (9)  026300  002443                          BLT     50267$
2725   026302                                     OUTPUT @OUTBUF,@1,,@10.      ; SEND TEN A'S
2726   026344                                     OUTPUT @OUTBUF+1,@1          ; THEN A LINEFEED
2727   026406                                   ENDDEC
  (5)  026406  000730                          BR      50266$
  (4)  026410                            50267$:
2728   026410                                   OUTPUT @ACRLF,@2,,@2           ; SKIP 2 LINES
2729   026452                                   OUTPUT @ENABNL,@52.            ; ENABLING NL MESSAGE
2730   026514                                   OUTPUT @SMANL,@5               ; TURN IT ON NOW
2731   026556                                   DECR WORK FROM @2 TO @0 BY @1
  (5)  026556  012737  000002  003110          MOV     @2,WORK
  (7)  026564  000402                          BR      50270$
  (6)  026566                            50271$:
  (10) 026566  005337  003110                  DEC     WORK
  (7)  026572                            50270$:
  (7)  026572  005737  003110                  TST     WORK
  (9)  026576  002443                          BLT     50272$
2732   026600                                     OUTPUT @OUTBUF,@1,,@10.      ; SEND TEN A'S
2733   026642                                     OUTPUT @OUTBUF+1,@1          ; THEN A LINEFEED
2734   026704                                   ENDDEC
  (5)  026704  000730                          BR      50271$
  (4)  026706                            50272$:
2735   026706                                   OUTPUT @RMANL,@5               ; TURN IT OFF
2736   026750                                   OUTPUT @OUTBUF+2,@1            ; DO FORM FEED
2737   027012                                   OUTPUT @REINIT,@2              ; RESET TO DEFAULT CONDITIONS
2738   027054                                   OUTPUT @SELDEC,@5              ; DECIPOINTS AS SIZE UNIT
2739   027116  004737  005306                  JSR PC,QUIET
2740   027122                                   EXIT TST
  (3)  027122  104432                          TRAP    C$EXIT
  (3)  027124  000230                          .WORD   L10021-.
2741
2742                                       .NLIST BEX
2743   027126  042516  020127  044514    DISANL: .ASCIZ  /NEW LINE MODE DISABLED, LINEFEEDS ONLY/<15><12>
2744   027177     116  053505  046040    ENABNL: .ASCIZ  /NEW LINE MODE ENABLED, LINEFEED CAUSES RETURN ALSO/<15><12>
2745   027264  055433  030061  047155    NLMODE: .ASCIZ  <33>/[10mNEWLINE MODE ENABLE DISABLE TEST 10/<15><12>
2746   027337     033     133     062    RMANL:  .BYTE   33,133,62,60,154,0
2747   027345     033     133     062    SMANL:  .BYTE   33,133,62,60,150,0
2748          027354                       .EVEN
2749                                       .LIST BEX
2750   027354                                   ENDTST
  (3)  027354                            L10021:
  (3)  027354  104401                          TRAP    C$ETST
2751   027356                                   ENDMOD
2752
2753
2754
2755
2756
2757
2758
2759
2760
2761
2763                                       .SBTTL  POWER UP DEFAULT TEST
2764                                       ;MODULE PUD.P11
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2765  027356                          BGNMOD
2766
2767                          ;**
2768                          ;                    FUNCTIONAL DESCRIPTION
2769                          ;
2770                          ;       THIS TEST VERIFIES THE SPECIFIED POWER UP DEFAULT
2771                          ;       CONDITIONS OF THE LNO1 ELECTRONIC PRINTER.
2772                          ;       THE TEST IS DIVIDED INTO 3 BASIC PARTS.
2773                          ;       ONE OF THE BASIC PARTS IS SUBDIVIDED INTO 2 SECTIONS.
2774                          ;       THE BASIC PARTS AND SECTIONS THEREOF ARE AS FOLLOWS:
2775                          ;
2776                          ;       PART 1-         HORIZONTAL TAB DEFAULT
2777                          ;       PART 2-         VERTICAL TAB DEFAULT SECTION 1
2778                          ;                       VERTICAL TAB DEFAULT SECTION 2
2779                          ;       PART 3-         DEFAULT MARGINS
2780                          ;
2781                          ;
2782                          ;
2783                          ;       PART 1-         HORIZONTAL TAB SECTION
2784                          ;       PART 1 TESTS THE HORIZONTAL TAB DEFAULTS BY MEASURING THE DISTANCE ,IN CHARACTER
2785                          ;       BETWEEN EACH TAB.  THE TEST FIRST DOES 18 TABS AND PRINTS A "T" AT EACH TAB STOP
2786                          ;       THE NEXT LINE PRINTS A SCALE BY WHICH TO MEASURE THE DISTANCE BETWEEN THE "T"s.
2787                          ;       THE SCALE IS A PRINTING OF THE NUMBERS 1 THRU 8 REPEATEDLY ACROSS THE PAGE.
2788                          ;       THE "T"S IN THE ROW ABOVE SHOULD LINE UP OVER THE "8"S FOR THE FIRST 16 TABS.
2789                          ;       THE FINAL 2 "T"S SHOULD BE SIDE BY SIDE BECAUSE OF EXCEEDING THE RIGHT MOST TAB
2790                          ;       AFTER SKIPPING TWO LINES, PART 1 CONTINUES ON BY PRINTING 3 DIAMOND SHAPED PATTE
2791                          ;       WHICH WILL THOROUGHLY EXERCISE THE TAB FUNCTION IN DEFAULT MODE.  ANY THING PRIN
2792                          ;       OUTSIDE THE DIAMONDS WILL CONSTITUTE AN ERROR.  ANYTHING THAT APPEARS OUT OF THE
2793                          ;       ORDINARY INSIDE THE DIAMONDS WILL ALSO CONSTITUTE AN ERROR.
2794                          ;
2795                          ;       PART 2-         VERTICAL TAB SECTION 1
2796                          ;       PART 2, SECTION 1 VERIFIES THAT THE DEFAULT VERTICAL TAB IS SET FOR ONE TAB
2797                          ;       TO MOVE THE DISTANCE EQUIVALENT TO THAT OF A LINE FEED.  THIS IS ACCOMPLISHED BY
2798                          ;       AFTER PRINTING THE SECTION ID ON LINE #1, DOING 65 VERTICAL TABS AND PRINTING
2799                          ;       THE SECTION ID FOR EACH ONE.  THE RESULT SHOULD BE 66 LINES OF THE SECTION ID.
2800                          ;       THE REASON WHY THIS WILL WORK DESPITE THE FACT THAT THE MACHINE ONLY CAN
2801                          ;       HANDLE A TOTAL OF 32 TAB STOPS IS BECAUSE WHEN YOU EXCEED THE LIMIT OF 32
2802                          ;       THE MACHINE IS SUPPOSED TO TREAT EVERY EXTRA VERTICAL TAB AS THOUGH IT WAS
2803                          ;       A LINE FEED CHARACTER.  SO, BECAUSE THE DEFAULT VERTICAL TAB IS EQUAL TO
2804                          ;       A LINE FEED IN DISTANCE, THE RESULT SHOULD BE THE SAME.  THIS IS ACTUALLY
2805                          ;       A GOOD WAY TO TEST THE DISTANCE OF THE DEFAULT TAB AS COMPARED TO THE
2806                          ;       NORMAL LINE FEED CHARACTER.
2807                          ;       THIS SECTION ALSO VERIFIES THAT WHEN A VERTICAL TAB IS SENT WHEN THE MACHINE
2808                          ;       IS ALREADY AT LINE 66 THE MACHINE WILL RESPOND BY BRINGING YOU TO THE TOP MARGIN
2809                          ;       ON THE FOLLOWING PAGE, WHICH IN DEFAULT CONDITION SHOULD BE LINE #1.  THIS SETS
2810                          ;       UP THE FOLLOWING SECTION TO BEGIN ON LINE #1.
2811                          ;
2812                          ;                       VERTICAL TAB SECTION 2
2813                          ;       PART 2, SECTION 2 VERIFIES THE USE OF MULTIPLE VERTICAL TABS.  THIS IS ACCOM
2814                          ;       PLISHED BY ,FIRST, PRINTING THE SECTION ID ON LINE #1 AND, THEN, DOING 5
2815                          ;       VERTICAL TABS THEN PRINTING THE SECTION ID AGAIN.  THIS IS REPEATED 6 TIMES.
2816                          ;       THE RESULT IS THE SECTION ID BEING PRINTED ON EVERY 5TH LINE BEGINNING WITH
2817                          ;       LINE #6 AND ENDING WITH LINE #31 (TTOTAL OF 30 TAB STOPS).  HOWEVER, EACH
2818                          ;       SUCCESSIVE PRINTING OF THE ID WILL BEGIN IN THE COLUMN FOLLOWING THE COLUMN
2819                          ;       IN WHICH THE PREVIOUS ONE ENDED.  THIS WILL VERIFY THAT THE USE OF VERTICAL
2820                          ;       TABS DOES NOT CHANGE THE ACTIVE COLUMN.(in effect it does not perform a carriage
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2821                            ;       return automatically).
2822                            ;
2823                            ;       PART 3-         MARGIN SECTION
2824                            ;       THE MARGIN SECTION VERIFIES THAT THE TOP, BOTTOM, LEFT AND RIGHT MARGIN
2825                            ;       DEFAULT SETTINGS ARE AS SPECIFIED.  IT ACCOMPLISHES THIS BY IDENTIFYING
2826                            ;       LINE #1 AND PRINTING THE CORRECT DISTANCE THIS SHOULD BE FROM THE TOP
2827                            ;       EDGE OF THE PAGE FOR OPERATOR VERIFICATION.  THE FOLLOWING LINE(#2) WILL
2828                            ;       PRINT A MESSAGE WHICH IDENTIFIES THE CORRECT DISTANCE FROM THE LEFT
2829                            ;       EDGE OF THE PAGE THAT THE FIRST CHARACTER ON EACH OF THE FOLLOWING 63 LINES
2830                            ;       SHOULD BE PRINTED AS WELL AS IDENTIFYING THE CORRECT DISTANCE FROM THE
2831                            ;       LEFT EDGE THAT THE LAST CHARACTER OF THE FOLLOWING 63 LINES SHOULD BE PRINTED.
2832                            ;       THE SECTION CONCLUDES BY IDENTIFYING LINE #66 AND PRINTING THE CORRECT
2833                            ;       DISTANCE THAT THE LINE SHOULD BE FROM THE TOP EDGE OF THE PAPER.
2834                            ;--
2835
2836                            ;                                       GLOBALS REFERENCED
2837                            ;       REINIT,
2838
2839  000000                    .REPT 0
2840                            BEGINROUTINE    POWER UP DEFAULT TEST
2841                            :       RESET THE PRINTER
2842                            :       SELECT SIZE UNIT AS DECIPOINTS
2843                            :       TOGGLE THE PAPER OFFSET
2844                            :       PRINT THE TEST ID
2845                            :                       "HORIZONTAL TAB DEFAULT SECTION"
2846                            :       PRINT SECTION ID
2847                            :       INCREMENT COUNT FROM #1 TO #18. BY #1
2848                            :               DO HORIZONTAL TAB
2849                            :               PRINT "T"                                       ; 18 HOR. TABS   O A 'T"
2850                            :       ENDINCREMENT
2851                            :       DO A LINE FEED
2852                            :       INCR COUNT FROM #1 TO #17. BY #1                        ; PRINTS 1-8 17 TIMES AC
2853                            :       :       PRINT 1-8                                       ; MEASURES DEFAULT TAB S
2854                            :       ENDINC
2855                            :       SKIP 2 LINES
2856                            :       INCREMENT FROM ONE TO THREE B\ 1                        ; REPEAT THREE TIMES
2857                            :       :       PRINT TOTAL PATTERN                             ; DIAMOND SHAPED PATTERN
2858                            :       ENDINCREMENT
2859                            :       DO FORM FEED                                            ; END OF HORIZONTAL SECT
2860                            :                       "VERTICAL DEFAULT TAB SECTION"
2861                            :                       "FIRST PAGE OF VERTICAL SECTION"
2862                            :       PRINT SECTION 1 ID                                      ; PRINT ID ON LINE 1
2863                            :       INCR COUNT FROM #1 TO #65. BY #1                        ; PRINT ID ON LINES 2 TH
2864                            :       :       DO VERTICAL TAB
2865                            :       :       PRINT SECTION ID
2866                            :       ENDINC
2867                            :       DO VERTICAL TAB                                         ; SHOULD BRING YOU TO TO
2868                            :                       "SECOND PAGE OF VERTICAL SECTION"
2869                            :       PRINT SECTION 2 ID                                      ; PRINT SECTION ID ON LI
2870                            :       INCR COUNT FROM #1 TO #6. BY #1                         ; PRINT ID ON EVERY 5TH
2871                            :       :       OUTPUT 5 VERTICAL TABS                          ; FROM LINE 6 TO LINE 31
2872                            :       :       PRINT SECTION ID                                ; TESTS MULTIPLE VER. TA
2873                            :       ENDINC
2874                            :       DO FORM FEED
2875                            :                               "MARGIN SECTION"
2876                            :       PRINT SECTION ID AND TOP EDGE MESSAGE(TEM)              ; IDENTIFIES FIRST LINE
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2877                                    ;       PRINT LEFT RIGHT MESSAGE(LFM)                   ; DEFINES LEFT AND RIGHT
2878                                    ;       INCR COUNT FROM #1 TO #63. BY #1                ; REPEAT FOLLOWING 63. T
2879                                    ;           PRINT FULL LINE OF "M"                      ; PRINT 132 "M"s
2880                                    ;           DO LINE FEED
2881                                    ;       ENDINCREMENT
2882                                    ;       PRINT BOTTOM EDGE MESSAGE(BEM)                  ; IDENTIFY LINE 66 AS BO
2883                                    ;       DO FORM FEED
2884                                    ;
2885                                    ENDROUTINE
2886                                    .ENDR
2887
2888
2889
2890
2891
2892
2893
2894
2895
2896
2897  027356                                    BGNTST 11.
 (3)  027356                            T11::
2898
2899  027356                                    OUTPUT #REINIT,#2                               ;RESET PRINTER TO DEFAUL
2900  027420                                    OUTPUT #SELDEC,#5                               ; DECIPOINTS AS SIZE UNI
2901  027462                                    OUTPUT #DECFIN,#5                               ; TOGGLE THE OFFSET
2902  027524                                    OUTPUT #PUD,#31.                                ;PRINT TEST ID
2903  027566                                    LET OUTBUF :B= #11                              ;HORIZONTAL TAB
 (4)  027566  112737  000011  003114          MOVB    #11,OUTBUF
2904  027574                                    LET OUTBUF+1 :B= #12                            ;LINE FEED
 (4)  027574  112737  000012  003115          MOVB    #12,OUTBUF+1
2905  027602                                    LET OUTBUF+2 :B= #13                            ;VERTICAL TAB
 (4)  027602  112737  000013  003116          MOVB    #13,OUTBUF+2
2906  027610                                    LET OUTBUF+3 :B= #14                            ;FORMFEED
 (4)  027610  112737  000014  003117          MOVB    #14,OUTBUF+3
2907  027616                                    LET OUTBUF+4 :B= #15                            ;CARRIAGE RETURN
 (4)  027616  112737  000015  003120          MOVB    #15,OUTBUF+4
2908  027624                                    LET OUTBUF+5 :B= #115                           ;'M' CHARACTER
 (4)  027624  112737  000115  003121          MOVB    #115,OUTBUF+5
2909  027632                                    LET OUTBUF+6 :B= #115                           ;"M  CHARACTER
 (4)  027632  112737  000115  003122          MOVB    #115,OUTBUF+6
2910  027640                                    LET OUTBUF+7 :B= #124                           ; T
 (4)  027640  112737  000124  003123          MOVB    #124,OUTBUF+7
2911                                    ;                                   "HORIZONTAL TAB DEFAULT SECTION"
2912  027646                                    OUTPUT #HORDEF,#32.
2913  027710                                    INCR COUNT FROM #1 TO #18. BY #1                ;DO 18 HOR TABS AND PRIN
 (5)  027710  012737  000001  002276          MOV     #1,COUNT
 (7)  027716  000402                          BR      50273$
 (6)  027720                            50274$:
(10)  027720  005237  002276                  INC     COUNT
 (7)  027724                            50273$:
 (7)  027724  023727  002276  000022          CMP     COUNT,#18.
 (9)  027732  003043                          BGT     50275$
2914  027734                                          OUTPUT #OUTBUF,#1                       ;DO HOR TAB
2915  027776                                          OUTPUT #OUTBUF+7                        ;PRINT A '
2916  030040                                    ENDINC
```

C7


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 (5)  030040  00072.                              BR      50274$
 (4)  030042                            50275$:
2917  030042                                      OUTPUT @OUTBUF+1,@1                       ;DO A LINE FEED
2918  030104                                      INCR COUNT FROM @1 TO @17. BY @1          ;PRINT 1-8 17 TIMES ACRO
 (5)  030104  012737  000001  002276              MOV     @1,COUNT
 (7)  030112  000402                              BR      50276$
 (6)  030114                            50277$:
(10)  030114  005237  002276                      INC     COUNT
 (7)  030120                            50276$:
 (7)  030120  023727  002276  000021              CMP     COUNT,@17.
 (9)  030126  003022                              BGT     50300$
2919  030130                                              OUTPUT @SCALE,@8.
2920  030172                                      ENDINC
 (5)  030172  000750                              BR      50277$
 (4)  030174                            50300$:
2921  030174                                      OUTPUT @OUTBUF+1,@1,,@3                   ;DO A LINE FEED AND THEN
2922          000001                    $BRJMP=1
2923  030236                                      INCR LOOP FROM @1 TO @3 BY @1             ;REPEAT PATTERNS 1 AND 2
 (5)  030236  012737  000001  033350              MOV     @1,LOOP
 (7)  030244  000402                              BR      50302$
 (6)  030246                            50301$:
 (8)  030246  005237  033350                      INC     LOOP
 (6)  030252                            50302$:
 (7)  030252  023727  033350  000003              CMP     LOOP,@3
 (9)  030260  003402                              BLE     50303$
 (7)  030262  000137  031372                      JMP     50304$
 (6)  030266                            50303$:
2924  030266                                              LET WORK1 := @0                   ;USED DURING PATTERN GEN
 (4)  030266  005037  003112                      CLR     WORK1
2925  030272                                              DECR WORK FROM @8. TO @1 BY @1
 (5)  030272  012737  000010  003110              MOV     @8.,WORK
 (7)  030300  000402                              BR      50306$
 (6)  030302                            50305$:
 (8)  030302  005337  003110                      DEC     WORK
 (6)  030306                            50306$:
 (7)  030306  023727  003110  000001              CMP     WORK,@1
 (9)  030314  002002                              BGE     50307$
 (7)  030316  000137  030634                      JMP     50310$
 (6)  030322                            50307$:
2926  030322                                                      OUTPUT @OUTBUF,@1,,WORK   ;DO CORRECT NUMBER OF TA
2927  030364                                                      OUTPUT @OUTBUF+7,@1       ;PRINT A 'T'
2928  030426                                                      INCR COUNT FROM @1 TO WORK1 BY @1
 (5)  030426  012737  000001  002276              MOV     @1,COUNT
 (7)  030434  000402                              BR      50312$
 (6)  030436                            50311$:
 (8)  030436  005237  002276                      INC     COUNT
 (6)  030442                            50312$:
 (7)  030442  023737  002276  003112              CMP     COUNT,WORK1
 (9)  030450  003402                              BLE     50313$
 (7)  030452  000137  030564                      JMP     50314$
 (6)  030456                            50313$:
2929  030456                                                              OUTPUT @OUTBUF,@1,,@2  ;DO TWO HOR. TABS
2930  030520                                                              OUTPUT @OUTBUF+7,@1    ;PRINT A 'T'
2931  030562                                                      ENDINC
 (4)  030562  000725                              BR      50311$
 (4)  030564                            50314$:
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```
2932  030564                                        LET WORK1 := WORK1 + #1
 (7)  030564  005237  003112          INC     WORK1
2933  030570                                        OUTPUT #OUTBUF+1,#1                ;DO LINE FEED
2934  030632                                        ENDDEC
 (4)  030632  000623                  BR      50305$
 (4)  030634                      50310$:
2935  030634                                        LET WORK1 := #6                    ;USED DURING PATTERN GEN
 (4)  030634  012737  000006  003112  MOV     #6,WORK1
2936  030642                                        INCR WORK FROM #2 TO #7, BY #1     ;PATTERN GENERATION LOOP
 (5)  030642  012737  000002  003110  MOV     #2,WORK
 (7)  030650  000402                  BR      50316$
 (6)  030652                      50315$:
 (8)  030652  005237  003110          INC     WORK
 (6)  030656                      50316$:
 (7)  030656  023727  003110  000007  CMP     WORK,#7.
 (9)  030664  003402                  BLE     50317$
 (7)  030666  000137  031204          JMP     50320$
 (6)  030672                      50317$:
2937  030672                                        OUTPUT #OUTBUF,#1,,WORK            ;DO CORRECT NUMBER OF HO
2938  030734                                        OUTPUT #CJTBUF+7,#1                ;PRINT FIRST "T"
2939  030776                                        INCR COUNT FROM #1 TO WORK1 BY #1
 (5)  030776  012737  000001  002276  MOV     #1,COUNT
 (7)  031004  000402                  BR      50322$
 (6)  031006                      50321$:
 (8)  031006  005237  002276          INC     COUNT
 (6)  031012                      50322$:
 (7)  031012  023737  002276  003112  CMP     COUNT,WORK1
 (9)  031020  003402                  BLE     50323$
 (7)  031022  000137  031134          JMP     50324$
 (6)  031026                      50323$:
2940  031026                                              OUTPUT #OUTBUF,#1,,#2        ;DO TWO HOR. TABS
2941  031070                                              OUTPUT #OUTBUF+7,#1          ;PRINT A "T"
2942  031132                                        ENDINC
 (4)  031132  000725                  BR      50321$
 (4)  031134                      50324$:
2943  031134                                        OUTPUT #OUTBUF+1,#1                ;DO A LINE FEED
2944  031176                                        LET WORK1 := WORK1   #1            ;REGULATES PATTERN GENER
 (7)  031176  005337  003112          DEC     WORK1
2945  031202                                        ENDINC                             ;FIRST PATTERN COMPLETE
 (4)  031202  000623                  BR      50315$
 (4)  031204                      50320$:
2946  031204                                        IF LOOP EQ #3 THEN
 (6)  031204  023727  033350  000003  CMP     LOOP,#3
 (8)  031212  001402                  BEQ     .+6
 (9)  031214  000137  031366          JMP     50325$
2947  031220                                        OUTPUT #OUTBUF,#1,,#8.             ;DO 8 TABS
2948  031262                                        OUTPUT #OUTBUF+7,#1                ;PRINT LAST "T" IN PATTE
2949  031324                                        OUTPUT #OUTBUF+1,#1                ;LINE FEED
2950  031366                                        ENDIF
 (4)  031366                      50325$:
2951  031366                                        ENDINC
 (4)  031366  000137  030246          JMP     50301$
 (4)  031372                      50304$:
2952        000000                 $BRJMP=0
2953  031372                                        OUTPUT #OUTBUF+3,#1                ;DO FORM FEED
2954
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2955                                        ;                              "VERTICAL DEFAULT TAB SECTION" (FIRST PAGE)
2956
2957  031434                                        OUTPUT #VERDEF,#31.                                     ;VERTICAL SECTION 1 ID
2958  031476                                        INCR COUNT FROM #1 TO #65. BY #1                        ;PRINT SECTION ID ON LIN
 (5)  031476  012737  000001  002276               MOV     #1,COUNT
 (7)  031504  000402                               BR      50327$
 (6)  031506                                 50326$:
 (8)  031506  005237  002276                       INC     COUNT
 (6)  031512                                 50327$:
 (7)  031512  023727  002276  000101               CMP     COUNT,#65.
 (9)  031520  003402                               BLE     50330$
 (7)  031522  000137  031634                       JMP     50331$
 (6)  031526                                 50330$:
2959  031526                                        OUTPUT #OUTBUF+2,#1                                     ;DO VERTICAL TAB
2960  031570                                        OUTPUT #VERDEF,#31.                                     ;PRINT SECTION ID
2961  031632                                        ENDINC
 (4)  031632  000725                               BR      50326$
 (4)  031634                                 50331$:
2962  031634                                        OUTPUT #OUTBUF+2,#1                                     ;DO VERTICAL TO TOP OF N
2963
2964                                        ;                              "VERTICAL DEFAULT TAB SECTION" (SECOND PAGE)
2965
2966  031676                                        OUTPUT #VERDE2,#9.                                      ; SECTION 2 ID
2967  031740                                        INCR COUNT FROM #1 TO #13. BY #1                        ; PRINT ID ON EVERY 5TH
 (5)  031740  012737  000001  002276               MOV     #1,COUNT
 (7)  031746  000402                               BR      50333$
 (6)  031750                                 50332$:
 (8)  031750  005237  002276                       INC     COUNT
 (6)  031754                                 50333$:
 (7)  031754  023727  002276  000015               CMP     COUNT,#13.
 (9)  031762  003402                               BLE     50334$
 (7)  031764  000137  032076                       JMP     50335$
 (6)  031770                                 50334$:
2968  031770                                        OUTPUT #OUTBUF+2,#1,,#5.                                ; DO 5 VERTICAL TABS
2969  032032                                        OUTPUT #VERDE2,#9.                                      ; PRINT SECTION 2 ID
2970  032074                                        ENDINC
 (4)  032074  000725                               BR      50332$
 (4)  032076                                 50335$:
2971  032076                                        OUTPUT #OUTBUF+3,#1                                     ; DO FORM FEED AND END S
2972
2973                                        ;                              "MARGIN SECTION"
2974
2975  032140                                        OUTPUT #MARDEF,#102.                                    ; SECTION ID PLUS TOP ED
2976  032202                                        OUTPUT #LFM,#113.                                       ; IDENTIFIES LEFT AND RI
2977  032244                                        INCR COUNT FROM #1 TO #63. BY #1                        ; REPEAT THE FOLLOWING 6
 (5)  032244  012737  000001  002276               MOV     #1,COUNT
 (7)  032252  000402                               BR      50337$
 (6)  032254                                 50336$:
 (8)  032254  005237  002276                       INC     COUNT
 (6)  032260                                 50337$:
 (7)  032260  023727  002276  000077               CMP     COUNT,#63.
 (9)  032266  003402                               BLE     50340$
 (7)  032270  000137  032406                       JMP     50341$
 (6)  032274                                 50340$:
2978  032274                                        OUTPUT #OUTBUF+5,#2,,#66.                               ; PRINT FULL LINE OF  M
2979  032336                                        OUTPUT #OUTBUF+1,#1                                     ; DO LINE FEED
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 2980  032400  004737  005306                        JSR PC, QUIET
 2981  032404                                ENDINC
  (4)  032404  000723                        BR      50336$
  (4)  032406                           50341$:
 2982  032406                                OUTPUT #BEM,#79.                        ; IDENTIFIES LINE 66 AS
 2983  032450                                OUTPUT #OUTBUF+3,#1                     ; DO FORM AND END TEST
 2984  032512  004737  005306                JSR PC, QUIET
 2985  032516                                EXIT TST
  (3)  032516  104432                        TRAP    C$EXIT
  (3)  032520  000632                        .WORD   L10022-.
 2986                                  ;             LOCAL VARIABLES, MESSAGES, TABLES
 2987
 2988                                  .NLIST BEX
 2989  032522  055433  030061  050155  PUD:    .ASCIZ  <33>/[10mPOWER UP DEFAULT TEST 11/<12><12>
 2990  032562  047510  044522  047532  HORDEF: .ASCII  /HORIZONTAL TAB DEFAULT SECTION/<12><12>                ;32 CHAR
 2991  032622  042526  052122  041511  VERDEF: .ASCII  /VERTICAL DEFAULT TAB SECTION 1/<15>                    ;32 CHAR
 2992  032661     123  041505  044524  VERDE2: .ASCII  /SECTION 2/                                             ; 9 CHAR
 2993  032672  042504  040506  046125  MARDEF: .ASCII  /DEFAULT MARGIN SECTION    /
 2994  032724  044514  042516  021440  TEM:    .ASCII  /LINE #1___THIS LINE SHOULD BE APPROXIMATELY .4 INCH FROM TOP EDGE OF PA
 2995  033040  044124  020105  047506  LFM:    .ASCII  /THE FOLLOWING 63 LINES SHOULD BEGIN APPROXIMATELY .66 INCH FROM THE LEF
 2996  033221     114  047111  020105  BEM:    .ASCII  /LINE #66___THIS LINE SHOULD BE APPROXIMATELY 8.10 INCHES FROM TOP EDGE
 2997  03334C  031061  032063  033065  SCALE:  .ASCII  /12345678/                                             ;PROVIDE
 2998                                  .EVEN
 2999                                  .LIST BEX
 3000  033350  000000                  LOOP:   .WORD   0
 3001  033352                                ENDTST
  (3)  033352                           L10022:
  (3)  033352  104401                        TRAP    C$ETST
 3002
 3003
 3004
 3005
 3006
 3007
 3008
 3009
 3010
 3011
 3014  033354                                ENDMOD
 3015                                  .SBTTL  TABS TEST
 3016                                  ;MODULE TABS.P11
 3017  033354                                BGNMOD
 3018
 3019                                  ;++                     FUNCTIONAL DESCRIPTION
 3020                                  ;
 3021                                  ;       THE TABS TEST IS A COMPREHENSIVE TEST OF ALL HORIZONTAL AND VERTICAL
 3022                                  ; TAB FUNCTIONS ON THE LN01 ELECTRONIC PRINTER.
 3023                                  ; IT TESTS THE HORIZONTAL AND VERTICAL SETTING AND CLEARING OF TABS AS WELL
 3024                                  ; AS THE ABILITY TO USE THE TAB FUNCTION ITSELF. IT ASSURES THAT ALL TABS
 3025                                  ; CAN BE SET OR CLEARED INDEPENDENT OF ONE ANOTHER.  IT ALSO ASSURES THAT
 3026                                  ; TABS CAN BE SET OR CLEARED REGARDLESS OF MARGIN SETTINGS.  IT FURTHER
 3027                                  ; ASSURES THAT A TOTAL OF 32 VERTICAL AND 32 HORIZONTAL TAB SETTINGS CAN
 3028                                  ; BE USED AND THAT IF ANY ARE SET OVER AND ABOVE THE 32 LIMIT THAT THE HIGHEST
 3029                                  ; ORDER SETTING WILL BE ELIMINATED IN FAVOR OF THE LOWER SETTING.
 3030                                  ;
 3031                                  ;       THE TEST ACCOMPLISHES THESE RESULTS BY DRAWING A RECTANGLE 6 1/2 INCHES
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3032                                    ; IN HEIGHT AND 9 INCHES WIDE, WITH AN ASTERISK IN THE CENTER OF THE RECTANGLE
3033                                    ; WHICH WILL ALSO BE THE CENTER OF THE PAGE.
3034                                    ; THE RECTANGLE WILL BEGIN 1 INCH FROM THE TOP EDGE OF THE PAPER AND 1 INCH
3035                                    ; FROM THE LEFT EDGE OF THE PAPER.  IT WILL END 1 INCH FROM THE BOTTOM EDGE
3036                                    ; OF THE PAPER (7 1/2 INCHES FROM TOP EDGE OF PAPER) AND 1 INCH FROM THE RIGHT
3037                                    ; EDGE OF THE PAPER (10 INCHES FROM THE LEFT EDGE OF PAPER).
3038                                    ; THE EDGES OF THE RECTANGLE WILL BE IDENTIFIED BY ASTERISKS BEING PRINTED AT
3039                                    ; FIXED INTERVALS.  THE INTERVALS WILL BE 1/2 INCH FOR BOTH HORIZONTAL AND
3040                                    ; VERTICAL BOUNDARIES.  THE ONLY THING APPEARING INSIDE THE RECTANGLE WILL BE
3041                                    ; THE ASTERISK PRINTED IN THE CENTER.  THE CENTER ASTERISK SHOULD BE LOCATED
3042                                    ; 4 1/4 INCHES FROM THE TOP EDGE OF THE PAPER (NOT THE EDGE OF THE RECTANGLE)
3043                                    ; AND 5 1/2 INCHES FROM THE LEFT EDGE OF THE PAPER (NOT THE LEFT EDGE OF THE
3044                                    ; RECTANGLE).  THIS WILL PLACE THE CENTER OF THE ASTERISK AT THE CENTER OF THE
3045                                    ; PAPER AS WELL AS THE CENTER OF THE RECTANGLE.
3046                                    ;
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3048                            ;       ANY OTHER MARKINGS ON THE PAGE EXCEPT THE TEST ID WHICH WILL BE PRINTED
3049                            ;       ABOVE THE RECTANGLE WILL CONSTITUTE AN ERROR.
3050                            ;
3051                            ;       THE FOLLOWING IS A NON SCALE REPRESENTATION OF THE RECTANGLE'S APPEARANCE.
3052                            ;
3053                            ;       *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *
3054                            ;
3055                            ;       *                                                                       *
3056                            ;
3057                            ;       *                                                                       *
3058                            ;
3059                            ;       *                                                                       *
3060                            ;
3061                            ;       *                                                                       *
3062                            ;
3063                            ;       *                                                                       *
3064                            ;
3065                            ;       *                                                                       *
3066                            ;       *                                                                       *
3067                            ;       *                                                                       *
3068                            ;
3069                            ;       *                                                                       *
3070                            ;
3071                            ;       *                                                                       *
3072                            ;
3073                            ;       *                                                                       *
3074                            ;
3075                            ;       *                                                                       *
3076                            ;
3077                            ;       *                                                                       *
3078                            ;
3079                            ;       *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *
3080                            ;
3081                            ;-
3082
3083
3084
3085
3086
3087
3088
3089
3090
3091
3092
3093            000000          .REPT 0
3094
3095                            ;                                       GLOBALS REFERENCED
3096                            ;       REINIT,
3097
3098                            BEGIN ROUTINE
3099                            :       PRINT TEST ID
3100                            :       SEND RESET SEQUENCE
3101                            :       CLEAR ALL TABS
3102                            :       SET MARGINS                             ; TO TEST SETTING TABS OUTSIDE MARGINS
3103                            :       SET 16 VERTICAL TAB STOPS
```

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3104                                    :       SET 16 MORE VERTICAL TAB STOPS          ; CHECKS ABILITY TO SET INDEPENDENTLY
3105                                    :       SET EXTRA VERTICAL TAB STOP             ; CHECKS FOR ELIMINATION OF HIGHEST ORDE
3106                                    :       SET 16 HORIZONTAL TAB STOPS
3107                                    :       SET 16 MORE HORIZONTAL TAB STOPS        ; CHECKS ABILITY TO SET INDEPENDENTLY
3108                                    :       SET EXTRA HORIZONTAL TAB STOP           ; CHECKS FOR ELIMINATION OF HIGHEST ORDE
3109                                    :       SET MARGINS BACK TO DEFAULT SETTINGS    ; ALLOWS YOU TO USE ALL TAB STOPS
3110                                    :       PRINT TOP LINE OF RECTANGLE
3111                                    :       CLEAR ALL HORIZONTAL TABS               ; CHECKS ABILITY TO CLEAR HORIZONTAL TAB
3112                                    :       SET HORIZONTAL TABS                     ; 3 STOPS ONLY
3113                                    :       PRINT TOP SECTION OF RECTANGLE          ; STOP AT CENTER LINE
3114                                    :       PRINT CENTER LINE
3115                                    :       PRINT BOTTOM SECTION OF RECTANGLE       ; EXCEPT BOTTOM LINE
3116                                    :       SET HORIZONTAL TABS                     ; SET TABS FOR BOTTOM LINE (SAME AS TOP
3117                                    :       PRINT BOTTOM LINE OF RECTANGLE          ; RECTANGLE COMPLETE
3118                                    :       SEND RESET SEQUENCE                     ; RETURN TO DEFAULT SETTINGS
3119                                    :       DO FORM FEED
3120                                    END ROUTINE
3121                                    .ENDR
3122
3123
3124
3125
3126
3127
3128
3129
3130
3131
3132
3133
3134  033354                                    BGNTST  12.
 (3)  033354                            T12::
3135  033354                            LET OUTBUF :B= #13                      ; VERTICAL TAB CODE
 (4)  033354  112737  000013  003114             MOVB    #13,OUTBUF
3136  033362                            LET OUTBUF+1 :B= #13                    ;       "
 (4)  033362  112737  000013  003115             MOVB    #13,OUTBUF+1
3137  033370                            LET OUTBUF+2 :B= #14                    ; FORM FEED CODE
 (4)  033370  112737  000014  003116             MOVB    #14,OUTBUF+2
3138  033376                            LET OUTBUF+3 :B= #11                    ; CODE FOR HORIZONTAL TAB
 (4)  033376  112737  000011  003117             MOVB    #11,OUTBUF+3
3139  033404                            LET OUTBUF+4 :B= #11                    ;       "
 (4)  033404  112737  000011  003120             MOVB    #11,OUTBUF+4
3140  033412                            LET OUTBUF+5 :B= #52                    ; CODE FOR ASTERISK
 (4)  033412  112737  000052  003121             MOVB    #52,OUTBUF+5
3141  033420                            LET OUTBUF+6 :B= #15                    ; CARRIAGE RETURN
 (4)  033420  112737  000015  003122             MOVB    #15,OUTBUF+6
3142  033426                            OUTPUT #REINIT,#2
3143  033470                            OUTPUT #SELDEC,#5                       ; DECIPOINTS
3144  033532                            OUTPUT #TABTST,#20.                     ; TEST ID
3145  033574                            OUTPUT #CLRVER,#4                       ; CLEAR ALL VERTICAL TABS
3146  033636                            OUTPUT #CLRHOR,#4                       ; CLEAR ALL HORIZONTAL TABS
3147  033700                            OUTPUT #TBMAR1,#8.                      ; SET MARGINS TO TEST LN01 ABILI
3148  033742                            OUTPUT #LRMAR1,#12.                     ;       "
3149  034004                            OUTPUT #VERTB1,#62.                     ; SET FIRST 16 VERTICAL TAB STOP
3150  034046                            OUTPUT #VERTB2,#84.                     ; SET SECOND 16 VERTICAL TAB STO
3151  034110                            OUTPUT #XVER,#7                         ; SET EXTRA VERTICAL STOP
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 3152  034152                          OUTPUT #HORTB1,#82.                 ; SET FIRST 16 HORIZONTAL TAB ST
 3153  034214                          OUTPUT #HORTB2,#84.                 ; SET SECOND 16 HORIZONTAL TAB S
 3154  034256                          OUTPUT #XHOR,#7                     ; SET EXTRA HORIZONTAL STOP
 3155  034320                          OUTPUT #DEFMR1,#8.                  ; SET DEFAULT TOP BOTTOM MARGINS
 3156  034362                          OUTPUT #DEFMR2,#11.                 ; "      "     LEFT RIGHT
 3157  034424                          OUTPUT #OUTBUF,#1                   ; MOVE VERTICALLY TO TOP LINE (O
 3158  034466                          OUTPUT #OUTBUF+6,#1                 ; CARRIAGE RETURN
 3159  034530                          OUTPUT #OUTBUF+4,#2                 ; DO HORIZONTAL TAB AND PRINT AS
 3160  034572                          INCR COUNT FROM #1 TO #13. BY #1    ; PRINT TOP LINE OF ASTERISKS
  (5)  034572  012737  000001  002276          MOV     #1,COUNT
  (7)  034600  000402                          BR      50343$
  (6)  034602                          50342$:
  (8)  034602  005237  002276                  INC     COUNT
  (6)  034606                          50343$:
  (7)  034606  023727  002276  000015          CMP     COUNT,#13.
  (9)  034614  003402                          BLE     50344$
  (7)  034616  000137  034666                  JMP     50345$
  (6)  034622                          50344$:
 3161  034622                                  OUTPUT #OUTBUF+3,#3         ; TWO HOR TABS AND AN ASTERISK
 3162  034664                          ENDINC
  (4)  034664  000746                          BR      50342$
  (4)  034666                          50345$:
 3163  034666                          INCR COUNT FROM #1 TO #5 BY #1      ; PRINT REST OF TOP LINE OF ASTE
  (5)  034666  012737  000001  002276          MOV     #1,COUNT
  (7)  034674  000402                          BR      50347$
  (6)  034676                          50346$:
  (8)  034676  005237  002276                  INC     COUNT
  (6)  034702                          50347$:
  (7)  034702  023727  002276  000005          CMP     COUNT,#5
  (9)  034710  003402                          BLE     50350$
  (7)  034712  000137  034762                  JMP     50351$
  (6)  034716                          50350$:
 3164  034716                                  OUTPUT #OUTBUF+4,#2         ; ONE HOR TAB AND AN ASTERISK
 3165  034760                          ENDINC
  (4)  034760  000746                          BR      50346$
  (4)  034762                          50351$:
 3166  034762                          OUTPUT #OUTBUF+6,#1                 ; DO CARRIAGE RETURN
 3167  035024                          OUTPUT #CLRHOR,#4                   ; CLEAR HORIZONTAL TABS
 3168  035066                          OUTPUT #STOPS3,#16.                 ; SET THREE HORIZONTAL TAB STOPS
 3169  035130                          INCR COUNT FROM #1 TO #6 BY #1      ; PRINT TOP SECTION OF RECTANGLE
  (5)  035130  012737  000001  002276          MOV     #1,COUNT
  (7)  035136  000402                          BR      50353$
  (6)  035140                          50352$:
  (8)  035140  005237  002276                  INC     COUNT
  (6)  035144                          50353$:
  (7)  035144  023727  002276  000006          CMP     COUNT,#6
  (9)  035152  003402                          BLE     50354$
  (7)  035154  000137  035266                  JMP     50355$
  (6)  035160                          50354$:
 3170  035160                                  OUTPUT #OUTBUF,#2           ; DO TWO VERTICAL TABS
 3171  035222                                  OUTPUT #TOPSEC,#6           ; DO THREE TABS AND PRINT 2 ASTE
 3172  035264                          ENDINCR
  (4)  035264  000725                          BR      50352$
  (4)  035266                          50355$:
 3173  035266                          OUTPUT #OUTBUF,#1                   ; MOVE VERTICALLY TO CENTER LINE
 3174  035330                          OUTPUT #MIDSEC,#4                   ; DO TWO TABS AND 1 ASTERISK (CE
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3175  035372                              OUTPUT @OUTBUF,#1                    ; MOVE VERTICALLY TO NEXT PRINTA
3176  035434                              OUTPUT @BOTSEC,#6                    ; FIRST LINE OF BOTTOM SECTION
3177  035476                              INCR COUNT FROM #1 TO #5 BY #1       ; PRINT REST OF BOTTOM SECTION (
 (5)  035476  012737  000001  002276              MOV     #1,COUNT
 (7)  035504  000402                              BR      50357$
 (6)  035506                         50356$:
 (8)  035506  005237  002276                      INC     COUNT
 (6)  035512                         50357$:
 (7)  035512  023727  002276  000005              CMP     COUNT,#5
 (9)  035520  003402                              BLE     50360$
 (7)  035522  000137  035634                      JMP     50361$
 (6)  035526                         50360$:
3178  035526                                    OUTPUT @OUTBUF,#2                ; DO TWO VERTICAL TABS
3179  035570                                    OUTPUT @BOTSEC,#6                ; THREE TABS, TWO ASTERISKS AND
3180  035632                              ENDINC
 (4)  035632  000725                              BR      50356$
 (4)  035634                         50361$:
3181  035634                              OUTPUT @OUTBUF,#1,,#7                ; MOVE VERTICALLY TO BOTTOM LINE
3182  035676                              OUTPUT @HORTB1,#82.                  ; SET FIRST 16 HORIZONTAL TAB ST
3183  035740                              OUTPUT @HORTB2,#84.                  ; SET SECOND 16 HORIZONTAL TAB S
3184  036002                              OUTPUT @XHOR,#7                      ; SET EXTRA HORIZONTAL STOP
3185  036044                              OUTPUT @OUTBUF+4,#2                  ; DO HORIZONTAL TAB AND PRINT AS
3186  036106                              INCR COUNT FROM #1 TO #13. BY #1     ; PRINT BOTTOM LINE OF ASTERISKS
 (5)  036106  012737  000001  002276              MOV     #1,COUNT
 (7)  036114  000402                              BR      50363$
 (6)  036116                         50362$:
 (8)  036116  005237  002276                      INC     COUNT
 (6)  036122                         50363$:
 (7)  036122  023727  002276  000015              CMP     COUNT,#13.
 (9)  036130  003402                              BLE     50364$
 (7)  036132  000137  036202                      JMP     50365$
 (6)  036136                         50364$:
3187  036136                                    OUTPUT @OUTBUF+3,#3              ; TWO HOR TABS AND AN ASTERISK
3188  036200                              ENDINC
 (4)  036200  000746                              BR      50362$
 (4)  036202                         50365$:
3189  036202                              INCR COUNT FROM #1 TO #5 BY #1       ; PRINT REST OF BOTTOM LINE OF A
 (5)  036202  012737  000001  002276              MOV     #1,COUNT
 (7)  036210  000402                              BR      50367$
 (6)  036212                         50366$:
 (8)  036212  005237  002276                      INC     COUNT
 (6)  036216                         50367$:
 (7)  036216  023727  002276  000005              CMP     COUNT,#5
 (9)  036224  003402                              BLE     50370$
 (7)  036226  000137  036276                      JMP     50371$
 (6)  036232                         50370$:
3190  036232                                    OUTPUT @OUTBUF+4,#2              ; ONE HOR TAB AND AN ASTERISK
3191  036274                              ENDINC
 (4)  036274  000746                              BR      50366$
 (4)  036276                         50371$:
3192  036276                              OUTPUT @OUTBUF+6,#1                  ; DO CARRIAGE RETURN
3193  036340                              OUTPUT @DECFIN,#5                    ; TOGGLE THE OFFSET
3194  036402                              OUTPUT @OUTBUF+2,#1                  ; FORM FEED
3195  036444                              OUTPUT @REINIT,#2                    ; RESET DEFAULT CONDITIONS
3196  036506                              OUTPUT @SELDEC,#5                    ; DECIPOINTS
3197  036550  004737  005306              JSR PC,QUIET                         ; GUARANTEE THE FORM FEED
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3198
3199
3200
3201  036554                                  EXIT TST
 (3)  036554  104432                         TRAP    C$EXIT
 (3)  036556  000700                         .WORD   L10023-.
3202
3203                                  ;                                LOCAL VARIABLES, MESSAGES AND DATA TABLES
3204
3205                                  .NLIST BEX
3206  036560  006412  055433  030061  TABTST: .ASCII  <12><15><33>/[10mTABS TEST 12/<15>
3207  036604     033     133     064  CLRVER: .BYTE   33,133,64,147
3208  036610     033     133     063  CLRHOR: .BYTE   33,133,63,147
3209  036614     033     133     073  TBMAR1: .BYTE   33,133,73,63,66,60,60,162                                                    ; SET BO
3210  036624     033     133     063  LRMAR1: .BYTE   33,133,63,66,60,60,73,64,63,62,60,163
3211  036640     033     133     067  VERTB1: .BYTE   33,133,67,62,60,73,71,60,60,73,61,60,70,60,73,61,62,66,60,73
3212  036664     061     064     064          .BYTE   61,64,64,60,73,61,66,62,60,73,61,70,60,60,73,61,71,70,60,166
3213  036710     033     133     062          .BYTE   33,133,62,61,66,60,73,62,63,64,60,73,62,65,62,60,73,62,67,60,60
3214  036735     073     062     070          .BYTE   73,62,70,70,60,73,63,60,66,60,73,63,62,64,60,73,63,64,62,60,166
3215  036762     033     133     063  VERTB2: .BYTE   33,133,63,66,60,60,73,63,67,70,60,73,63,71,66,60,73,64,61,64,60,73
3216  037010     064     063     062          .BYTE   64,63,62,60,73,64,65,60,60,73,64,66,70,60,73,64,70,66,60,166
3217  037034     033     133     065          .BYTE   33,133,65,60,64,60,73,65,61,65,60,73,65,62,60,60,73,65,62,65,60,73
3218  037062     065     063     060          .BYTE   65,63,60,60,73,65,63,65,60,73,65,64,60,60,73,65,67,66,60,166
3219  037106     033     133     065  XVER:   .BYTE   33,133,65,62,62,65,166
3220  037115     033     133     067  HORTB1: .BYTE   33,133,67,62,60,73,71,60,60,73,61,60,70,60,73,61,62,66,60,73
3221  037141     061     064     064          .BYTE   61,64,64,60,73,61,66,62,60,73,61,70,60,60,73,61,71,70,60,165
3222  037165     033     133     062          .BYTE   33,133,62,61,66,60,73,62,63,64,60,73,62,65,62,60,73,62,67,60,60
3223  037212     073     062     070          .BYTE   73,62,70,70,60,73,63,60,66,60,73,63,62,64,60,73,63,64,62,60,165
3224  037237     033     133     063  HORTB2: .BYTE   33,133,63,66,60,60,73,63,67,70,60,73,63,71,66,60,73,64,61,64,60,73
3225  037265     064     063     062          .BYTE   64,63,62,60,73,64,65,60,60,73,64,66,70,60,73,64,70,66,60,165
3226  037311     033     133     065          .BYTE   33,133,65,60,64,60,73,65,62,62,60,73,65,67,66,60,73,66,61,62,60,73
3227  037337     066     064     070          .BYTE   66,64,70,60,73,66,70,64,60,73,67,62,60,60,73,67,63,70,60,165
3228  037363     033     133     065  XHOR:   .BYTE   33,133,65,64,60,60,165
3229  037372     033     133     073  DEFMR1: .BYTE   33,133,73,65,70,63,62,162                                                   ; DEFAUL
3230  037402     033     133     064  DEFMR2: .BYTE   33,133,64,67,65,73,67,64,64,65,163
3231  037415     033     133     067  STOPS3: .BYTE   33,133,67,62,60,73,63,71,66,60,73,67,62,60,60,165
3232  037435     011     052     011  TOPSEC: .BYTE   11,52,11,11,52,12                                                           ; LINE USED FOR TOP SECT
3233  037443     011     011     052  MIDSEC: .BYTE   11,11,52,12
3234  037447     011     052     011  BOTSEC: .BYTE   11,52,11,11,52,12                                                           ; LINE USED FOR BOTTOM S
3235        037456                          .EVEN
3236                                  .LIST BEX
3237  037456                                  ENDTST
 (3)  037456                          L10023:
 (3)  037456  104401                         TRAP    C$ETST
3238
3239  037460                                  ENDMOD
3240                                  .SBTTL  MARGINS TEST
3241                                  ;MODULE TSTMAR.P11
3242
3243  037460                                  BGNMOD
3244
3245                                  ;**
3246                                  ;
3247                                  ;                                FUNCTIONAL DESCRIPTION
3248                                  ;
3249                                  ;       THE MARGINS TEST IS DESIGNED TO TEST ALL STATED FUNCTIONS OF BOTH TOP AND
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3250                            ;       BOTTOM MARGIN ESCAPE SEQUENCES AND LEFT AND RIGHT MARGIN SEQUENCES.  IT
3251                            ;       WILL VERIFY THE ABILITY TO SET MARGINS TO THE DESIRED PARAMETERS AND ALSO
3252                            ;       WILL VERIFY THAT THE PRINTER WILL RESPOND BY OPERATING WITHIN THE MARGINS
3253                            ;       SPECIFIED EXCEPT UNDER SPECIFIED CIRCUMSTANCES, SUCH AS WHEN USING THE DRAW
3254                            ;       RULE COMMAND.
3255                            ;       THE FUNCTIONS STATED IN THE LNO1 FUNCTIONAL SPECIFICATION ARE AS FOLLOWS:
3256                            ;               1:      SET TOP AND BOTTOM MARGINS
3257                            ;                               A: SET BOTH TOP AND BOTTOM MARGINS
3258                            ;                               B: SET TOP AND DO NOT CHANGE BOTTOM
3259                            ;                               C: SET BOTTOM AND DO NOT CHANGE TOP
3260                            ;                               D: BOTH PARAMETERS LEFT OUT CAUSES NO CHANGE IN MARGINS
3261                            ;                               E: BOTH PARAMETERS EQUAL TO ZERO CAUSES NO CHANGE IN MAR
3262                            ;                               F: REPOSITIONING ACTIVE LINE WHEN CURRENT ACTIVE LINE IS
3263                            ;                               G: ESCAPE SEQUENCES IGNORED IF PARAMETERS DO NOT CONFORM
3264                            ;
3265                            ;               2:      SET LEFT AND RIGHT MARGINS
3266                            ;                               A: SET BOTH LEFT AND RIGHT MARGINS
3267                            ;                               B: SET LEFT AND DO NOT CHANGE RIGHT
3268                            ;                               C: SET RIGHT AND DO NOT CHANGE LEFT
3269                            ;                               D: BOTH PARAMETERS LEFT OUT CAUSES NO CHANGE IN MARGINS
3270                            ;                               E: BOTH PARAMETERS EQUAL TO ZERO CAUSES NO CHANGE IN MAR
3271                            ;                               F: REPOSITIONING OF ACTIVE COLUMN TO EQUAL NEW LEFT MARG
3272                            ;                               G: ESCAPE SEQUENCES IGNORED IF PARAMETERS DO NOT CONFORM
3273                            ;
3274                            ;               3:      SET PHYSICAL LINES PER PAGE
3275                            ;                               A: SETTING PHYSICAL LINES PER PAGE CHANGES TOP MARGIN TO
3276                            ;                               B: SETTING PHYSICAL LINES PER PAGE CHANGES BOTTOM MARGIN
3277
3278                            ;--
3279
3280                            ;               GLOBALS REFERENCED:
3281                            ;       REINIT.COUNT
3282
3283    000000                  .REPT   0
3284
3285
3286                                    "STEP BY STEP BREAKDOWN OF EACH SECTION OF THE TEST"
3287
3288
3289                            BEGIN ROUTINE
3290                            :                               LEFT RIGHT MARGIN SECTION
3291                            :
3292                            :       SELECT SIZE UNIT AS DECIPOINTS
3293                            :       TOGGLE PAPER OFFSET
3294                            :       PRINT TEST ID
3295                            :       SKIP A LINE
3296                            :       PRINT REFERENCE LINE OF "M"S                            ; FROM ONE INCH TO TENTH
3297                            :       DO A LINE FEED
3298                            :       REPEAT 7 TIMES
3299                            :       :       SET LRMARGINS AT "A" AND "B"                    ; "A" STARTS AT '1' (INC
3300                            :       :       OUTPUT 100 ASTERISKS                            ; ONLY 13 SHOULD BE PRIN
3301                            :       :       DO A LINE FEED
3302                            :       :       ADD 1 TO "A" AND TO "B"                         ; MOVES MARGINS ONE INCH
3303                            :       END REPEAT
3304                            :       LET R3 EQUAL ATBL                                       ; 1ST TABLE OF SEQUENCES
3305                            :       LET R4 EQUAL APTBL                                      ; TABLE OF BYTE COUNTS F
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3306                            :       WHILE (R3) NE #0 DO                                     ; DO FOR ALL ENTRIES IN
3307                            :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3308                            :       ENDDO
3309                            :       LET R3 EQUAL BTBL                                       ; 2ND TABLE OF SEQS AND
3310                            :       LET R4 EQUAL BPTBL                                      ;       "       BYTE COUN
3311                            :       WHILE (R3) NE TO #0 DO                                  ; DO FOR ALL ENTRIES
3312                            :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT ENTRY
3313                            :       ENDDO
3314                            :       SET LEFT AND RIGHT MARGIN TO 1 AND 10 INCHES RESPECTIVELY
3315                            :       DO A LINE FEED
3316                            :       PRINT LINE OF ASTERISKS
3317                            :       DO A LINE FEED
3318                            :       LET R3 EQUAL IGTBL                                      ; TABLE OF IGNORED SEQUE
3319                            :       LET R4 EQUAL IGTBLP                                     ; BYTE COUNTS
3320                            :       WHILE (R3) NE #0 DO                                     ; DO FOR EACH ENTRY
3321                            :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3322                            :       :       DO CARRIAGE RETURN
3323                            :       :       PRINT LINE OF ASTERISKS
3324                            :       :       DO A LINE FEED
3325                            :       ENDDO
3326                            :       DO A LINE FEED
3327                            :
3328                            :                               TOP BOTTOM MARGIN SECTION
3329                            :
3330                            :       LET R3 EQUAL CTBL                                       ; TABLE OF SEQUENCES AND
3331                            :       LET R4 EQUAL CPTBL                                      ; BYTE COUNTS
3332                            :       WHILE (R3) NE #0 DO                                     ; DO ALL ENTRIES
3333                            :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3334                            :       ENDDO
3335                            :       LET R3 EQUAL DTBL                                       ; MORE TOP BOTTOM SEQS A
3336                            :       LET R4 EQUAL DPTBL                                      ; TABLE OF BYTE COUNTS
3337                            :       WHILE (R3) NE #0 DO                                     ; DO FOR ALL ENTRIES
3338                            :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3339                            :       ENDDO
3340                            :
3341                            :                               PHYSICAL LINES PER PAGE SECTION
3342                            :
3343                            :       SET PHYSICAL LINES PER PAGE TO 8 INCHES
3344                            :       DO FORM FEED
3345                            :       INCREMENT COUNT FROM 1 TO 69 BY 1
3346                            :       :       PRINT PLP MESSAGE
3347                            :       :       DO LINE FEED
3348                            :       END INCREMENT
3349                            :       PRINT END OF SECTION MESSAGE
3350                            :
3351                            :                               IGNORED SEQUENCE SECTION
3352                            :
3353                            :       SET TOP AND BOTTOM MARGINS AT 1 AND 7 INCHES
3354                            :       DO FORM FEED
3355                            :       LET R3 EQUAL IGNTBL                                     ; IGNORED SEQUENCE TABLE
3356                            :       LET R4 EQUAL IGNTBP                                     ; BYTE COUNTS
3357                            :       WHILE (R3) NE #0 DO                                     ; DO FOR ALL ENTRIES
3358                            :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3359                            :       ENDDO
3360                            :       INCREMENT COUNT FROM 1 TO 52 BY 1
3361                            :       :       OUTPUT IGNORED SECTION MESSAGE
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3362                                    ;       END INCREMENT
3363                                    ;       OUTPUT END OF SECTION MESSAGE
3364                                    ;       OUTPUT END OF TEST MESSAGE
3365                                    ;       DO A FORM FEED
3366                                    ;       DO RESET                        ; RETURN TO ALL DEFAULT
3367                                    ;       SELECT SIZE UNIT AS DECIPOINTS
3368                                    ;       EXIT TEST
3369                                    END ROUTINE
3370                                    .ENDR
3371
3372
3373
3374
3375
3376
3377
3378
3379
3380
3381
3382
3383
3384
3385
3386
3387                                    ;               SOURCE CODE IN SPMACJ
3388  037460                                    BGNTST  13.
 (3)  037460                            T13::
3389
3390  037460                            LET OUTBUF :B= #11                        ; CODE FOR HOR. TAB
 (4)  037460  112737  000011  003114          MOVB    #11,OUTBUF
3391  037466                            LET OUTBUF+1 :B= #115                     ; UPPER CASE 'M
 (4)  037466  112737  000115  003115          MOVB    #115,OUTBUF+1
3392  037474                            LET OUTBUF+2 :B= #12                      ; LINE FEED
 (4)  037474  112737  000012  003116          MOVB    #12,OUTBUF+2
3393  037502                            LET OUTBUF+3 :B= #15                      ; CARRIAGE RETURN
 (4)  037502  112737  000015  003117          MOVB    #15,OUTBUF+3
3394  037510                            LET OUTBUF+4 :B= #13                      ; VERTICAL TAB
 (4)  037510  112737  000013  003120          MOVB    #13,OUTBUF+4
3395  037516                            LET OUTBUF+5 :B= #14                      ; FORM FEED
 (4)  037516  112737  000014  003121          MOVB    #14,OUTBUF+5
3396  037524                            LET OUTBUF+6 :B= #73                      ; SEMI COLON FOR SEPARAT
 (4)  037524  112737  000073  003122          MOVB    #73,OUTBUF+6
3397  037532                            LET OUTBUF+7 :B= #52                      ; CODE FOR ASTERISK
 (4)  037532  112737  000052  003123          MOVB    #52,OUTBUF+7
3398  037540                            LET OUTBUF+10 :B= #40                     ; SPACE
 (4)  037540  112737  000040  003124          MOVB    #40,OUTBUF+10
3399  037546                            LET OUTBUF+11 :B= #77                     ; QUESTION MARK CHARACTE
 (4)  037546  112737  000077  003125          MOVB    #77,OUTBUF+11
3400  037554                            LET OUTBUF+12 :B= #137                    ; UNDERLINE
 (4)  037554  112737  000137  003126          MOVB    #137,OUTBUF+12
3401  037562                            LET OUTBUF+13 :B= #41                     ; EXCLAMATION
 (4)  037562  112737  000041  003127          MOVB    #41,OUTBUF+13
3402  037570                            LET OUTBUF+14 :B= #53                     ; PLUS SIGN
 (4)  037570  112737  000053  003130          MOVB    #53,OUTBUF+14
3403  037576                            LET OUTBUF+15 :B= #75                     ; EQUAL
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 (4)  037576  112737  000075  003131          MOVB    #75,OUTBUF+15
3404  037604                                LET OUTBUF+16 :B= #133                    ; LEFT SQUARE BRACKET
 (4)  037604  112737  000133  003132          MOVB    #133,OUTBUF+16
3405  037612                                LET OUTBUF+17 :B= #135                    ; RIGHT  "       '
 (4)  037612  112737  000135  003133          MOVB    #135,OUTBUF+17
3406
3407                                          ;                    LEFT RIGHT MARGIN SECTION
3408  037620                                OUTPUT #REINIT,#2
3409  037662                                OUTPUT #SELDEC,#5                         ; DECIPOINTS
3410  037724                                OUTPUT #DECFIN,#5                         ; TOGGLE PAPER OFFSET
3411  037766                                OUTPUT #TSTMRA,#30.                       ; TEST ID ON LINE 1 (DEF
3412  040030                                OUTPUT #TABMS,#48.                        ; CLEAR DEFAULT TABS THE
3413  040072                                INCR COUNT FROM #1 TO #8. BY #1           ; DO TEN TIMES
 (5)  040072  012737  000001  002276          MOV     #1,COUNT
 (7)  040100  000402                          BR      50373$
 (6)  040102                                50372$:
 (8)  040102  005237  002276                  INC     COUNT
 (6)  040106                                50373$:
 (7)  040106  023727  002276  000010          CMP     COUNT,#8.
 (9)  040114  003402                          BLE     50374$
 (7)  040116  000137  040230                  JMP     50375$
 (6)  040122                                50374$:
3414  040122                                      OUTPUT #OUTBUF,#1                   ; DO A HORIZONTAL TAB
3415  040164                                      OUTPUT #OUTBUF+1,#1                 ; PRINT AN "M"
3416  040226                                ENDINC                                    ; REFERENCE LINE OF 'M S
 (4)  040226  000725                          BR      50372$
 (4)  040230                                50375$:
3417  040230                                OUTPUT #OUTBUF+2,#1                       ; DO LINE FEED
3418  040272                                LET R3 := #PARTBL                         ; SETUP R3 AS INDEX TO T
 (4)  040272  012703  044140                  MOV     #PARTBL,R3
3419  040276                                WHILE (R3) NE #0 DO                       ; DO FOR EACH ENTRY IN T
 (4)  040276                                50376$:
 (6)  040276  005713                          TST     (R3)
 (8)  040300  001002                          BNE     .+6
 (9)  040302  000137  040454                  JMP     50377$
3420  040306                                      OUTPUT (R3)+,#12.
3421  040346                                      OUTPUT #OUTBUF+7,#1,,#100.          ; TRY AND PRINT 100 ASTE
3422                                                                                  ; THE LEFT AND RIGHT MAR
3423  040410                                      OUTPUT #OUTBUF+2,#1                 ; DO A LINE FEED
3424  040452                                ENDDO
 (3)  040452  000711                          BR      50376$
 (3)  040454                                50377$:
3425  040454                                LET R3 := #ATBL                           ; FIRST TABLE OF SEQUENC
 (4)  040454  012703  044160                  MOV     #ATBL,R3
3426  040460                                LET R4 := #APTBL                          ; FIRST TABLE OF BYTE CO
 (4)  040460  012704  044254                  MOV     #APTBL,R4
3427  040464                                WHILE (R3) NE #0 DO
 (4)  040464                                50400$:
 (6)  040464  005713                          TST     (R3)
 (8)  040466  001002                          BNE     .+6
 (9)  040470  000137  040534                  JMP     50401$
3428  040474                                      OUTPUT (R3)+,(R4)+                  ; DO FOR ALL ENTRIES
3429  040532                                ENDDO
 (3)  040532  000754                          BR      50400$
 (3)  040534                                50401$:
3430  040534  004737  005306                JSR PC,QUIET
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3431  040540                          LET R3 :* @BTBL
 (4)  040540  012703  044346                MOV     @BTBL,R3
3432  040544                          LET R4 :* @BPTBL
 (4)  040544  012704  044422                MOV     @BPTBL,R4
3433  040550                          WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN T
 (4)  040550                          50402$:
 (6)  040550  005713                        TST     (R3)
 (8)  040552  001002                        BNE     .+6
 (9)  040554  000137  040620                JMP     50403$
3434  040560                                OUTPUT (R3)+,(R4)+                ; OUTPUT THE ENTRY
3435  040616                          ENDDO
 (3)  040616  000754                        BR      50402$
 (3)  040620                          50403$:
3436  040620  004737  005306          JSR PC,QUIET
3437  040624                          OUTPUT #ONETEN,#12.                     ; SETS LRMAR TO 1 AND 10
3438  040666                          OUTPUT #OUTBUF+2,#1                     ; LINE FEED
3439  040730                          OUTPUT #OUTBUF+7,#1,,#150.              ; PRINT ASTERISKS ACROSS
3440  040772                          OUTPUT #OUTBUF+2,#1                     ; LINE FEED
3441  041034                          LET R3 :* @IGTBL                        ; TABLE OF IGNORE SEQS
 (4)  041034  012703  044474                MOV     @IGTBL,R3
3442  041040                          LET R4 :* @IGTBLP                       ;       "  PARAMETERS
 (4)  041040  012704  044514                MOV     @IGTBLP,R4
3443  041044                          WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY
 (4)  041044                          50404$:
 (6)  041044  005713                        TST     (R3)
 (8)  041046  001002                        BNE     .+6
 (9)  041050  000137  041320                JMP     50405$
3444  041054                                OUTPUT (R3)+,(R4)+                ; OUTPUT THE ENTRY
3445  041112                                OUTPUT #OUTBUF+3,#1               ; CARRIAGE RETURN
3446  041154                                INCR COUNT FROM #1 TO #150. BY #1
 (5)  041154  012737  000001  002276        MOV     #1,COUNT
 (7)  041162  000402                        BR      50407$
 (6)  041164                          50406$:
 (8)  041164  005237  002276                INC     COUNT
 (6)  041170                          50407$:
 (7)  041170  023727  002276  000226        CMP     COUNT,#150.
 (9)  041176  003402                        BLE     50410$
 (7)  041200  000137  041250                JMP     50411$
 (6)  041204                          50410$:
3447  041204                                OUTPUT #OUTBUF+7,#1               ; PRINT ACROSS PAGE
3448  041246                                ENDINC
 (4)  041246  000746                        BR      50406$
 (4)  041250                          50411$:
3449  041250  004737  005306                JSR PC, QUIET
3450  041254                                OUTPUT #OUTBUF+2,#1               ; LINE FEED
3451  041316                          ENDDO
 (3)  041316  000652                        BR      50404$
 (3)  041320                          50405$:
3452  041320                          LET R3 :* @CTBL
 (4)  041320  012703  044554                MOV     @CTBL,R3
3453  041324                          LET R4 :* @CPTBL
 (4)  041324  012704  044646                MOV     @CPTBL,R4
3454  041330                          WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN T
 (4)  041330                          50412$:
 (6)  041330  005713                        TST     (R3)
 (8)  041332  001002                        BNE     .+6
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  (9)  041334  000137  041400              JMP     50413$
3455   041340                              OUTPUT (R3)+,(R4)+                    ; ALL ENTRIES HANDLED NO
3456   041376                      ENDDO
 (3)   041376  000754                      BR      50412$
 (3)   041400                      50413$:
3457   041400  004737  005306              JSR PC,QUIET
3458   041404                      LET R3 := #DTBL
 (4)   041404  012703  044740              MOV     #DTBL,R3
3459   041410                      LET R4 := #DPTBL
 (4)   041410  012704  045010              MOV     #DPTBL,R4
3460   041414                      WHILE (R3) NE #0 DO                           ; DO FOR EACH ENTRY IN 4
 (4)   041414                      50414$:
 (6)   041414  005713                      TST     (R3)
 (8)   041416  001002                      BNE     .+6
 (9)   041420  000137  041464              JMP     50415$
3461   041424                              OUTPUT (R3)+,(R4)+                    ; ALL ENTRIES HANDLED NO
3462   041462                      ENDDO
 (3)   041462  000754                      BR      50414$
 (3)   041464                      50415$:
3463
3464                               ;                    PHYSICAL LINES PER PAGE SECTION
3465
3466   041464                      OUTPUT #PLP8,#7                               ; PLP SEQUENCE TO 8 INCHES
3467   041526                      OUTPUT #OUTBUF+5,#1                           ; FORM FEED
3468   041570                      OUTPUT #PLP,#32...,#69.                       ; PLP MESSAGE 69 TIMES
3469   041632  004737  005306      JSR PC, QUIET
3470   041636                      OUTPUT #EOPLP,#60.                            ; END OF PLP SECTION MESSAGE
3471
3472                               ;                    IGNORE SEQUENCE SECTION
3473
3474   041700                      OUTPUT #ONESVN,#12.                           ; SET TBMAR AT ONE AND SEVEN
3475   041742                      OUTPUT #OUTBUF+5,#1                           ; FORM FEED
3476   042004                      LET R3 := #IGNTBL                             ; TABLE OF IGNOR SEQUENCES
 (4)   042004  012703  044532              MOV     #IGNTBL,R3
3477   042010                      LET R4 := #IGNTBP
 (4)   042010  012704  044544              MOV     #IGNTBP,R4
3478   042014                      WHILE (R3) NE #0 DO
 (4)   042014                      50416$:
 (6)   042014  005713                      TST     (R3)
 (8)   042016  001002                      BNE     .+6
 (9)   042020  000137  042126              JMP     50417$
3479   042024                              OUTPUT (R3)+,(R4)+                    ; SEND IGNORE SEQ
3480   042062                              OUTPUT #ENDTBM,#1                     ; FINAL CHAR FOR TBMAR
3481   042124                      ENDDO
 (3)   042124  000733                      BR      50416$
 (3)   042126                      50417$:
3482   042126  004737  005306      JSR PC, QUIET
3483   042132                      INCR COUNT FROM #1 TO #52. BY #1
 (5)   042132  012737  000001  002276      MOV     #1,COUNT
 (7)   042140  000402                      BR      50421$
 (6)   042142                      50420$:
 (8)   042142  005237  002276              INC     COUNT
 (6)   042146                      50421$:
 (7)   042146  023727  002276  000064      CMP     COUNT,#52.
 (9)   042154  003402                      BLE     50422$
 (7)   042156  000137  042226              JMP     50423$
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 (6)  042162                          50422$:
3484  042162                                  OUTPUT @IGSEC,@25.                              ; SECTION MESSAGE
3485  042224                          ENDINC
 (4)  042224  000746                            BR      50420$
 (4)  042226                          50423$:
3486  042226  004737  005306          JSR PC, QUIET
3487  042232                          OUTPUT @EOIGN,@73.                                      ; END OF IGNORE SECTION
3488  042274                          OUTPUT @ENDTS,@12.                                      ; END OF TEST MESSAGE
3489  042336                          OUTPUT @OUTBUF+5,@1                                     ; FORM FEED
3490  042400                          OUTPUT @REINIT,@2
3491  042442                          OUTPUT @SELDEC,@5                                       ; DECIPOINTS
3492  042504  004737  005306          JSR PC, QUIET
3493  042510                                  EXIT TST
 (3)  042510  104432                            TRAP    C$EXIT
 (3)  042512  002360                            .WORD   L10024-.
3494
3495                                  ;               LOCAL VARIABLES, TABLES, MESSAGES
3496
3497                                  .NLIST BEX
3498  042514  055433  030061  046555  TSTMRA: .ASCII  <33>/[10mMARGINS TEST 13  PAGE 1/<12><12>                    ; TEST I
3499  042552  044124  051511  051440  TSTMRB: .ASCII  /THIS SHOULD BE AT APPROX. 1 INCH MARK OF SECOND PAGE/
3500  042636  044120  051531  041511  PLP:    .ASCII  /PHYSICAL LINES PER PAGE SECTION/<12>
3501  042676  044124  051511  051440  EOPLP:  .ASCII  /THIS SHOULD BE 2ND LINE OF 2ND PAGE AND END OF PLP SECTION./<12>
3502  042772  044124  051511  051440  EOIGN:  .ASCII  /THIS SHOULD BE 2ND LINE OF 2ND PAGE AND END OF IGNORED SEQUENCE SECTION
3503  043103     111  047107  051117  IGSEC:  .ASCII  /IGNORED SEQUENCE SECTION/<12>
3504  043134     033     133     062  PLP3:   .BYTE   33,133,62,61,66,60,164
3505  043143     033     133     063  PLP5:   .BYTE   33,133,63,66,60,60,164
3506  043152     033     133     065  PLP8:   .BYTE   33,133,65,67,66,60,164
3507  043161     033     133     066  PLP9:   .BYTE   33,133,66,64,70,60,164
3508  043170     033     133     063  CLRTAB: .BYTE   33,133,63,147                                                ; CLEAR
3509  043174     033     133     063  TABMS:  .BYTE   33,133,63,147,33,133,61,64,64,60,73,62,61,66,60,73      ; CLEARS HTABS A
3510  043214     062     070     070             .BYTE   62,70,70,60,73,63,66,60,60,73,64,63,62,60,73,65,60,64,60,165
3511  043240     033     133     065             .BYTE   33,133,65,67,66,60,73,66,64,70,60,165
3512  043254     033     133             BGNSEQ: .BYTE   33,133                                                  ; BEGINS
3513  043256     033     133     060     PARAM1: .BYTE   33,133,60,67,62,60,73,61,64,64,60,163                   ; LEFT -
3514  043272     033     133     061     PARAM2: .BYTE   33,133,61,64,64,60,73,62,61,66,60,163                   ;
3515  043306     033     133     062     PARAM3: .BYTE   33,133,62,61,66,60,73,62,70,70,60,163                   ;
3516  043322     033     133     062     PARAM4: .BYTE   33,133,62,70,70,60,73,63,66,60,60,163                   ;
3517  043336     033     133     063     PARAM5: .BYTE   33,133,63,66,60,60,73,64,63,62,60,163                   ;
3518  043352     033     133     064     PARAM6: .BYTE   33,133,64,63,62,60,73,65,60,64,60,163                   ;
3519  043366     033     133     065     PARAM7: .BYTE   33,133,65,60,64,60,73,65,67,66,60,163                   ;
3520  043402     033     133     065     PARAM8: .BYTE   33,133,65,67,66,60,73,66,64,70,60,163                   ;
3521  043416     033     133     066     PARAM9: .BYTE   33,133,66,64,70,60,73,67,62,60,60,163                   ;
3522  043432     033     133     067     PRAM10: .BYTE   33,133,67,62,60,60,73,67,65,66,60,163                   ;
3523  043446     033     133     067     PARM10: .BYTE   33,133,67,62,60,60                                       ; 10  IN
3524  043454     033     133     061     PAR2:   .BYTE   33,133,61,64,64,60,73,62,61,66,60,163                   ;
3525  043470     033     133     062     PAR3:   .BYTE   33,133,62,61,66,60,73,63,66,60,60,163                   ;
3526  043504     033     133     063     PAR5:   .BYTE   33,133,63,66,60,60,73,66,64,70,60,163                   ;
3527  043520     033     133     060     ONETEN: .BYTE   33,133,60,67,62,60,73,67,62,60,60,163
3528  043534     033     133     060     ONESVN: .BYTE   33,133,60,67,62,60,73,65,60,64,60,162
3529  043550     033     133     073     EXRMAR: .BYTE   33,133,73,61,60,70,60,60,163                           ; SETS R
3530  043561     073             MIDSEQ: .BYTE   73                                                              ; SEMI C
3531  043562     163             ENDLRM: .BYTE   163                                                             ; FINAL
3532  043563     162             ENDTBM: .BYTE   162                                                             ; FINAL
3533  043564     165             ENDHT:  .BYTE   165                                                             ; FINAL
3534  043565     141             ENDHR:  .BYTE   141                                                             ; FINAL
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043566     140                       ENDHAB: .BYTE   140                                                         ; FINAL
043567     144                       ENDVAB: .BYTE   144                                                         ; FINAL
043570     164                       ENDPLP: .BYTE   164                                                         ; FINAL
043571     033     133     163       IGNOR1: .BYTE   33,133,163,33,133,73,163,33,133,60,73,60,163               ; THESE SEQUENCE
043606     033     133     163       IGNORA: .BYTE   33,133,163
043611     033     133     073       IGNORB: .BYTE   33,133,73,163
043615     033     133     060       IGNORC: .BYTE   33,133,60,73,60,163
043623     033     133     065       IGNOR2: .BYTE   33,133,65,60,64,60,73,64,63,62,60                          ; SETS M
043636     033     133     061       DRULE1: .BYTE   33,133,61,73,61,62,67,65,73,63,60,60,73,62,67,60,60,73,63,65,41,174
                                                                                                                 ; AND 1
043664     033     133     060       DRULE2: .BYTE   33,133,60,73,61,62,67,65,73,61,66,65,60,73,61,62,60,60,73,63,65,41,174
                                                                                                                 ; INCHES
043713     033     133     073       DEFMAR: .BYTE   33,133,73,65,70,63,62,162,33,133,64,67,65,73,67,64,64,65,163    ; SEQ TO
043736  047524  020120  040515       TOPMAR: .ASCII  /TOP MARGIN. INCHES FROM THE TOP SHOULD EQUAL APPROX. /
044023     102  052117  047524       BOTMAR: .ASCII  /BOTTOM MARGIN. INCHES FROM THE TOP SHOULD EQUAL APPROX. /
044113     105  042116  047440       ENDTS:  .ASCII  /END OF TEST/<12>
044127     066  031061  032463       TOPNUM: .ASCII  /612357/                                                    ; TABLE
044135     067     070               BOTNUM: .ASCII  /78/                                                        ;
        044140                               .EVEN
044140  043272  043306  043322       PARTBL: .WORD   PARAM2,PARAM3,PARAM4,PARAM5,PARAM6,PARAM7,PARAM8,0     ; TABLE OF PARAM
044160  043272  003124  043256       ATBL:   .WORD   PARAM2,OUTBUF+10,PARAM1,ENDHAB,OUTBUF+7,PARAM3,ENDHAB,OUTBUF+12,OUTBUF+2
044202  043306  003123  043272               .WORD   PARAM3,OUTBUF+7,PARAM2,ENDHR,OUTBUF+12,OUTBUF+2,PARAM4,OUTBUF+7,PARAM5,E
044232  043336  043366  043566               .WORD   PARAM5,PARAM7,ENDHAB,OUTBUF+14,PARAM5,ENDHAB,OUTBUF+7,OUTBUF+2,0
044254  000014  000001  000006       APTBL:  .WORD   12.,1,6,1,1,6,1,1,1,12.,1,6,1,1,1,12.,1,6                  ; FIRST TABLE OF
044320  000001  000001  000001               .WORD   1,1,1,12.,6,1,1,6,1,1,1
044346  043352  003123  003116       BTBL:   .WORD   PARAM6,OUTBUF+7,OUTBUF+2,PARAM7,OUTBUF+7,PARM10,ENDHAB   ; 2ND TABLE OF S
044364  003123  043366  003123               .WORD   OUTBUF+7,PARAM7,OUTBUF+7,OUTBUF+2,PARAM8,OUTBUF+7,OUTBUF+2,PARAM9,OUTBUF
044410  043336  004036  043636               .WORD   PARAM5,SELPIX,DRULE1,SELDEC,0
044422  000014  000001  000001       BPTBL:  .WORD   12.,1,1,12.,1,6,1,1,12.,1,1,12.,1,1,12.,1,1,12.,5,22.,5        ; 2ND TA
044474  043520  043606  043520       IGTBL:  .WORD   ONETEN,IGNORA,ONETEN,IGNORB,ONETEN,EXRMAR,ONETEN,0              ; IGNORE
044514  000014  000003  000014       IGTBLP: .WORD   12.,3,12.,4,12.,9.,12.
044532  043606  043611  043615       IGNTBL: .WORD   IGNORA,IGNORB,IGNORC,EXRMAR,0
044544  000002  000003  000005       IGNTBP: .WORD   2,3,5,8.                                                        ; BYTE C
044554  043713  043352  043563       CTBL:   .WORD   DEFMAR,PARAM6,ENDTBM,BGNSEQ,MIDSEQ,PARAM6+7,ENDTBM,TOPMAR,TOPNUM
044576  003117  004036  043664               .WORD   OUTBUF+3,SELPIX,DRULE2,SELDEC,PARAM1,ENDTBM,PARAM7,ENDVAB,BOTMAR,BOTNUM
044622  003116  042552  003116               .WORD   OUTBUF+2,TSTMRB,OUTBUF+2,DEFMAR,PARAM2,ENDTBM
044636  043736  044131  003116               .WORD   TOPMAR,TOPNUM+2,OUTBUF+2,0
044646  000023  000006  000001       CPTBL:  .WORD   19.,6,1,2,1,4,1,53.,1,1,5,23.,5,6,1,6,1,56.,1,1,52.,1,8.,6
044726  000001  000065  000001               .WORD   1,53.,1,1,0
044740  043306  043563  043736       DTBL:   .WORD   PARAM3,ENDTBM,TOPMAR,TOPNUM+3,OUTBUF+2,PARAM5,ENDTBM TOPMAR     ; 4TH TA
044760  044133  003116  043366               .WORD   TOPNUM+4,OUTBUF+2,PARAM7,ENDTBM,TOPMAR,TOPNUM+5,OUTBUF+2
044776  043402  043567  044023               .WORD   PARAM8,ENDVAB,BOTMAR,BOTNUM+1,0
045010  000006  000001  000065       DPTBL:  .WORD   6,1,53.,1,1,6,1,53.,1,1,6,1,53.,1,1,6,1,56.,1,0
045060  043134  043143  043152       PLPTBL: .WORD   PLP3,PLP5,PLP8,PLP9,0
                                             .EVEN
                                             .LIST BEX
045072                                               ENDTST
(3) 045072                                   L10024:
(3) 045072  104401                                   TRAP    C$ETST
045074                                               ENDMOD
```

```
3589
3590
3591
3592
3594                                    .SBTTL  AUTO-UNDERLINE MODE TEST
3595                                            ;MODULE NAME: UNDLIN.P11 6/20/82
3596  045074                                    BGNMOD
3597
3598                                    ;               GLOBALS REFERENCED
3599                                    ;       REINIT,ACRLF
3600
3601                                    ;++
3602                                    ; THIS VERSION OF THE AUTO-UNDERLINE TEST HAS BEEN ALTERED FOR USE IN LNO1 DIAGNOSTIC.
3603                                    ; THE ORIGINAL VERSION WAS WRITTEN FOR HARD COPY TERMINALS USING SERIAL INTERFACE(DZ11)
3604                                    ; THE ORIGINAL VERSION STILL EXISTS IN THE TML LIBRARY AND IS CALLED AUTUND.NEW.
3605                                    ; THE LNO1 DIAGNOSTIC HAS DRIVERS FOR A PARALLEL INTERFACE(LP11,M7258).
3606                                    ; THIS TEST IS DESIGNED TO EXERCISE THE LNO1'S AUTO-UNDERLINING CAPABILITY.
3607                                    ; MESSAGES ARE PRINTED WITH UNDERLINING AND WITHOUT.
3608                                    ;--
3609            000000                  .REPT 0
3610
3611                                    BEGINTEST
3612
3613                                            :   SEND "OFF" ESCAPE SEQUENCE (CLRUND)
3614                                            :   PRINT "AUTO UNDERLINE MODE TEST" (UNDTTL)
3615                                            :   SKIP TWO LINES ((ACRLF)X2)
3616                                            :   PRINT "THIS MESSAGE SHOULD NOT BE UNDERLINED  (NOTUND)
3617
3618
3619                                            :   SEND "ON" ESCAPE SEQUENCE (UNDON)
3620                                            :   PRINT "THIS MESSAGE SHOULD BE UNDERLINED' (UNDMSG)
3621                                            :   PRINT CHARACTER SET (ATHRUZ)
3622
3623
3624                                            :   PRINT "TABS:    "           (TABS)
3625                                            :   CLR TABS
3626                                            :   SET TABS
3627                                            :   INCREMENT COUNT FROM 1 TO 8 BY 1
3628                                            :   :    DO A TAB
3629                                            :   :   PRINT A "T"
3630                                            :   ENDINCREMENT
3631                                            :   SKIP 2 LINES
3632
3633
3634                                            :   PRINT "SPACES:    "          (SPACES)
3635                                            :   PRINT A "S"
3636                                            :   INCREMENT COUNT FROM 1 TO 14 BY 1
3637                                            :   :   SEND A SPACE "COUNT" TIMES
3638                                            :   :   PRINT A "S"
3639                                            :   ENDINCREMENT
3640
3641
3642                                            :   SEND UNDERLINE OF UNDERLINE CHARACTER MESSAGE (UNDUND)
3643                                            :   PRINT A LINE OF ' '
3644                                            :   SKIP 2 LINES (ACRLF X 2)
3645
```

```
3646
3647                                        :   INCREMENT COUNT FROM 1 TO 16 BY 1    ; NOTE: CURRENT CODE ONLY DOES 11 DUE TO
3648                                        :   :   TURN ON UNDERLINE
3649                                        :   :   PRINT "ON" AND A SPACE
3650                                        :   :   TURN OFF UNDERLINE
3651                                        :   :   PRINT "OFF" AND A SPACE
3652                                        :   END INCREMENT
3653                                        :   SKIP 2 LINES
3654
3655
3656                                        :   SEND "OFF" ESCAPE SEQUENCE (CLRUND)
3657                                        :   PRINT "THIS MESSAGE SHOULD NOT BE UNDERLINED" (NOTUND)
3658                                        :   DO A RESET OF PRINTER DEFAULT CONDITIONS
3659                                        :   DO A FORM FEED
3660
3661                                    ENDTEST
3662                                    .ENDR
3663
3664
3665
3666
3667
3668
3669
3670
3671
3672
3673  045074                                BGNTST 14.
 (3)  045074                            T14::
3674  045074                                LET OUTBUF :B= #11                      ; HOR TAB CODE
 (4)  045074  112737  000011  003114        MOVB    #11,OUTBUF
3675  045102                                LET OUTBUF+1 :B= #12                    ; LINE FEED CODE
 (4)  045102  112737  000012  003115        MOVB    #12,OUTBUF+1
3676  045110                                LET OUTBUF+2 :B= #14                    ; FORM FEED CODE
 (4)  045110  112737  000014  003116        MOVB    #14,OUTBUF+2
3677  045116                                LET OUTBUF+3 :B= #15                    ; CARRIAGE RETURN CODE
 (4)  045116  112737  000015  003117        MOVB    #15,OUTBUF+3
3678  045124                                LET OUTBUF+4 :B= #40                    ; SPACE CODE
 (4)  045124  112737  000040  003120        MOVB    #40,OUTBUF+4
3679  045132                                LET OUTBUF+5 :B= #123                   ; UPPER CASE "S" CODE
 (4)  045132  112737  000123  003121        MOVB    #123,OUTBUF+5
3680  045140                                LET OUTBUF+6 :B= #124                   ; "T  CODE
 (4)  045140  112737  000124  003122        MOVB    #124,OUTBUF+6
3681  045146                                LET OUTBUF+7 :B= #137                   ; UNDERLINE ( ) CODE
 (4)  045146  112737  000137  003123        MOVB    #137,OUTBUF+7
3682  045154                                OUTPUT #REINIT,#2
3683  045216                                OUTPUT #SELDEC,#5                       ; DECIPOINTS
3684  045260                                OUTPUT #UNDON,#4                        ; SEQUENCE TO TURN UNDERLINE ON
3685  045322                                OUTPUT #NOUND,#5                        ;          "              OFF
3686  045364                                OUTPUT #UNDTTL,#36.                     ; TEST ID
3687  045426                                OUTPUT #NOTUND,#40.                     ; MESSAGE SAYING  NOT UNDERLINED
3688                                        ;
3689  045470                                OUTPUT #UNDON,#4                        ; SEQ TURNING UNDERLINE ON
3690  045532                                OUTPUT #UNDMSG,#60.                     ; MESSAGE SAYING  UNDERLINED
3691  045574                                OUTPUT #ATHRUZ,#29.
3692                                        ;
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3693  045636                                        OUTPUT #TABS,#7                         ;SEND TABS MESSAGE
3694  045700                                        OUTPUT #NOTAB,#4                        ;CLR ALL TABS
3695  045742                                        OUTPUT #STTAB,#41.                      ;SET TABS AT 1.1 1/2,2,3,4,5,7,1
3696  046004                                        INCR WORK FROM #1 TO #8. BY #1
 (5)  046004  012737  000001  003110                MOV     #1,WORK
 (7)  046012  000402                                BR      50425$
 (6)  046014                              50424$:
 (8)  046014  005237  003110                        INC     WORK
 (6)  046020                              50425$:
 (7)  046020  023727  003110  000010                CMP     WORK,#8.
 (9)  046026  003402                                BLE     50426$
 (7)  046030  000137  046142                        JMP     50427$
 (6)  046034                              50426$:
3697  046034                                        OUTPUT #OUTBUF,#1                       ;DO TAB
3698  046076                                        OUTPUT #OUTBUF+6,#1                     ; "T"
3699  046140                                        ENDINCR                                 ;DO FOR ALL TAB SETTINGS
 (4)  046140  000725                                BR      50424$
 (4)  046142                              50427$:
3700  046142                                        OUTPUT #NOTAB,#4                        ;CLR TABS
3701  046204                                        OUTPUT #ACRLF,#2                        ; CR, LF
3702  046246                                        OUTPUT #ACRLF,#2                        ; CR, LF
3703                                                ;
3704  046310                                        OUTPUT #SPACES,#9.                      ;SEND SPACE MESSAGE
3705  046352                                        OUTPUT #OUTBUF+5,#1                     ;SEND "S"
3706  046414                                        INCR WORK FROM #1 TO #14. BY #1
 (5)  046414  012737  000001  003110                MOV     #1,WORK
 (7)  046422  000402                                BR      50431$
 (6)  046424                              50430$:
 (8)  046424  005237  003110                        INC     WORK
 (6)  046430                              50431$:
 (7)  046430  023727  003110  000016                CMP     WORK,#14.
 (9)  046436  003402                                BLE     50432$
 (7)  046440  000137  046556                        JMP     50433$
 (6)  046444                              50432$:
3707  046444                                        OUTPUT #OUTBUF+4,#1,,WORK               ;SEND SPACE WORK TIMES
3708  046506  004737  005306                        JSR PC,QUIET
3709  046512                                        OUTPUT #OUTBUF+5,#1                     ;SEND "S"
3710  046554                                        ENDINCR
 (4)  046554  000723                                BR      50430$
 (4)  046556                              50433$:
3711  046556                                        OUTPUT #ACRLF,#2                        ; CR, LF
3712  046620                                        OUTPUT #ACRLF,#2                        ; CR, LF
3713                                                ;
3714  046662                                        OUTPUT #UNDUND,#36.                     ;UNDERLINE THE UNDERLINE MESSAGE
3715  046724                                        INCR COUNT FROM #1 TO #132. BY #1       ; DO IT 132 TIMES
 (5)  046724  012737  000001  002276                MOV     #1,COUNT
 (7)  046732  000402                                BR      50435$
 (6)  046734                              50434$:
 (8)  046734  005237  002276                        INC     COUNT
 (6)  046740                              50435$:
 (7)  046740  023727  002276  000204                CMP     COUNT,#132.
 (9)  046746  003402                                BLE     50436$
 (7)  046750  000137  047020                        JMP     50437$
 (6)  046754                              50436$:
3716  046754                                        OUTPUT #OUTBUF+7,#1                     ; UNDERLINE  CHARACTER
3717  047016                                        ENDINC
```

```
CZLNADO LN01 TEST       DNMAC X24.07 563  10 APR 84  09:07  PAGE 6 85                                                    SEQ 0101
CZLNAD.P11    10 APR 84 08:55           AUTO UNDERLINE MODE TEST

  (4)  047016  000746                          BR      50434$
  (4)  047020                           50437$:
3718   047020  004737  005306                 JSR PC,QUIET
3719   047024                                 OUTPUT #ACRLF,#2
3720   047066                                 OUTPUT #ACRLF,#2
3721   047130                                 INCR COUNT FROM #1 TO #11. BY #1                    ;. NOTE: THIS SHOULD BE 16 BUT M
  (5)  047130  012737  000001  002276          MOV     #1,COUNT
  (7)  047136  000402                          BR      50441$
  (6)  047140                           50440$:
  (8)  047140  005237  002276                 INC     COUNT
  (6)  047144                           50441$:
  (7)  047144  023727  002276  000013         CMP     COUNT,#11.
  (9)  047152  003402                          BLE     50442$
  (7)  047154  000137  047372                 JMP     50443$
  (6)  047160                           50442$:
3722   047160                                 OUTPUT #UNDON,#4                                    ; TURN ON UNDERLINE
3723   047222                                 OUTPUT #OUN,#3                                      ; PRINT ON AND A SPACE
3724   047264                                 OUTPUT #CLRUND,#4                                   ; TURN OFF UNDERLINE
3725   047326                                 OUTPUT #FUN,#4                              ; PRINT OFF AND A SPACE
3726   047370                                 ENDINC
  (4)  047370  000663                          BR      50440$
  (4)  047372                           50443$:
3727   047372                                 OUTPUT #ACRLF,#2
3728   047434                                 OUTPUT #ACRLF,#2
3729                                          ;
3730   047476                                 OUTPUT #CLRUND,#4                                   ; UNDERLINE MODE OFF
3731   047540                                 OUTPUT #NOTUND,#40.                                 ; NOT UNDERLINED MSG
3732   047602                                 OUTPUT #OUTBUF+2,#1                                 ; DO FORM FEED
3733   047644                                 OUTPUT #REINIT,#2                                   ; RESET DEFAULT CONDITIONS
3734   047706                                 OUTPUT #SELDEC,#5                                   ; DECIPOINTS
3735   047750  004737  005306                 JSR PC, QUIET                                       ; WAIT TILL DONE
3736   047754                                 EXIT    TST
  (3)  047754  104432                          TRAP    C$EXIT
  (3)  047756  000442                          .WORD   L10025-.
3737
3738                                    .NLIST BEX
3739   047760     033     133     060  CLRUND: .BYTE   33,133,60,155                               ;ESC [ 0 m
3740   047764     033     133     064  UNDON:  .BYTE   33,133,64,155                               ;ESC [ 4 m
3741   047770     033     133     062  NOUND:  .BYTE   33,133,62,64,155                            ;ESC [ 2 4 m
3742   047775     033     133     067  STTAB:  .BYTE   33,133,67,62,60,73,61,60,70,60,73,61,64,64,60,73,62,61,66,60,73,62,70,70
3743   050027     063     066     060          .BYTE   63,66,60,60,73,65,60,64,60,73,67,62,60,60,165   ;SET TABS AT 1,1 1/2,2,3
3744   050046     033     133     063  NOTAB:  .BYTE   33,133,63,147                                 ; CLEAR ALL HOR TABS
3745   050052  055433  030061  040555  UNDTTL: .ASCIZ  <33>/[10mAUTO-UNDERLINE-MODE TEST 14/<15><12><12><12>
3746   050117     124  044510  020123  NOTUND: .ASCIZ  /THIS MESSAGE SHOULD NOT BE UNDERLINED./<15><12>
3747   050170  044124  051511  046440  UNDMSG: .ASCII  /THIS MESSAGE SHOULD BE UNDERLINED /
3748   050232  047111  040440  052125          .ASCIZ  /IN AUTO-UNDERLINE MODE./<15><12><12>
3749   050265     125  042116  051105  UNDUND: .ASCIZ  /UNDERLINE OF UNDERLINE-CHARACTERS:/<15><12>
3750   050332  050123  041501  051505  SPACES: .ASCIZ  /SPACES:/<12><15>
3751   050344  040524  051502  006472  TABS:   .ASCIZ  /TABS:/<15><12>
3752   050354  041101  042103  043105  ATHRUZ: .ASCII  /ABCDEFGHIJKLMNOPQRSTUVWXYZ/<15><12><12>        ; 29 CHARACTERS
3753   050411     117  020116          OUN:    .ASCII  /ON /
3754   050414  043117  020106          FUN:    .ASCII  /OFF /
3755
3756                                          .EVEN
3757                                   .LIST BEX
3758
```

```
CZLNADO LNO1 TEST       DNMAC X24.07 563  10 APR 84  09:07  PAGE 6 86                                SEQ 0102
CZLNAD.P11    10 APR 84 08:55           AUTO UNDERLINE-MODE TEST

 3759  050420                                ENDTST
  (3)  050420                          L10025:
  (3)  050420  104401                         TRAP    C$ETST
 3760  050422                                ENDMOD
 3761
 3762
 3763
 3764
 3765
 3766
 3767
 3768
 3769
 3770
 3772                                 .SBTTL  PARTIAL LINE UP/DOWN TEST
 3773                                 ; MODULE NAME: NEWPLU.P11
 3774
 3775  050422                                BGNMOD
 3776
 3777                                 ;**
 3778                                 ;
 3779                                 ; THIS TEST IS AN ADAPTATION OF THE PARTIAL LINE UP, PARTIAL LINE DOWN
 3780                                 ; TEST USED ON HARDCOPY TERMINALS.  THE ORIGINAL VERSION OF THIS TEST
 3781                                 ; IS DESIGNED FOR USE ON TERMINALS USING THE DZ11 SERIAL INTERFACE.
 3782                                 ; THE ORIGINAL IS CALLED PTLINE.P11, AND, IS LOCATED IN THE TML LIBRARY
 3783                                 ; ON THE MILL20 DEVELOPMENT SYSTEM IN A SUBDIRECTORY CALLED TML.TESTS.
 3784                                 ; THIS COPY, WHICH HAS BEEN NAMED PLUP.P11, IS FOR USE ON THE LNO1
 3785                                 ; ELECTRONIC PRINTER ONLY. IT IS DESIGNED FOR USE ON PRINTERS USING THE
 3786                                 ; LP11 (M7258) INTERFACE. A COPY OF PLUP.P11 IS LOCATED ON MILL20 <TML.G>
 3787                                 ; THIS TEST WILL EXERCISE THE TERMINALS CAPABILITY TO EXECUTE
 3788                                 ; THE ANSI PARTIAL LINE UP AND PARTIAL LINE DOWN ESCAPE SEQUENCES.
 3789                                 ; OTHER THINGS TESTED INCLUDE THE MACHINES ABILITY TO PERFORM MULTIPLE
 3790                                 ; PLU, PLD FUNCTIONS ON ONE LINE, AND, THE STATED FACT THAT USING THE
 3791                                 ; PLU, PLD FUNCTIONS TAKES UP ONE LINE SPACE APIECE IN THE LNO1'S PAGE
 3792                                 ; BUFFER.
 3793                                 ;
 3794                                 ;--
 3795
 3796           000000                .REPT 0
 3797                                 BGN PTLINE TEST
 3798                                 :   SKIP 3 LINES
 3799                                 :   PRINT THE TEST ID
 3800                                 :   SKIP 3 MORE LINES
 3801                                 :   INCREMENT WORK FROM 1 TO 9 BY 1
 3802                                 :   :   DO FOR COUNT = 5 DOWN TO 0 BY 1
 3803                                 :   :   :       SELECT LOGICAL FONT #10
 3804                                 :   :   :       SEND '000'
 3805                                 :   :   :       SEND PLU 1 PLD
 3806                                 :   :   :       SEND '000'
 3807                                 :   :   :       SEND PLD 1 PLU
 3808                                 :   :   ENDDO
 3809                                 :   END INCREMENT
 3810                                 :   SEND '000'
 3811                                 :   SKIP 2 LINES
 3812                                 :   PRINT END OF TEST MESSAGE
 3813                                 :   TOGGLE PAPER OFFSET
```

```
3814                                    :   DO FORM FEED
3815                                    :   RESET THE PRINTER
3816                                    :   SELECT SIZE UNIT AS DECIPOINTS
3817                                    END TEST
3818
3819                                    EXAMPLE OF OUTPUT:
3820
3821
3822                                       1        1        1        1
3823                                    000  000  000  000  000  000  000
3824                                           1        1        1
3825
3826                                    WHERE SUBSCRIPTS AND SUPERSCRIPTS ARE OFFSET BY A PARTIAL LINE.
3827
3828
3829                                    .ENDR
3830
3831
3832
3833
3834
3835
3836
3837
3838
3839
3840  050422                                    BGNTST  15.
 (3)  050422                            T15::
3841                                                        ;**** SELECT PORTRAIT FONT ****;
3842  050422                                    OUTPUT #REINIT,#2
3843  050464                                    OUTPUT #SELDEC,#5                       ; DECIPOINTS
3844  050526                                    OUTPUT #SKIP3,#4                        ; SKIP 3 LINES
3845  050570                                    OUTPUT #PTLINE,#35.                     ; PRINT TEST ID
3846  050632                                    OUTPUT #SKIP3,#4                        ; SKIP 3 MORE LINES
3847  050674                                    LET OUTBUF :B= #12
 (4)  050674  112737  000012  003114           MOVB    #12,OUTBUF
3848  050702                                    INCR WORK FROM #1 TO #9. BY #1          ; DO 9 LINES OF THE CODE
 (5)  050702  012737  000001  003110           MOV     #1,WORK
 (7)  050710  000402                           BR      50445$
 (6)  050712                            50444$:
 (8)  050712  005237  003110                   INC     WORK
 (6)  050716                            50445$:
 (7)  050716  023727  003110  000011           CMP     WORK,#9.
 (9)  050724  003402                           BLE     50446$
 (7)  050726  000137  051346                   JMP     50447$
 (6)  050732                            50446$:
3849  050732                                    DECR COUNT FROM #5 TO #1 BY #1
 (5)  050732  012737  000005  002276           MOV     #5,COUNT
 (7)  050740  000402                           BR      50451$
 (6)  050742                            50450$:
 (8)  050742  005337  002276                   DEC     COUNT
 (6)  050746                            50451$:
 (7)  050746  023727  002276  000001           CMP     COUNT,#1
 (9)  050754  002002                           BGE     50452$
 (7)  050756  000137  051236                   JMP     50453$
 (6)  050762                            50452$:
```

```
3850  050762                                        OUTPUT #DECLCS,#5              ; SELECT LOGICAL FONT #10
3851  051024                                        OUTPUT #PL1,#3                 ; PRINT '000'
3852  051066                                        OUTPUT #PL2,#5                 ; DO SUPERSCRIPTS
3853  051130                                        OUTPUT #PL1,#3                 ; PRINT '000'
3854  051172                                        OUTPUT #PL3,#5                 ; DO SUBSCRIPTS
3855  051234                                ENDDEC
 (4)  051234  000642                      BR       50450$
 (4)  051236                        50453$:
3856  051236                                OUTPUT #PL1,#3                         ; PRINT '000'
3857  051300                                OUTPUT #OUTBUF,#1                      ; LINE FEED
3858  051342                                ENDINC
 (4)  051342  000137  050712              JMP      50444$
 (4)  051346                        50447$:
3859  051346                                OUTPUT #OUTBUF,#1,,#2                  ; SKIP 2 LINES
3860  051410                                OUTPUT #TDONE,#14.                     ; TEST COMPLETE MESSAGE
3861  051452  004737  005306                JSR PC,QUIET
3862  051456                                OUTPUT #DECFIN,#5                      ; TOGGLE PAPER OFFSET
3863  051520                                LET OUTBUF :8= #14                     ; CODE FOR FORM FEED
 (4)  051520  112737  000014  003114        MOVB     #14,OUTBUF
3864  051526                                OUTPUT #OUTBUF,#1                      ; DO THE FORM FEED
3865  051570                                OUTPUT #REINIT,#2                      ; RESET DEFAULT CONDITIONS
3866  051632                                OUTPUT #SELDEC,#5                      ; DECIPOINTS
3867  051674  004737  005306                JSR PC,QUIET
3868  051700                                EXIT     TST
 (3)  051700  104432                       TRAP     C$EXIT
 (3)  051702  000112                       .WORD    L10026-.
3869
3870                                  .NLIST BEX
3871  051704     033     133     061  DECLCS: .BYTE   33,133,61,60,155              ; SEQ TO SELECT LOG FONT #10 (DEFAULT)
3872  051711     012  015415  030533  PTLINE: .ASCIZ  <12><15><33>/[10mPARTIAL LINE UP-DOWN TEST 15/
3873  051755     124  051505  020124  TDONE:  .ASCII  /TEST COMPLETE/<12>
3874  051773     060  030060     000  PL1:    .ASCIZ  /000/
3875  051777     033  030514  045433  PL2:    .ASCIZ  <33>/L1/<33>/K/
3876  052005     033  030513  046033  PL3:    .ASCIZ  <33>/K1/<33>/L/
3877          052014                  .EVEN
3878                                  .LIST BEX
3879  052014                                ENDTST
 (3)  052014                        L10026:
 (3)  052014  104401                       TRAP     C$ETST
3880  052016                                ENDMOD
3881
3882
3883
3884
3885
3886
3887
3888
3889
3890
3892                                  .SBTTL  DRAW VECTORS TEST
3893                                  ;MODULE DRWVEC.P11
3894
3895  052016                                BGNMOD
3896
3897                                  ;++
```

```
3898                                    ;           FUNCTIONAL DESCRIPTION
3899                                    ;       THIS TEST IS DESIGNED TO TEST THE DRAW VECTOR (SOMETIMES CALLED DRAW RULE) FUNCT
3900                                    ;       OF THE LN01 ELECTRONIC PRINTER.  THE DRAW VECTOR FUNCTION, CALLED "DECVEC",  DRA
3901                                    ;       A LINE OF VARIABLE THICKNESS.  THE X DIRECTION IS PARALLEL TO PHYSICAL PAGE MOVE
3902                                    ;       THE Y DIRECTION IS PARALLEL TO THE LASER SCAN.  THE LINE'S ORIENTATION, POINT OF
3903                                    ;       ORIGIN, DISTANCE AND WIDTH MAY BE DEFINED BY SPECIFYING CERTAIN PARAMETERS IN TH
3904                                    ;       AFTER USING THE DRAW VECTOR COMMAND, THE ACTIVE POSITION IS RETURNED TO THE ACTI
3905                                    ;       POSITION PREVIOUS TO GIVING THE COMMAND.
3906                                    ;           EXAMPLE:
3907                                    ;               SUPPOSE THAT "BEFORE" A DRAW VECTOR COMMAND: ACTIVE POSITIONS AR
3908                                    ;                                                   VERTICAL     = 1 INCH FROM TOP O
3909                                    ;                                                   HORIZONTAL   = 5 INCHES FROM LEF
3910                                    ;
3911                                    ;               THEN A COMMAND IS GIVEN TO DRAW VECTOR FROM 3 INCHES HORIZONTALL
3912                                    ;               HORIZONTALLY, VERTICAL ORIGIN IS 4 INCHES, WIDTH IS 1/2 INCH.
3913                                    ;
3914                                    ;               "AFTER" EXECUTING THE COMMAND:  ACTIVE POSITIONS SHOULD STILL BE
3915                                    ;                                                   VERTICAL     = 1 INCH FROM TOP OF
3916                                    ;                                                   HORIZONTAL   = 5 INCHES FROM LEF
3917                                    ;
3918                                    ;           NOTE:   CURRENT POSITION IS IDENTICAL AFTER DRAW RULE COMMAND AS BEFORE.
3919
3920                                    ;
3921                                    ;       THE TEST VERIFIES THESE FUNCTIONS BY PRINTING THE TEST ID AND THEN
3922                                    ;       BELOW THE ID DRAWING A RECTANGLE 3 INCHES IN HEIGHT AND 9 INCHES IN WIDTH.  THE
3923                                    ;       CENTER LINE DRAWN HORIZONTALLY THROUGH IT.  IT WILL ALSO HAVE 8 VERTICAL LINES
3924                                    ;       DRAWN AT 1 INCH INTERVALS INSIDE THE RECTANGLE.  THE RECTANGLE WILL ALSO CONTAIN
3925                                    ;       THE LETTERS WILL BE ARRANGED IN SUCH A WAY SO AS TO SPELL OUT "LN01" ON THE UPPE
3926                                    ;       THE RECTANGLE AND TO SPELL OUT "DIGITAL" IN THE LOWER HALF.
3927                                    ;       THE TEST WILL CONCLUDE BY PRINTING THE TEST ID BELOW THE RECTANGLE.
3928                                    ;       THE RECTANGLE WILL BE HANDLED BY, FIRST, DRAWING THE UPPER AND LOWER OUTSIDE
3929                                    ;       BORDERS OF THE RECTANGLE USING THE DRAW VECTOR COMMAND.  THESE LINES WILL BE
3930                                    ;       1/2 INCH THICK.  SECOND, THE TEST WILL MOVE THE ACTIVE POSITION TO THE CORRECT
3931                                    ;       LOCATION OF THE FIRST LETTER (L) TO BE PRINTED.  HOWEVER, THE LETTER WILL NOT BE
3932                                    ;       PRINTED YET.  BEFORE PRINTING IT A DRAW VECTOR COMMAND WILL BE GIVEN TO THE
3933                                    ;       PRINTER TO DRAW THE LEFT OUTSIDE BORDER OF THE RECTANGLE. THE THICKNESS OF THIS
3934                                    ;       BORDER WILL ALSO BE 1/2 INCH.  AFTER DRAWING THE BORDER THE ACTIVE POSITION
3935                                    ;       SHOULD AUTOMATICALLY RETURN TO THE POSITION OF THE FIRST LETTER.  THE LETTER
3936                                    ;       WILL THEN BE PRINTED.  THIS SAME CONCEPT OF POSITIONING THE ACTIVE COLUMN
3937                                    ;       TO THE PROPER LETTER POSITION AND THEN DRAWING A VECTOR BEFORE PRINTING THE
3938                                    ;       LETTER WILL BE USED TO COMPLETE THE RECTANGLE,  INCLUDING THE LETTERS.
3939                                    ;       THE VERTICAL LINES WITHIN THE RECTANGLE WILL BE A DIFFERENT WIDTH THAN
3940                                    ;       THE BOUNDARIES.  THE CENTER LINE WILL BE STILL A DIFFERENT WIDTH THAN
3941                                    ;       THE BOUNDARIES AND THE VERTICAL LINES.  THIS WILL TEST THE VARIABLE
3942                                    ;       WIDTH FUNCTION.  THE DRAW VECTOR COMMAND'S ABILITY TO DRAW OUTSIDE
3943                                    ;       EXISTING MARGINS IS CURRENTLY BEING TESTED IN THE MARGINS TEST, AND,
3944                                    ;       WILL NOT BE EXERCISED IN THIS TEST.
3945                                    ;
3946                                    ;
3947
3948                                    ;           GLOBALS REFERENCED:
3949                                    ;       REINIT,QUIET
3950
3951            000000                  .REPT 0
3952
3953
```

```
3954                                                    PDL
3955
3956                                    BEGIN ROUTINE
3957                                    :       MOVE VERTICALLY TO ABSOLUTE 1 INCH MARK
3958                                    :       PRINT TEST ID
3959                                    :       DRAW VECTOR FOR TOP LINE OF RECTANGLE                   ; FROM 2ND INCH VERTICAL
3960                                    :                                                               ; TO 10TH INCH HORIZONTA
3961                                    :       DO FOR EACH ENTRY IN TABLE                              ; TABLE OF SEQUENCES TO
3962                                    :       :       MOVE TO CORRECT POSITION FOR NEXT LETTER
3963                                    :       :       DRAW NEXT VECTOR
3964                                    :       :       PRINT NEXT LETTER                               ; SHOULD BE IN CORRECT P
3965                                    :       ENDDO
3966                                    :       MOVE VERTICALLY TO 7 INCH MARK
3967                                    :       PRINT TEST ID                                           ; CENTER JUSTIFIED
3968                                    :       RESET THE PRINTER
3969                                    :       DO FORM FEED
3970                                    :       SELECT SIZE UNIT AS DECIPOINTS
3971                                    :       CALL QUIET ROUTINE
3972                                    END ROUTINE
3973
3974                                    .ENDR
3975
3976
3977
3978
3979
3980
3981
3982
3983
3984
3985  052016                                            BGNTST  16.
 (3)  052016                            T16::
3986  052016                            OUTPUT #VERP01,#6                                       ; MOVE VERTICALLY TO 1 INCH MARK
3987  052060                            OUTPUT #DRWVEC,#22.                                     ; TEST ID
3988  052122                            OUTPUT #UNDER,#4                                        ; TURN ON UNDERLINE
3989  052164                            OUTPUT #TOPVEC,#31.                                     ; DRAW TOP LINE OF RECTANGLE
3990  052226                            OUTPUT #VERP03,#7                                       ; MOVE VERTICALLY TO 3 INCH MARK
3991  052270                            LET R3 := #LETTBL                                       ; SET UP TABLE OF SEQUENCES TO P
 (4)  052270  012703  052750                       MOV     #LETTBL,R3
3992  052274                            LET R4 := #BYTTBL                                       ; BYTE COUNTS OF SEQUENCES IN TA
 (4)  052274  012704  053000                       MOV     #BYTTBL,R4
3993  052300                            WHILE (R3) NE #0 DO                                     ; DO FOR EACH ENTRY IN LETTER TA
 (4)  052300                            504548:
 (6)  052300  005713                               TST     (R3)
 (8)  052302  001002                               BNE     .+6
 (9)  052304  000137  052350                       JMP     504558
3994  052310                                        OUTPUT (R3)+,(R4)+                      ; MOVE TO LETTER POSITION, DRAW
3995  052346                            ENDDO
 (3)  052346  000754                               BR      504548
 (3)  052350                            504558:
3996  052350                            OUTPUT #VERP07,#8.                                      ; MOVE VERTICALLY TO 8 INCH MARK
3997  052412                            OUTPUT #UNDROF,#4
3998  052454                            OUTPUT #DRWVEC,#28.                                     ; SEND TEST ID FOLLOWED BY A FOR
3999  052516                            OUTPUT #REINIT,#2                                       ; RESET TO DEFAULT CONDITIONS
4000  052560                            OUTPUT #SELDEC,#5                                       ; SELECT DECIPOINTS
```

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4001  052622  004737  005306          JSR PC,QUIET                                    ; GUARANTEE THE FORM FEED
4002  052626                                  EXIT TST
 (3)  052626  104432                        TRAP    C$EXIT
 (3)  052630  001240                        .WORD   L10027 .
4003
4004
4005                                    .NLIST BEX
                                        ;       LOCAL VARIABLES, TABLES, MESSAGES
4006  052632  055433  030061  042155  DRWVEC: .ASCII  <33>/[10mDRAW VECTORS TEST 16/<15><12><14>      ; TEST ID. FIRST 22 CHAR
4007  052666  044124  051511  050040  OFFSET: .ASCII  /THIS PAGE SHOULD BE OFFSET FROM THE PREVIOUS PAGE/
4008          052750                    .EVEN
4009  052750  053133  053203  053253  LETTBL: .WORD   LVEC,NVEC,VECO,VEC1,DVEC,IVEC,GVEC,IVEC2,TVEC,AVEC,LVEC2,0      ; TBL OF
4010  053000  000050  000050  000075  BYTTBL: .WORD   40.,40.,61.,39.,46.,40.,40.,40.,40.,40.,40.,0                    ; BYTE C
4011  053030     033     133     064  UNDER:  .BYTE   33,133,64,155                                ; UNDERLINE ON
4012  053034     033     133     060  UNDROF: .BYTE   33,133,60,155                               ;       "   OFF
4013  053040     033     133     067  VERPO1: .BYTE   33,133,67,62,60,144                                 ; VERTICAL POSITION FOR
4014  053046     033     133     062  VERPO3: .BYTE   33,133,62,61,66,60,144                              ;       "
4015  053055     033     133     063  VERPO5: .BYTE   33,133,63,66,60,60,144                              ;       "
4016  053064     033     133     065  VERPO7: .BYTE   33,133,65,60,64,60,144,15                           ;       "
4017  053074     033     133     067  TOPVEC: .BYTE   33,133,67,40,111,33,133,61,73,66,60,60,73,63,60,60,73               ; DRAW /
4018  053115     062     067     060          .BYTE   62,67,60,60,73,63,67,41,174,33,133,62,40,111
4019  053133     033     133     061  LVEC:   .BYTE   33,133,61,70,60,60,140,33,133,67,40,111,33,133,61,73,61,70,60,60,73
4020  053160     063     060     060          .BYTE   63,60,60,73,62,67,63,67,73,63,67,41,174,33,133,62,40,111,114
4021  053203     033     133     063  NVEC:   .BYTE   33,133,63,62,64,60,140,33,133,67,40,111,33,133,61,73,61,62,60,60,73
4022  053230     063     060     060          .BYTE   63,60,60,73,62,67,60,60,73,61,70,41,174,33,133,62,40,111,116
4023  053253     033     133     064  VECO:   .BYTE   33,133,64,66,70,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4024  053277     063     060     060          .BYTE   63,60,60,73,61,62,60,60,73,63,67,41,174,33,133
4025  053316     060     073     066          .BYTE   60,73,66,60,60,73,63,60,60,60,73,61,62,60,60,73
4026  053336     063     067     041          .BYTE   63,67,41,174,33,133,62,40,111,60
4027  053350     033     133     066  VEC1:   .BYTE   33,133,66,61,62,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4028  053374     066     060     060          .BYTE   66,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,61
4029  053417     033     133     063  DVEC:   .BYTE   33,133,63,66,60,60,144,33,133,61,70,60,60,140,33,133,67,40,111
4030  053442     033     133     060          .BYTE   33,133,60,73,66,60,60,73,71,60,60,73,61,62,60,60
4031  053462     073     063     067          .BYTE   73,63,67,41,174,33,133,62,40,111,144
4032  053475     033     133     062  IVEC:   .BYTE   33,133,62,65,62,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4033  053521     061     062     060          .BYTE   61,62,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,151
4034  053545     033     133     063  GVEC:   .BYTE   33,133,63,62,64,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4035  053571     061     065     060          .BYTE   61,65,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,147
4036  053615     033     133     063  IVEC2:  .BYTE   33,133,63,71,66,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4037  053641     061     070     060          .BYTE   61,70,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,151
4038  053665     033     133     064  TVEC:   .BYTE   33,133,64,66,70,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4039  053711     062     061     060          .BYTE   62,61,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,164
4040  053735     033     133     065  AVEC:   .BYTE   33,133,65,64,60,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4041  053761     062     064     060          .BYTE   62,64,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,141
4042  054005     033     133     066  LVEC2:  .BYTE   33,133,66,61,62,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4043  054031     062     067     060          .BYTE   62,67,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,154
4044  054055     033     133     062  JUSTON: .BYTE   33,133,62,40,106                                 ; BEGIN JUSTIF
4045  054062     033     133     060  JUSTOF: .BYTE   33,133,60,40,106                                 ; END JUSTIF
4046          054070                    .EVEN
4047                                    .LIST BEX
4048  054070                                  ENDTST
 (3)  054070                            L10027:
 (3)  054070  104401                        TRAP    C$ETST
4049  054072                                  ENDMOD
4050
4051
4052
```

```
4053
4054
4055
4056
4057
4058
4059
4062                                    .SBTTL  JUSTIFY TEST
4063                                    ;MODULE JUSTIF.P11
4064
4065  054072                                    BGNMOD
4066
4067                                    ;**
4068                                    ;               FUNCTIONAL DESCRIPTION
4069                                    ;
4070                                    ; THIS IS A TEST OF THE STATED FUNCTIONS OF THE JUSTIFY COMMAND ON LNO1
4071                                    ; ELECTRONIC PRINTER. THE JUSTIFY COMMAND AS DEFINED IN THE LNO1 FUNCTIONAL
4072                                    ; SPECIFICATION IS SUPPOSED TO FUNCTION IN THE FOLLOWING WAY:
4073                                    ;       IT JUSTIFIES TEXT LINES WITHIN THE LEFT AND RIGHT MARGINS BY VARYING THE
4074                                    ;       SPACE BETWEEN WORDS.  INTERWORD SPACING IS ADJUSTED SUCH THAT THE FIRST
4075                                    ;       WORD STARTS AT THE LEFT MARGIN AND THE LAST WORD ENDS AT THE RIGHT MARGIN.
4076                                    ;       THE SPACE IS EVENLY DISTRIBUTED BETWEEN WORDS OF JUSTIFIED TEXT.
4077                                    ;       THE MINIMUM AND MAXIMUM DISTANCE BETWEEN WORDS WILL NOT BE LESS THAN
4078                                    ;       60% NOR GREATER THAN 200% OF THE WIDTH OF THE SPACE CHARACTER.
4079                                    ;       NO JUSTIFICATION WILL OCCUR IF THESE LIMITATIONS ARE EXCEEDED.
4080                                    ;       JUSTIFICATION WILL OCCUR ON ALL TEXT BETWEEN A START AND STOP
4081                                    ;       JUSTIFY COMMAND.
4082                                    ;
4083                                    ;       A START JUSTIFY DETECTED WITHIN A LINE WILL DETERMINE THE LEFT
4084                                    ;       JUSTIFY POINT FOR THAT LINE.  A STOP JUSTIFY DETECTED WITHIN A
4085                                    ;       LINE DETERMINES THE RIGHT JUSTIFY POINT FOR THAT LINE.
4086                                    ;       TO JUSTIFY ACCORDING TO THE LEFT AND RIGHT MARGIN, THE START
4087                                    ;       AND STOP JUSTIFY COMMANDS MUST ENCOMPASS THE LINE BEGINNING AND
4088                                    ;       END POINTS.
4089                                    ;       IF JUSTIFICATION HAS BEEN TURNED ON AND OFF WITHIN A TEXT LINE
4090                                    ;       THE SPACE CHARACTERS OUTSIDE THE SEQUENCE USE THE NORMAL WIDTH
4091                                    ;       OF A SPACE CHARACTER.
4092                                    ;
4093                                    ; THE JUSTIFY TEST WILL EXERCISE THESE FUNCTIONS AND PROVIDE A MEANS
4094                                    ; FOR VISUALLY VERIFYING CORRECT OPERATION AND LIMITATIONS.
4095                                    ;
4096                                    ;--
4097
4098                                    ;               GLOBALS REFERENCED:
4099                                    ;       MESSAGES, VARIABLES, SUBROUTINES
4100                                    ; REINIT,COUNT,OUTBUF,QUIET
4101
4102          000000                    .REPT   0
4103
4104                                                    PDL
4105
4106                                    BEGIN ROUTINE
4107                                    :       SEND RESET SEQUENCE                                     ; RESET PRINTER TO DEFAU
4108                                    :       PRINT JUSTIF                                            ; TEST ID
4109                                    :       SKIP A LINE
4110                                    :                       SECTION 1
```

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4111                    ;
4112                    ;       TURN ON JUSTIFY
4113                    ;       PRINT EXPLANATION OF SECTION 1
4114                    ;       TURN OFF JUSTIFY
4115                    ;       SKIP A LINE
4116                    ;       INCREMENT COUNT FROM #1 TO #17. BY #1                   ; DO NEXT CODE 17 TIMES
4117                    ;               SEND "JUSTFY"                                   ; PRINT WORD "JUSTIFY"
4118                    ;               SEND "SPAJUS",COUNT TIMES                       ; SPACE AND WORD JUSTIFY
4119                    ;               DO A CARRIAGE RETURN AND LINE FEED
4120                    ;       ENDINC
4121                    ;       SKIP A LINE
4122                    ;
4123                    ;       TURN JUSTIFY ON
4124                    ;       INCREMENT COUNT FROM #1 TO #17. BY #1
4125                    ;               IF COUNT EQ #14. THEN
4126                    ;                       TURN UNDERLINE ON
4127                    ;               ENDIF
4128                    ;               IF COUNT EQ #17. THEN
4129                    ;                       TURN OFF UNDERLINE
4130                    ;               ENDIF
4131                    ;               SEND "JUSTFY"                                   ; PRINT WORD "JUSTIFY
4132                    ;               SEND "SPAJUS",COUNT TIMES                       ; SPACE AND WORD JUSTIFY
4133                    ;               SEND A CARRIAGE RETURN, LINE FEED
4134                    ;       ENDINC
4135                    ;       TURN JUSTIFY OFF
4136                    ;       SKIP A LINE
4137                    ;
4138                    ;       INCREMENT COUNT FROM 1 TO 17. BY 1
4139                    ;               IF COUNT EQ 14. THEN
4140                    ;                       TURN UNDERLINE ON
4141                    ;               ENDIF
4142                    ;               IF COUNT EQ 17. THEN
4143                    ;                       TURN OFF UNDERLINE
4144                    ;               ENDIF
4145                    ;               TURN ON JUSTIFY
4146                    ;               SEND "JUSTFY"                                   ; PRINT WORD "JUSTIFY
4147                    ;               SEND "SPAJUS",COUNT TIMES                       ; SPACE AND WORD JUSTIFY
4148                    ;               TURN JUSTIFY OFF
4149                    ;               CARRIAGE RETURN, LINE FEED
4150                    ;       ENDINC
4151                    ;
4152                    ;                       SECTION 2
4153                    ;
4154                    ;       TOGGLE PAPER OFFSET
4155                    ;       DO FORM FEED
4156                    ;       PRINT EXPLANATION OF SECTION 2
4157                    ;       TURN ON JUSTIFY
4158                    ;       LET R3 EQUAL TEXTBL                                     ; TABLE OF TEXT LINES
4159                    ;       LET R4 EQUAL TEXTBP                                     ; BYTE COUNTS FOR TEXT T
4160                    ;       WHILE (R3) NOT EQUAL TO 0 DO                            ; DO FOR ALL ENTRIES
4161                    ;               SEND (R3)+,(R4)+                                ; OUTPUT THE ENTRY
4162                    ;       ENDDO
4163                    ;       SKIP 3 LINES
4164                    ;       TURN JUSTIFY OFF
4165                    ;       LET R3 EQUAL TEXTBL
4166                    ;       LET R4 EQUAL TEXTBP
```

```
4167                                    :       WHILE (R3) NOT EQUAL TO 0 DO
4168                                    :           SEND (R3)+,(R4)+                    ; OUTPUT THE ENTRY
4169                                    :       ENDDO
4170                                    :       SKIP 3 LINES
4171                                    :       PRINT END OF TEST MESSAGE
4172                                    :       DO A FORM FEED
4173                                    :       RESET THE PRINTER
4174                                    :       SELECT SIZE UNIT AS DECIPOINTS
4175                                    END ROUTINE
4176                                    :
4177                                    .ENDR
4178
4179
4180
4181
4182
4183
4184
4185
4186
4187
4188  054072                                    BGNTST  17.
 (3)  054072                            T17::
4189
4190                                    ;               SOURCE CODE
4191
4192  054072                            LET OUTBUF :B= #15                            ; CARRIAGE RETURN
 (4)  054072  112737  000015  003114            MOVB    #15,OUTBUF
4193  054100                            LET OUTBUF+1 :B= #12                          ; LINE FEED
 (4)  054100  112737  000012  003115            MOVB    #12,OUTBUF+1
4194  054106                            LET OUTBUF+2 :B= #14                          ; FORM FEED
 (4)  054106  112737  000014  003116            MOVB    #14,OUTBUF+2
4195  054114                            LET OUTBUF+3 :B= #40                          ; SPACE
 (4)  054114  112737  000040  003117            MOVB    #40,OUTBUF+3
4196  054122                            LET OUTBUF+4 := #55                           ; DASH
 (4)  054122  012737  000055  003120            MOV     #55,OUTBUF+4
4197  054130                            OUTPUT #REINIT,#2                             ; RESET THE PRINTER
4198  054172                            OUTPUT #SELDEC,#5                             ; DECIPOINTS
4199  054234                            OUTPUT #JUSTIF,#22.                           ; TEST ID
4200  054276                            OUTPUT #OUTBUF+1,#1                           ; SKIP A LINE
4201
4202                                    ;                       SECTION 1
4203
4204  054340                            OUTPUT #ONJUST,#5                             ; TURN JUSTIFY ON
4205  054402                            OUTPUT #EXP,#136.                             ; EXPLAINS FIRST SECTION
4206  054444                            OUTPUT #EXP1,#143.
4207  054506                            OUTPUT #EXP2,#145.
4208  054550                            OUTPUT #EXP3,#142.
4209  054612                            OUTPUT #EXP4,#40.
4210  054654  004737  005306            JSR PC,QUIET
4211  054660                            OUTPUT #OFFJUS,#5                             ; TURN JUSTIFY OFF
4212  054722                            OUTPUT #OUTBUF+1,#1                           ; SKIP A LINE
4213  054764                            INCR COUNT FROM #1 TO #17. BY #1              ; DO THIS CHUNK OF CODE
 (5)  054764  012737  000001  002276            MOV     #1,COUNT
 (7)  054772  000402                            BR      50457$
 (6)  054774                            50456$:
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  (8)  054774  005237  002276            INC     COUNT
  (6)  055000                      50457$:
  (7)  055000  023727  002276  000021    CMP     COUNT,#17.
  (9)  055006  003402                    BLE     50460$
  (7)  055010  000137  055164            JMP     50461$
  (6)  055014                      50460$:
4214   055014                            OUTPUT #JUSTFY,#7.                    ; WORD "JUSTIFY"
4215   055056                            OUTPUT #SPAJUS,#8.,,COUNT             ; SPACE AND WORD  JUSTIF
4216   055120                            OUTPUT #OUTBUF+1,#1                   ; CRLF
4217   055162                      ENDINC
  (4)  055162  000704                    BR      50456$
  (4)  055164                      50461$:
4218   055164                      OUTPUT #OUTBUF+1,#1                         ; SKIP A LINE
4219   055226                      OUTPUT #ONJUST,#5                           ; TURN JUSTIFY ON
4220   055270                      INCR COUNT FROM #1 TO #17. BY #1            ; DO THIS CHUNK OF CODE
  (5)  055270  012737  000001  002276    MOV     #1,COUNT
  (7)  055276  000402                    BR      50463$
  (6)  055300                      50462$:
  (8)  055300  005237  002276            INC     COUNT
  (6)  055304                      50463$:
  (7)  055304  023727  002276  000021    CMP     COUNT,#17.
  (9)  055312  003402                    BLE     50464$
  (7)  055314  000137  055624            JMP     50465$
  (6)  055320                      50464$:
4221   055320                            IF COUNT EQ #14. THEN
  (6)  055320  023727  002276  000016    CMP     COUNT,#14.
  (8)  055326  001402                    BEQ     .+6
  (9)  055330  000137  055376            JMP     50466$
4222   055334                            OUTPUT #UNON,#4                       ; TURN ON UNDERLINE
4223   055376                            ENDIF
  (4)  055376                      50466$:
4224   055376                            IF COUNT EQ #17. THEN
  (6)  055376  023727  002276  000021    CMP     COUNT,#17.
  (8)  055404  001402                    BEQ     .+6
  (9)  055406  000137  055454            JMP     50467$
4225   055412                            OUTPUT #UNOF,#4
4226   055454                            ENDIF
  (4)  055454                      50467$:
4227   055454                            OUTPUT #JUSTFY,#7.                    ; WORD "JUSTIFY
4228   055516                            OUTPUT #SPAJUS,#8.,,COUNT             ; SPACE AND WORD  JUSTIF
4229   055560                            OUTPUT #OUTBUF+1,#1                   ; CRLF
4230   055622                      ENDINC
  (4)  055622  000626                    BR      50462$
  (4)  055624                      50465$:
4231   055624                      OUTPUT #UNOF,#4                             ; UNDERLINE OFF
4232   055666                      OUTPUT #OFFJUS,#5                           ; TURN JUSTIFY OFF
4233   055730                      OUTPUT #OUTBUF+1,#1                         ; SKIP A LINE
4234   055772                      INCR COUNT FROM #1 TO #17. BY #1
  (5)  055772  012737  000001  002276    MOV     #1,COUNT
  (7)  056000  000402                    BR      50471$
  (6)  056002                      50470$:
  (8)  056002  005237  002276            INC     COUNT
  (6)  056006                      50471$:
  (7)  056006  023727  002276  000021    CMP     COUNT,#17.
  (9)  056014  003402                    BLE     50472$
  (7)  056016  000137  056434            JMP     50473$
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  (6)  056022                          50472$:
4235   056022                                  IF COUNT EQ #14. THEN
  (6)  056022  023727  002276  000016          CMP     COUNT,#14.
  (8)  056030  001402                          BEQ     .+6
  (9)  056032  000137  056100                  JMP     50474$
4236   056036                                  OUTPUT #UNON,#4                          ; UNDERLINE ON
4237   056100                                  ENDIF
  (4)  056100                          50474$:
4238   056100                                  IF COUNT EQ #17. THEN
  (6)  056100  023727  002276  000021          CMP     COUNT,#17.
  (8)  056106  001402                          BEQ     .+6
  (9)  056110  000137  056156                  JMP     50475$
4239   056114                                  OUTPUT #UNOF,#4
4240   056156                                  ENDIF
  (4)  056156                          50475$:
4241   056156                                  OUTPUT #ONJUST,#5
4242   056220                                  OUTPUT #JUSTFY,#7.                       ; WORD "JUSTIFY
4243   056262                                  OUTPUT #SPAJUS,#8.,,COUNT                ; SPACE AND WORD  JUSTIF
4244   056324                                  OUTPUT #OFFJUS,#5
4245   056366                                  OUTPUT #OUTBUF+1,#1                      ; CRLF
4246   056430                          ENDINC
  (4)  056430  000137  056002                  JMP     50470$
  (4)  056434                          50473$:
4247   056434                          OUTPUT #UNOF,#4                                  ; UNDERLINE OFF
4248
4249
4250                                    ;                       SECTION 2
4251
4252   056476                          OUTPUT #DECFIN,#5                                ; TOGGLE PAPER OFFSET
4253   056540                          OUTPUT #OUTBUF+2,#1                              ; FORM FEED
4254   056602                          OUTPUT #EXPL,#133.                               ; EXPLAINS THE SECTION
4255   056644                          OUTPUT #EXPL1,#58.                               ; 2ND PART OF EXPLANATIO
4256   056706                          OUTPUT #EXPL2,#98.                               ; 3RD PART
4257   056750                          OUTPUT #SKIP3,#4
4258   057012                          OUTPUT #ONJUST,#5                                ; TURN ON JUSTIFY
4259   057054                          LET R3 := #TEXTBL
  (4)  057054  012703  063506                  MOV     #TEXTBL,R3
4260   057060                          LET R4 := #TEXTBP
  (4)  057060  012704  063526                  MOV     #TEXTBP,R4
4261   057064                          WHILE (R3) NE #0 DO
  (4)  057064                          50476$:
  (6)  057064  005713                          TST     (R3)
  (8)  057066  001002                          BNE     .+6
  (9)  057070  000137  057140                  JMP     50477$
4262   057074                                  OUTPUT (R3)+,(R4)+                       ; OUTPUT THE ENTRY
4263   057132  004737  005306                  JSR PC, QUIET
4264   057136                          ENDDO
  (3)  057136  000752                          BR      50476$
  (3)  057140                          50477$:
4265   057140                          OUTPUT #SKIP3,#4                                 ; SKIP 3 LINES
4266   057202                          OUTPUT #OFFJUS,#5                                ; TURN OFF JUSTIFY
4267   057244                          LET R3 := #TEXTBL
  (4)  057244  012703  063506                  MOV     #TEXTBL,R3
4268   057250                          LET R4 := #TEXTBP
  (4)  057250  012704  063526                  MOV     #TEXTBP,R4
4269   057254                          WHILE (R3) NE #0 DO
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057254                              50500$:
057254  005713                              TST     (R3)
057256  001002                              BNE     .+6
057260  000137  057330                      JMP     50501$
057264                                      OUTPUT (R3)+,(R4)+
057322  004737  005306                      JSR PC, QUIET
057326                              ENDDO
057326  000752                              BR      50500$
057330                              50501$:
057330                              OUTPUT #SKIP3,#4                                        ; SKIP 3 LINES

057372                              OUTPUT #ENJUS,#11.                                      ; END OF TEST MESSAGE
057434                              OUTPUT #OUTBUF+2,#1                                     ; FORM FEED
057476                              OUTPUT #REINIT,#2                                       ; DO A RESET PRINTER TO
057540                              OUTPUT #SELDEC,#5                                       ; DECIPOINTS
057602  004737  005306              JSR PC, QUIET                                           ; GUARANTEE THE FORM FEE
057606                                      EXIT TST
057606  104432                              TRAP    C$EXIT
057610  003774                              .WORD   L10030 .

                                    .NLIST BEX
                                    ;               LOCAL VARIABLES, TABLES, MESSAGES
057612  047440  043106              SPAOFF: .ASCII  / OFF/                                  ; 4 CHARS
057616  052512  052123  043111      JUSSPA: .ASCII  /JUSTIFY /                              ; 8 CHARS
057626  045040  051525  044524      SPAJUS: .ASCII  / JUSTIFY/
057636  052512  052123  043111      JUSTFY: .ASCII  /JUSTIFY/
057645     117  043106     040      OFFSPA: .ASCII  /OFF /                                  ; 4 CHARS
057651     117  020116              ONSPA:  .ASCII  /ON /                                   ; 3 CHARS
057654  047117                      ON:     .ASCII  /ON/
057656  047516     040              NOSPA:  .ASCII  /NO /
057661     116     117              NO:     .ASCII  /NO/
057663     112  051525  044524      CHAR44: .ASCII  /JUSTIFY IS TURNED OFF  JUSTIFY IS TURNED OFF/     ; 44 CHARS
057737     112  051525  044524      CHAR24: .ASCII  /JUSTIFY IS NOW TURNED ON/              ; 24 CHARS
057767     033  030533  066460      JUSTIF: .ASCII  <33>/[10mJUSTIFY TEST 17/<15><12>       ; 17 CHARS
060015     124  044510  020123      EXP:    .ASCII  /THIS PAGE WILL DEMONSTRATE AT WHAT POINT JUSTIFY OCCURS.  IT SHOULD OCC
060126  053440  044510  042514              .ASCII  / WHILE THE SPACE BETWEEN WORDS IS LESS THAN 200% AND MORE THAN/<12>
060225     066  022460  047440      EXP1:   .ASCII  /60% OF THE NORMAL SIZE OF THE SPACE CHARACTER IN THE CURRENTLY SELECTED
060334  043040  047117  027124              .ASCII  / FONT.  THE LINES THAT ARE UNDERLINED ARE JUSTIFIED.  THE FIRST SECTION
060444  051511  042040  047117      EXP2:   .ASCII  /IS DONE WITHOUT JUSTIFY ON.  THE SECOND AND THIRD SECTIONS ARE DONE WIT
060555     112  051525  044524              .ASCII  /JUSTIFY TURNED ON.  THE DIFFERENCE BETWEEN THE SECOND AND THIRD SECTION
060665     111  020123  044124      EXP3:   .ASCII  /IS THAT THE SECOND SECTION LEAVES JUSTIFY ON FOR THE ENTIRE SECTION AND
061001     124  044510  042122              .ASCII  /THIRD TURNS IT ON AND OFF FOR EACH LINE WITH JUSTIFY BEING TURNED/<12>
061103     117  043106  044440      EXP4:   .ASCII  /OFF IMMEDIATELY PRIOR TO THE LINE FEED./<12>
061153     124  042510  043040      EXPL:   .ASCII  /THE FOLLOWING TWO PARAGRAPHS WILL DEMONSTRATE THE DIFFERENCE WHEN PRINT
061265     040  042524  052130              .ASCII  / TEXT WITH JUSTIFY ON AND JUSTIFY OFF./<12>/PARAGRAPH 1 IS DONE /
061360  044527  044124  045040      EXPL1:  .ASCII  /WITH JUSTIFY ON AND PARAGRAPH 2 IS DONE WITH JUSTIFY OFF./<12>
061452  047516  042524  052040      EXPL2:  .ASCII  /NOTE THE EVEN RIGHT MARGIN IN PARAGRAPH 1.  NOTE THE UNEVEN MARGIN AND
061614  044124  020105  047114      TEXT:   .ASCII  /THE LNO1 PRINTER JUSTIFIES TEXT LINES WITHIN THE CURRENTLY DEFINED LEFT
061724  047101  020104  044522              .ASCII  /AND RIGHT MARGINS BY VARYING THE SPACING BETWEEN WORDS./<12>/THE LNO1 D
062031     040  047516  020124      TEXT1:  .ASCII  / NOT DETERMINE THE END OF LINE NOR DOES IT MAKE HYPHENATION DECISIONS.
062141     111  052116  051105              .ASCII  /INTERWORD SPACING WITHIN A LINE OF TEXT IS ADJUSTED SUCH/<12>/THAT THE
062251     103  040510  040522      TEXT2:  .ASCII  /CHARACTER OF THE FIRST WORD STARTS ON THE LEFT MARGIN, THE LAST CHARACT
062363     117  020106  044124              .ASCII  /OF THE LAST WORD ENDS ON THE RIGHT MARGIN.  THE SPACE/<12>/BETWEEN WORD
062476  052512  052123  043111      TEXT3:  .ASCII  /JUSTIFIED TEXT LINE IS EVENLY DISTRIBUTED.  THE MINIMUM AND MAXIMUM/
062601     040  044504  052123              .ASCII  / DISTANCE BETWEEN WORDS WILL NOT BE GREAT-/<12>/ER THAN 200% OF THE
062700  044527  052104  020110      TEXT4:  .ASCII  /WIDTH OF THE SPACE CHARACTER NOR LESS THAN 60% OF THE SPACE CHARACTER
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4318  063006  047111  052040  042510          .ASCII  /IN THE FONT FROM WHICH THE WORD CHARAC /<12>/TERS ARE DERIVED.  A LINE
4319  063110  043117  052040  054105  TEXT5:  .ASCII  /OF TEXT WILL NOT BE JUSTIFIED IF THE MAXIMUM OR /
4320  063170  044515  044516  052515          .ASCII  /MINIMUM SPACE SIZE RESTRICTIONS CANNOT BE HONORED./<12>/THE /
4321  063257     112  051525  044524  TEXT6:  .ASCII  /JUSTIFICATION OPERATION WILL BE PERFORMED ON ALL TEXT WHICH OCCURS /
4322  063362  042502  053524  042505          .ASCII  /BETWEEN A START OF JUSTIFICATION AND AN END OF JUSTIFICATION SE /<12>/Q
4323  063472  047105  020104  043117  ENJUS:  .ASCII  /END OF TEST/
4324          063506          .EVEN
4325  063506  061614  062031  062251  TEXTBL: .WORD   TEXT,TEXT1,TEXT2,TEXT3,TEXT4,TEXT5,TEXT6,0
4326  063526  000215  000220  000225  TEXTBP: .WORD   141.,144.,149.,130.,136.,103.,139.
4327  063544     033     133     062  ONJUST: .BYTE   33,133,62,40,106                                    ; 5 CHARS
4328  063551     033     133     060  OFFJUS: .BYTE   33,133,60,40,106                                    ;    "
4329  063556     033     133     064  UNON:   .BYTE   33,133,64,155                                       ; UNDERLINE ON
4330  063562     033     133     060  UNOF:   .BYTE   33,133,60,155                                       ;    "    OFF
4331  063566     033     133     062  ABS3:   .BYTE   33,133,62,66,63,65,140                              ; ABSOLUTE TO 3.66 INCH
4332  063575     033     133     065  ABS7:   .BYTE   33,133,65,62,67,67,140                              ;        "     7.33
4333                                  .EVEN
4334                                  .LIST BEX
4335  063604                                  ENDTST
 (3)  063604                          L10030:
 (3)  063604  104401                        TRAP    C$ETST
4336  063606                                  ENDMOD
4337
4338
4339
4340
4341
4342
4343
4344
4345
4346
4349                                  .SBTTL  PORTRAIT TEST
4350                                  ;MODULE PORT.P11
4351
4352  063606                          BGNMOD
4353
4354                                  ;**
4355                                  ;               FUNCTIONAL DESCRIPTION
4356                                  ;
4357                                  ;       THE PORTRAIT TEST IS DESIGNED TO "VERIFY" THE EXTENDED FUNCTIONALITY OF
4358                                  ;THE LN01 IN PORTRAIT ORIENTATION USING THE RESIDENT PORTRAIT FONT.
4359                                  ;       DUE TO THE FACT THAT THE LN01 DEFAULT FONT IS LANDSCAPE, THE MAJORITY
4360                                  ;OF TESTING OF BOTH BASIC AND EXTENDED FUNCTIONALITY IS DONE IN DEFAULT LANDSCAPE
4361                                  ;ORIENTATION.  THE PURPOSE OF THE "PORTRAIT TEST" IS TO "VERIFY" THE FUNCTIONALITY
4362                                  ;OF EXTENDED FUNCTIONS IN PORTRAIT ORIENTATION.
4363                                  ;       THIS TEST WILL USE ONLY ONE SHEET OF PAPER, AND, WILL IDENTIFY ITS OWN
4364                                  ;FUNCTIONAL SECTIONS.  THIS WILL BE A "QUICK VERIFY" ONLY OF THE EXTENDED FUNCTIONS
4365                                  ;LISTED BELOW.  COMPREHENSIVE TESTING OF THE EXTENDED FUNCTIONS IS ACCOMPLISHED IN
4366                                  ;THE TESTS DESIGNED SPECIFICALLY FOR EACH PARTICULAR FUNCTION.
4367                                  ;       FONT LOADING, ASSIGNING AND SELECTING WILL NOT BE TESTED IN THIS TEST.
4368                                  ;THESE FUNCTIONS WILL BE TESTED IN THE "FONT TEST".
4369                                  ;
4370                                  ;       THE FUNCTIONS VERIFIED INCLUDE:
4371                                  ;               1 MARGINS
4372                                  ;               2 TABS
4373                                  ;               3 UNDERLINE
```

```
4374                            ;               4 SUPERSCRIPT AND SUBSCRIPT
4375                            ;               5 HORIZONTAL AND VERTICAL POSITION ABSOLUTE
4376                            ;               6 HORIZONTAL AND VERTICAL POSITION RELATIVE
4377                            ;               7 DRAW VECTORS
4378                            ;               9 SIZE UNIT SELECT
4379                            ;
4380                            ;
4381
4382                            ;               GLOBALS REFERENCED:
4383                            ;       MESSAGES, VARIABLES, SUBROUTINES
4384
4385    000000                  .REPT   0
4386
4387                            BEGIN PORTRAIT TEST
4388                            :                       SECTION 0
4389                            :
4390                            :       SET OUTPUT BUFFER WITH OCTAL CODES TO BE SENT DURING TEST
4391                            :       DO RESET
4392                            :       LET R3 EQ ADDRESS OF TABLE SEC0                 ; TABLE OF OUTPUTS FOR T
4393                            :       LET R4 EQ ADDRESS OF TABLE SECCNT               ; TABLE OF BYTE COUNTS F
4394                            :       WHILE (R3) NE #0 DO                             ; DO FOR EACH ENTRY IN S
4395                            :               OUTPUT (R3)+,(R4)+                      ; OUTPUT CURRENT ENTRY
4396                            :       ENDDO
4397                            :
4398                            :                       SECTION 1
4399                            :
4400                            :       MOVE TO VERTICAL 3 INCH MARK
4401                            :       SET MARGINS
4402                            :       PRINT SECTION ID
4403                            :       LET R3 EQ ADDRESS OF TABLE MARTBL               ; TABLE OF MARGIN SETTIN
4404                            :       WHILE (R3) NE #0 DO
4405                            :               OUTPUT ENTRY
4406                            :               PRINT LETTER "M"
4407                            :               OUTPUT #ABMAR                           ; SEQUENCE TO TRY AND MO
4408                            :               PRINT LETTER "M"
4409                            :       ENDDO
4410                            :
4411                            :                       SECTION 2
4412                            :
4413                            :       LET R3 EQ ADDRESS OF TABLE TABUND               ; TBL OF SEQS TO SET TAB
4414                            :       LET R4 EQ ADDRESS OF TABLE TABCT                ; BYTE COUNTS
4415                            :       WHILE (R3) NE #0 DO
4416                            :               OUTPUT (R3)+,(R4)+                      ; OUTPUT NEXT ENTRY OF
4417                            :       ENDDO
4418                            :
4419                            :                       SECTION 3
4420                            :
4421                            :       MOVE VERTICALLY TO 5 INCH MARK
4422                            :       PRINT SECTION ID
4423                            :       PRINT LETTER "S"
4424                            :       INCR FROM 1 TO 2 BY 1                   ; DO THIS CHUNK OF CODE TWICE
4425                            :               OUTPUT #S1                      ; HT,SUBSCRIPT AND "S"
4426                            :               OUTPUT #S2                      ; HT,SUPERSCRIPT AND 'S'
4427                            :               OUTPUT #S2                      ;       "
4428                            :               OUTPUT #S1                      ; HT,SUBSCRIPT AND  S
4429                            :       ENDINC
```

```
4430                                ;       DO A LINE FEED
4431                                ;
4432                                ;                       SECTION 4
4433                                ;
4434                                ;       MOVE VERTICALLY TO 6 INCH MARK
4435                                ;       PRINT SECTION ID
4436                                ;       LET R3 EQ ADDRESS OF TABLE @ABTBL          ; TABLE OF ABSOLUTE AND RELATIVE
4437                                ;       LET R4 EQ ADDRESS OF TABLE @ABTBCT         ; BYTE COUNTS FOR ABTBL TABLE
4438                                ;       PRINT "H"                                  ; FIRST H AT LEFT MARGIN
4439                                ;       SELECT PIXELS AS NEW SIZE UNIT
4440                                ;       WHILE (R3) NE @0 DO                        ; DO FOR EACH ENTRY IN MOVE TABL
4441                                ;               OUTPUT (R3),(R4)                   ; NEXT MOVE
4442                                ;               PRINT "H"
4443                                ;       ENDDO
4444                                ;       SELECT DECIPOINTS AS SIZE UNIT
4445                                ;       DO LINE FEED
4446                                ;
4447                                ;                       SECTION 5
4448                                ;
4449                                ;       LET R3 EQ ADDRESS OF TABLE @IDVEC          ; TABLE FOR SECTION ID,POSITIONI
4450                                ;       LET R4 EQ ADDRESS OF TABLE @IDVCNT         ; BYTE COUNTS FOR TABLE IDVEC
4451                                ;       WHILE (R3) NE @0 DO                        ; DO FOR EACH ENTRY OF TABLE
4452                                ;               OUTPUT (R3)+,(R4)+                 ; NEXT ENTRY
4453                                ;       ENDDO
4454                                ;       LET R3 EQ ADDRESS OF TABLE @LN01TB         ; TABLE TO POSITION FOR AND PRIN
4455                                ;               OUTPUT (R3)+                       ; NEXT ENTRY
4456                                ;       ENDDO
4457                                ;       DO FORM FEED
4458                                ;       DO RESET
4459                                ;
4460                                END PORTRAIT TEST
4461                                .ENDR
4462
4463
4464
4465
4466
4467
4468
4469
4470
4471
4472  063606                                BGNTST  18.
 (3)  063606                        T18::
4473
4474
4475                                ;                       SECTION 0
4476
4477  063606                        LET OUTBUF :B= @11                                 ; HOR TAB
 (4)  063606  112737  000011  003114        MOVB    @11,OUTBUF
4478  063614                        LET OUTBUF+1 :B= @12                               ; LINE FEED
 (4)  063614  112737  000012  003115        MOVB    @12,OUTBUF+1
4479  063622                        LET OUTBUF+2 :B= @13                               ; VER TAB
 (4)  063622  112737  000013  003116        MOVB    @13,OUTBUF+2
4480  063630                        LET OUTBUF+3 :B= @14                               ; FORM FEED
 (4)  063630  112737  000014  003117        MOVB    @14,OUTBUF+3
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4481  063636                          LET OUTBUF+4 :B= #15                    ; CARRIAGE RETURN
 (4)  063636  112737  000015  003120          MOVB    #15,OUTBUF+4
4482  063644                          LET OUTBUF+5 :B= #115                   ; UPPER CASE "M"
 (4)  063644  112737  000115  003121          MOVB    #115,OUTBUF+5
4483  063652                          LET OUTBUF+6 :B= #123                   ;       "    "S"
 (4)  063652  112737  000123  003122          MOVB    #123,OUTBUF+6
4484  063660                          LET OUTBUF+7 :B= #110                   ;       "    "H"
 (4)  063660  112737  000110  003123          MOVB    #110,OUTBUF+7
4485  063666                          LET OUTBUF+10 :B= #114                  ; UPPER CASE "L"
 (4)  063666  112737  000114  003124          MOVB    #114,OUTBUF+10
4486  063674                          LET OUTBUF+11 :B= #152                  ; ASTERISK
 (4)  063674  112737  000152  003125          MOVB    #152,OUTBUF+11
4487  063702                          OUTPUT #REINIT,#2
4488  063744                          OUTPUT #SELDEC,#5                       ; DECIPOINTS AS SIZE UNITS
4489  064006                          LET R3 := #SECO                         ; NAME OF TABLE OF OUTPUTS FOR T
 (4)  064006  012703  066554          MOV     #SECO,R3
4490  064012                          LET R4 := #SECCNT                       ; TABLE OF BYTE COUNTS FOR OUTPU
 (4)  064012  012704  066566          MOV     #SECCNT,R4
4491  064016                          WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN TABLE
 (4)  064016                          50502$:
 (6)  064016  005713                          TST     (R3)
 (8)  064020  001002                          BNE     .+6
 (9)  064022  000137  064066                  JMP     50503$
4492  064026                                  OUTPUT (R3)+,(R4)+              ; SEND THE ENTRY
4493  064064                          ENDDO
 (3)  064064  000754                          BR      50502$
 (3)  064066                          50503$:
4494
4495                                  ;                       SECTION 1
4496  064066                          OUTPUT #VER2,#7                         ; MOVE VERTICALLY TO 2 INCH MARK
4497  064130                          OUTPUT #NORMAR,#12.                     ; NORMAL MARGINS FOR THIS TEST
4498  064172                          OUTPUT #PORT,#17.                       ; TEST ID
4499  064234                          OUTPUT #VER3,#7                         ; MOVE VERTICALLY TO 3 INCH MARK
4500  064276                          OUTPUT #SEC1,#11.                       ; PRINT SECTION ID AND 2 LINE FE
4501  064340                          LET R3 := #MARTBL                       ; TABLE OF MARGIN SETTING SEQUEN
 (4)  064340  012703  067036          MOV     #MARTBL,R3
4502  064344                          WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN MARTBL
 (4)  064344                          50504$:
 (6)  064344  005713                          TST     (R3)
 (8)  064346  001002                          BNE     .+6
 (9)  064350  000137  064564                  JMP     50505$
4503  064354                                  OUTPUT (R3)+,#12.               ; OUTPUT NEXT ENTRY
4504  064414                                  OUTPUT #OUTBUF+5,#1             ; PRINT LETTER "M"
4505  064456                                  OUTPUT #ABMAR,#7                ; SEQUENCE TO TRY AND MOVE TO "N
4506  064520                                  OUTPUT #OUTBUF+11,#1            ; PRINT ASTERISK
4507  064562                          ENDDO
 (3)  064562  000670                          BR      50504$
 (3)  064564                          50505$:
4508  064564                          OUTPUT #OUTBUF+1,#1                     ; LINE FEED
4509  064626                          OUTPUT #NORMAR,#12.                     ; NORMAL MARGIN SETTING SEQUENCE
4510
4511                                  ;                       SECTION 2
4512
4513
4514  064670                          LET R3 := #TABUND                       ; TABLE OF SEQUENCES TO SET TABS
 (4)  064670  012703  067246          MOV     #TABUND,R3
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       064674                        LET R4 := #TABUCT                      ; TABLE OF BYTE COUNTS FOR TABUN
 (4)   064674   012704   067274             MOV     #TABUCT,R4
       064700                        WHILE (R3) NE #0 DO
 (4)   064700                        50506$:
 (6)   064700   005713                      TST     (R3)
 (8)   064702   001002                      BNE     .+6
 (9)   064704   000137   064750             JMP     50507$
       064710                               OUTPUT (R3)+,(R4)+               ; OUTPUT NEXT ENTRY
       064746                        ENDDO
 (3)   064746   000754                      BR      50506$
 (3)   064750                        50507$:

                                     ;                      SECTION 3

       064750                        OUTPUT #VER5,#7                        ; ABSOLUTE 5 INCH VERTICAL
       065012                        OUTPUT #SEC3,#29.                      ; 3RD SECTION ID AND 2 LINE FEED
       065054                        OUTPUT #OUTBUF+6,#1                    ; PRINT LETTER "S"
       065116                        INCR COUNT FROM #1 TO #2 BY #1         ; DO THIS CHUNK OF CODE TWICE
 (5)   065116   012737   000001   002276    MOV     #1,COUNT
 (7)   065124   000402                      BR      50511$
 (6)   065126                        50510$:
 (8)   065126   005237   002276             INC     COUNT
 (6)   065132                        50511$:
 (7)   065132   023727   002276   000002    CMP     COUNT,#2
 (9)   065140   003402                      BLE     50512$
 (7)   065142   000137   065360             JMP     50513$
 (6)   065146                        50512$:
       065146                               OUTPUT #S1,#4                    ; HT,SUBSCRIPT AND "S"
       065210                               OUTPUT #S2,#4                    ; HT,SUPERSCRIPT AND "S" (BACK U
       065252                               OUTPUT #S2,#4                    ; HT,SUPERSCRIPT AND "S"
       065314                               OUTPUT #S1,#4                    ; HT,SUBSCRIPT AND "S" (BACK DOW
       065356                        ENDINC
 (4)   065356   000663                      BR      50510$
 (4)   065360                        50513$:
       065360                        OUTPUT #OUTBUF+1,#1                    ; LINE FEED


                                     ;                      SECTION 4

       065422                        OUTPUT #VER6,#13.                      ; VERTICAL TO 6 INCHES USING ABS
       065464                        OUTPUT #SEC4,#23.                      ; SECTION 4 ID AND 2 LINE FEEDS
       065526                        LET R3 := #ABTBL                       ; TBL OF ABSOLUTE AND RELATIVE M
 (4)   065526   012703   067512             MOV     #ABTBL,R3
       065532                        LET R4 := #ABTBCT                      ; BYTE COUNTS FOR ABTBL TABLE
 (4)   065532   012704   067534             MOV     #ABTBCT,R4
       065536                        OUTPUT #OUTBUF+7,#1                    ; PRINT FIRST H AT LEFT MARGIN
       065600                        OUTPUT #PSSU,#5                        ; SELECTS SIZE UNIT AS PIXELS RA
       065642                        WHILE (R3) NE #0 DO
 (4)   065642                        50514$:
 (6)   065642   005713                      TST     (R3)
 (8)   065644   001002                      BNE     .+6
 (9)   065646   000137   065754             JMP     50515$
       065652                               OUTPUT (R3)+,(R4)+               ; MAKE NEXT MOVE
       065710                               OUTPUT #OUTBUF+7,#1              ; PRINT  H
       065752                        ENDDO
 (3)   065752   000733                      BR      50514$
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 (3)  065754                          50515$:
4546  065754                          OUTPUT #DSSU,#5                         ; RETURNS SIZE UNIT TO DECIPOINT
4547  066016                          OUTPUT #OUTBUF+1,#1                     ; LINE FEED
4548
4549                                  ;                       SECTION 5
4550
4551
4552  066060                          LET R3 := #IDVEC                        ; TABLE FOR SECTION ID, POSITION
 (4)  066060  012703  067666                MOV     #IDVEC,R3
4553  066064                          LET R4 := #IDVCNT                       ; TABLE OF BYTE COUNTS FOR IDVEC
 (4)  066064  012704  067712                MOV     #IDVCNT,R4
4554  066070                          WHILE (R3) NE #0 DO
 (4)  066070                          50516$:
 (6)  066070  005713                        TST     (R3)
 (8)  066072  001002                        BNE     .+6
 (9)  066074  000137  066140                JMP     50517$
4555  066100                                OUTPUT (R3)+,(R4)+                      ; OUTPUT NEXT ENTRY IN TABLE
4556  066136                          ENDDO
 (3)  066136  000754                        BR      50516$
 (3)  066140                          50517$:
4557  066140                          LET R3 := #LN01TB                       ; TABLE TO POSITION FOR AND PRIN
 (4)  066140  012703  070212                MOV     #LN01TB,R3
4558  066144                          WHILE (R3) NE #0 DO
 (4)  066144                          50520$:
 (6)  066144  005713                        TST     (R3)
 (8)  066146  001002                        BNE     .+6
 (9)  066150  000137  066216                JMP     50521$
4559  066154                                OUTPUT (R3)+,#8.                        ; DO NEXT ENTRY IN TABLE
4560  066214                          ENDDO
 (3)  066214  000753                        BR      50520$
 (3)  066216                          50521$:
4561  066216                          OUTPUT #OUTBUF+3,#1                     ; FORM FEED
4562  066260                          OUTPUT #REINIT,#2                       ; RESET THE DEFAULTS IN THE PRIN
4563  066322                          OUTPUT #SELDEC,#5                       ; DECIPOINTS AS SIZE UNITS
4564  066364  004737  005306          JSR PC,QUIET                            ; GUARANTEE THE FORM FEED
4565  066370                                EXIT TST
 (3)  066370  104432                        TRAP    C$EXIT
 (3)  066372  001660                        .WORD   L10031-.
4566
4567                                  .NLIST BEX
4568                                  ;                       LOCAL VARIABLES, TABLES, MESSAGES
4569  066374  047520  052122  040522  PORT:   .ASCII  /PORTRAIT TEST 18/<12>                 ; TEST ID AND LINE FEED
4570  066415     115  051101  044507  SEC1:   .ASCII  /MARGINS :/<12><12>                   ; SECTION ID AND 2 LF
4571  066430  052015  041101  020123  SEC2:   .ASCII  <15>/TABS AND UNDERLINE :/<12>        ; SECTION ID AND LINE FE
4572  066456  052523  042520  051522  SEC3:   .ASCII  /SUPERSCRIPT AND SUBSCRIPT :/<12><12>  ; SECTION ID AND 2 LINE FEEDS
4573  066513     110  051117  055111  SEC4:   .ASCII  /HORIZONTAL POSITION :/<12><12>        ; SECTION ID AND 2 LINE FEEDS
4574  066542  042526  052103  051117  SEC5:   .ASCII  /VECTORS :/<12>                       ; SECTION ID AND LINE FE
4575                                  .EVEN
4576  066554  066576  004036  066707  SECO:   .WORD   PORSEQ,SELPIX,FRAME,SELDEC,0         ; TABLE FOR SECTION 0
4577  066566  000033  000005  000126  SECCNT: .WORD   27.,5,86.,5                          ; BYTE COUNTS FOR SECO TABLE
4578  066576     033     120     061  PORSEQ: .BYTE   33,120,61,73,61,61,175,104,105,124,151  ; SEQS TO ASSIGN AND SELECT PORT
4579  066611     164     141     156          .BYTE   164,141,156,61,60,55,122,33,134,33,133,61,61,155
4580  066627     033     133     061  VER2:   .BYTE   33,133,61,64,64,60,144                ; VERTICAL POSITION AB
4581  066636     033     133     062  IDMAR:  .BYTE   33,133,62,64,63,60,73,63,67,70,60,163  ; LR MARGINS AT 3 1 4 AN
4582  066652     033     133     060  ONJU:   .BYTE   33,133,60,40,106                      ; TURN ON JUSTIFY
4583  066657     033     133     062  OFFJU:  .BYTE   33,133,62,40,106                      ; TURN OFF JUSTIFY
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4584  066664      033     133     062  VER3:    .BYTE   33,133,62,61,66,60,144                          ; ABSOLUTE VER POS 3 INC
4585  066673      033     133     061  NORMAR:  .BYTE   33,133,61,70,60,60,73,65,64,60,60,163          ; NORMAL MARGINS FOR THI
4586  066707      033     133     061  FRAME:   .BYTE   33,133,61,73,63,60,60,73,63,60,60,73,62,67,60,60,73
4587  066730      062     060     041              .BYTE   62,60,41,174,33,133,61,73,62,62,65,60,73,63,60,60,73
4588  066751      062     067     060              .BYTE   62,67,60,60,73,62,60,41,174,33,133,60,73,63,60,60,73
4589  066772      063     060     060              .BYTE   63,60,60,73,61,71,65,60,73,62,60,41,174
4590  067007      033     133     060              .BYTE   33,133,60,73,63,60,60,73,63,60,60,60,73,61,71,67,60,73
4591  067031      062     060     041              .BYTE   62,60,41,174                                    ; SEQUENCES TO DRAW FRAM
4592                                                                                                       ; ON ALL FOUR SIDES.
4593          067036                       .EVEN
4594  067036  067062  067076  067112  MARTBL:  .WORD   AMAR,BMAR,CMAR,DMAR,EMAR,FMAR,GMAR,HMAR,IMAR,0  ; TABLE OF LR MARGIN SET
4595  067062      033     133     061  AMAR:    .BYTE   33,133,61,70,60,60,73,62,61,66,60,163           ; LEFT  2 1/2,  RIGHT
4596  067076      033     133     062  BMAR:    .BYTE   33,133,62,61,66,60,73,62,65,62,60,163           ;       3
4597  067112      033     133     062  CMAR:    .BYTE   33,133,62,65,62,60,73,62,70,70,60,163           ;       3 1/2
4598  067126      033     133     062  DMAR:    .BYTE   33,133,62,70,70,60,73,63,62,64,60,163           ;       4
4599  067142      033     133     063  EMAR:    .BYTE   33,133,63,62,64,60,73,63,66,60,60,163           ;       4 1/2
4600  067156      033     133     063  FMAR:    .BYTE   33,133,63,66,60,60,73,63,71,66,60,163           ;       5
4601  067172      033     133     063  GMAR:    .BYTE   33,133,63,71,66,60,73,64,63,62,60,163           ;       5 1/2
4602  067206      033     133     064  HMAR:    .BYTE   33,133,64,63,62,60,73,64,66,70,60,163           ;       6
4603  067222      033     133     064  IMAR:    .BYTE   33,133,64,66,70,60,73,65,60,64,60,163           ;       6 1/2
4604  067236      033     133     065  ABMAR:   .BYTE   33,133,65,64,60,60,140                          ; SEQ TRYING TO MOVE TO
4605          067246                       .EVEN
4606  067246  067320  003116  066430  TABUND:  .WORD   STVER4,OUTBUF+2,SEC2,OUTBUF+1,CLEART,TSET,ONUN
4607  067264  067415  003115  067437           .WORD   UNDERL,OUTBUF+1,OFFUN,0                          ; TABLE OF SEQ TO SET TA
4608  067274  000013  000001  000026  TABUCT:  .WORD   11.,1,22.,1,4,42.,4,18.,1,4                     ; BYTE COUNTS FOR TABUND
4609  067320      033     133     064  STVER4:  .BYTE   33,133,64,147,33,133,62,70,70,60,166            ; CLEAR ALL VER TABS AND
4610  067333      033     133     063  CLEART:  .BYTE   33,133,63,147                                   ; CLEAR ALL HOR TABS
4611  067337      033     133     062  TSET:    .BYTE   33,133,62,61,66,60,73,62,65,62,60,73,62,70,70,60,73
4612  067360      063     062     064              .BYTE   63,62,64,60,73,63,66,60,60,73,63,71,66,60,73
4613  067377      064     063     062              .BYTE   64,63,62,60,73,64,66,70,60,165                  ; SET HTABS AT 3,3 1/2,4
4614  067411      033     133     064  ONUN:    .BYTE   33,133,64,155                                    ; TURNS UNDERLINING ON
4615  067415      125     011     116  UNDERL:  .BYTE   125,11,116,11,104,11,105,11,122,11,114,11,111,11,116,11,105,12  ; PRINT
4616  067437      033     133     060  OFFUN:   .BYTE   33,133,60,155                                    ; TURNS UNDERLINING OFF
4617  067443      033     133     063  VER5:    .BYTE   33,133,63,66,60,60,144                           ; MOVE TO ABSOLUTE VER P
4618  067452      011     033     113  S1:      .BYTE   11,33,113,123                                    ; HT.   SUBSCRIPT AND  S
4619  067456      011     033     114  S2:      .BYTE   11,33,114,123                                    ; "     SUPERSCRIPT "
4620  067462      033     133     063  VER6:    .BYTE   33,133,63,66,60,60,144,33,133,67,62,60,145       ; VER 6 INCH MARK USING
4621  067477      033     133     067  PSSU:    .BYTE   33,133,67,40,111                                 ; SELECT SIZE UNIT AS PI
4622  067504      033     133     062  DSSU:    .BYTE   33,133,62,40,111                                 ; SELECT SIZE UNIT AS DE
4623          067512                       .EVEN
4624  067512  067554  067562  067571  ABTBL:   .WORD   HORA,HORB,HORC,HORD,HORE,HORF,HORG,HORH,0       ; TABLE TO MOVE HOR ABSO
4625  067534  000006  000007  000007  ABTBCT:  .WORD   6,7,7,7,13.,13.,13.,7                           ; BYTE COUNTS FOR ABTBL
4626  067554      033     133     071  HORA:    .BYTE   33,133,71,60,60,140                              ; ABSOLUTE 3 INCHES IN P
4627  067562      033     133     061  HORB:    .BYTE   33,133,61,60,65,60,140                           ;          3 1/2
4628  067571      033     133     061  HORC:    .BYTE   33,133,61,62,60,60,140                           ;          4
4629  067600      033     133     061  HORD:    .BYTE   33,133,61,63,65,60,140                           ;          4 1/2
4630  067607      033     133     061  HORE:    .BYTE   33,133,61,62,60,60,140,33,133,63,60,60,141       ; ABSOLUTE TO 4 THEN REL
4631  067624      033     133     061  HORF:    .BYTE   33,133,61,63,65,60,140,33,133,63,60,60,141       ;               4 1/2
4632  067641      033     133     061  HORG:    .BYTE   33,133,61,65,60,60,140,33,133,63,60,60,141       ;               5
4633  067656      033     133     061  HORH:    .BYTE   33,133,61,71,65,60,140                           ; ABSOLUTE TO 6 1/2
4634          067666                       .EVEN
4635  067666  067734  066542  003115  IDVEC:   .WORD   VER7,SEC5,OUTBUF+1,VER8.5,HOR3,SELPIX,VEC01,SELDEC,OUTBUF+10,0  ; TBL FO
4636  067712  000007  000012  000001  IDVCNT:  .WORD   7,10.,1,7,7,5,153.,5,1                           ; BYTE COUNTS FOR IDVEC
4637  067734      033     133     065  VER7:    .BYTE   33,133,65,60,64,60,144                           ; VERTICAL TO 7 INCHES
4638  067743      033     133     066  VER8.5:  .BYTE   33,133,66,61,62,60,144                           ; VERTICAL TO 8.5 INCHES
4639  067752      033     133     062  HOR3:    .BYTE   33,133,62,61,64,62,140                           ; MOVE TO JUST LESS THAN
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4640  067761  033  133  060  VEC01:  .BYTE  33,133,60,73,67,65,60,73,62,63,70,60,73        ;  SFQS FOR DRAWING RECT
4641  067776  061  062  062          .BYTE  61,62,62,60,73,62,60,41,174                    ; TOP HORIZONTAL LINE
4642  070007  033  133  060          .BYTE  33,133,60,73,67,65,60,73,62,66,70,60,73
4643  070024  061  062  062          .BYTE  61,62,62,60,73,62,60,41,174                    ; BOTTOM HORIZONTAL LINE
4644  070035  033  133  061          .BYTE  33,133,61,73,67,65,60,73,62,64,60,60,73
4645  070052  063  060  060          .BYTE  63,60,60,73,62,60,41,174                       ;  1ST   VERTICAL     BA
4646  070062  033  133  061          .BYTE  33,133,61,73,61,60,65,60,73,62,64,60,60,73
4647  070100  063  060  060          .BYTE  63,60,60,73,62,60,41,174                       ;  2ND          "
4648  070110  033  133  061          .BYTE  33,133,61,73,61,63,65,60,73,62,64,60,60,73
4649  070126  063  060  060          .BYTE  63,60,60,73,62,60,41,174                       ;  3RD
4650  070136  033  133  061          .BYTE  33,133,61,73,61,66,65,60,73,62,64,60,60,73
4651  070154  063  060  060          .BYTE  63,60,60,73,62,60,41,174                       ;  4TH          "
4652  070164  033  133  061          .BYTE  33,133,61,73,61,71,65,60,73,62,64,60,60,73
4653  070202  063  060  060          .BYTE  63,60,60,73,62,60,41,174                       ;  5TH          "
4654                               .EVEN
4655  070212  070222  070232  070242  LN01TB: .WORD  HOR4,HOR5,HOR6,0                      ; TABLE TO POSITION AND
4656  070222  033  133  062  HOR4:   .BYTE  33,133,62,70,66,62,140,116                    ; MOVE TO JUST LESS THAN
4657  070232  033  133  063  HOR5:   .BYTE  33,133,63,65,70,62,140,60                     ; MOVE TO JUST LESS THAN
4658  070242  033  133  064  HOR6:   .BYTE  33,133,64,63,60,62,140,61                     ;       "
4659                               .EVEN
4660                               .LIST BEX
4661  070252                             ENDTST
 (3)  070252                       L10031:
 (3)  070252  104401                      TRAP    C$ETST
4662  070254                             ENDMOD
4663
4664
4665
4666
4667
4668
4669
4670
4671
4672
4675                               .SBTTL  FONT TEST
4676                               ;MODULE FONT.P11
4677
4678  070254                             BGNMOD
4679
4680                               ;**
4681                               ;                FUNCTIONAL DESCRIPTION
4682                               ;
4683                               ;THE "FONTS TEST" IS A COMPREHENSIVE TEST OF THE FOLLOWING FUNCTIONS WHICH
4684                               ;ARE ASSOCIATED WITH MULTIPLE FONT USE ON THE LN01 ELECTRONIC PRINTER:
4685                               ;
4686                               ;       1- FONT LOADING
4687                               ;       2- FONT ASSIGNMENT
4688                               ;       3- FONT SELECTION
4689                               ;       4- OTHER
4690                               ;
4691                               ;
4692                               ;       1- FONT LOADING WILL BE TESTED BY DOWNLINE LOADING A PREDESIGNED SET OF
4693                               ;FONTS WHICH WILL THEN BE ASSIGNED, SELECTED AND SUBSEQUENTLY PRINTED.
4694                               ;       2- FONT ASSIGNMENT WILL BE TESTED BY AN EXHAUSTIVE SERIES OF ASSIGNING,
4695                               ;RE ASSIGNING AND SELECTING OF FONTS.  THE FONTS WILL THEN BE PRINTED
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4696                            ;TO VERIFY THE ASSIGNMENTS.
4697                            ;       3- FONT SELECTION WILL BE TESTED BY A SERIES OF SELECTIONS OF SPECIFIC
4698                            ;FONTS IN SUCH A MANNER AS TO GUARANTEE THAT ANY FONT ASSIGNED TO
4699                            ;A PARTICULAR LOGICAL FONT NUMBER CAN BE SELECTED AND SUBSEQUENTLY PRINTED.
4700                            ;       4- OTHER STATED SPECIFIC FUNCTIONS WILL ALSO BE CHECKED FOR DESIRED RESULT.
4701                            ;       ONE SUCH EXAMPLE WOULD BE IF THE LNO1 WAS PRINTING FROM THE DEFAULT
4702                            ;LANDSCAPE FONT AND WAS IN THE MIDDLE OF A PAGE WHEN A FONT SELECTION SEQUENCE
4703                            ;WAS RECEIVED TO SELECT THE RESIDENT PORTRAIT FONT.  THE DESIRED RESULT IS THAT
4704                            ;THE CURRENT PAGE WOULD BE TERMINATED AND THAT A NEW PAGE WOULD BEGIN USING THE NEW
4705                            ;ORIENTATION.  AND VICE VERSA.
4706                            ;--
4707
4708                            ;               GLOBALS REFERENCED:
4709                            ;       MESSAGES, VARIABLES, SUBROUTINES
4710                            ;       REINIT
4711
4712  000000                    .REPT   0
4713
4714                                    PDL
4715                            BEGIN ROUTINE FONT
4716                            :       PART: 1         DEFAULT SELECTION
4717                            :
4718                            :       RESET PRINTER
4719                            :       ASSIGN PORTRAIT RESIDENT FONT TO LOGICAL #10 AND #11
4720                            :       SELECT LOGICAL FONT #11
4721                            :       RESET PRINTER                                           ; SHOULD ASSIGN DEFAULT
4722                            :       PRINT TEST ID
4723                            :       SKIP A LINE
4724                            :       PRINT DEFAULT MESSAGE
4725                            :       LET R3 EQUAL NSELTB                                     ; FONT NUMBER TABLE
4726                            :       WHILE (R3) NOT EQUAL TO 0 DO
4727                            :               SEND BEGINNING OF SELECT SEQUENCE
4728                            :               SEND THE PARAMETER
4729                            :               SEND END OF SELECT SEQUENCE
4730                            :               SEND BEGINNING OF FONT ID MESSAGE
4731                            :               SEND (R3)+                                      ; CORRECT FONT NUMBER FR
4732                            :               SEND REST OF FONT ID MESSAGE
4733                            :       ENDDO
4734                            :       SEND BELOW SEQUENCE                                     ; ATTEMPTS TO SELECT ILL
4735                            :       SEND ABOVE SEQUENCE                                     ;
4736                            :       SEND COMMEN MESSAGE                                     ; IDENTIFIES PREVIOUS 2
4737                            :       SEND END OF PART 1 MESSAGE
4738                            :       DO FORM FEED
4739                            :
4740                            :       PART: 2         ASSIGNING OF RESIDENT FONTS
4741                            :
4742                            :       RESET PRINTER
4743                            :       SELECT SIZE UNIT AS DECIPOINTS
4744                            :       TOGGLE PAPER OFFSET
4745                            :       LET R3 EQUAL EVENTB                             ; TABLE OF EVEN PARAMETERS FOR F
4746                            :       LET R4 EQUAL ODDTB                              ;       "       ODD
4747                            :       WHILE (R3) NOT EQUAL TO 0 DO
4748                            :               SEND ASBGIN                             ; BEGINNING OF ASSIGNMENT SEQUEN
4749                            :               SEND (R3)+                              ; SEND THE FONT NUMBER FROM TABL
4750                            :               SEND ASENDP                             ; END OF ASSIGNMENT SEQUENCE
4751                            :               SEND ASBGIN                             ; BEGINNING OF ASSIGNMENT SEQUEN
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4752                    ;           SEND (R4)+                          ; SEND FONT NUMBER FROM TABLE
4753                    ;           SEND ASENDL                         ; END OF ASSIGNMENT SEQUENCE
4754                    ;       ENDDO
4755                    ;       LET R3 EQUAL EVENTB
4756                    ;       LET R4 EQUAL ODDTB
4757                    ;       SEND SEQEVE                             ; SEQUENTIAL EVEN SELECTIONS FRO
4758                    ;       WHILE (R3) NOT EQUAL TO 0 DO
4759                    ;           SEND SELBGN                         ; BEGINNING OF SELECTION SEQUENC
4760                    ;           SEND (R3)+                          ; FONT NUMBER FROM EVEN TABLE
4761                    ;           SEND SELEND                         ; END OF SELECT SEQUENCE
4762                    ;           SEND PORFON                         ; IDENTIFIES FONT AS PORTRAIT
4763                    ;       ENDDO
4764                    ;       SEND SEL11                              ; SELECTS LOGICAL FONT #11 (NOW
4765                    ;       SEND NEW PAGE MESSAGE
4766                    ;       SEND SEQODD                             ; SEQUENTIAL ODD SELECTONS
4767                    ;       WHILE (R4) NOT EQUAL TO 0 DO
4768                    ;           SEND SELBGN                         ; BEGINNING OF SELECT SEQUENCE
4769                    ;           SEND (R4)+                          ; FONT NUMBER FROM ODD TABLE
4770                    ;           SEND SELEND                         ; END OF SELECT SEQUENCE
4771                    ;           SEND LANFON                         ; IDENTIFIES FONT AS LANDSCAPE
4772                    ;       ENDDO
4773                    ;       SEND PRTEN2                             ; END OF SECTION AND PAGE MESSAG
4774                    ;       DO FORM FEED
4775                    ;       RESET PRINTER
4776                    ;       SELECT SIZE UNIT AS DECIPOINTS
4777                    ;       TOGGLE PAPER OFFSET
4778                    ;
4779                    ;       PART: 3         FONT LOAD SECTION
4780                    ;
4781                    ;       SEND #BGNLD                             ; BEGINNING OF LOAD SEQ
4782                    ;       LET R3 EQUAL RECTBO                     ; SET UP RECORD TABLE
4783                    ;       WHILE (R3) NOT EQUAL 0 DO
4784                    ;           SEND (R3)+
4785                    ;       ENDDO                                   ; SEND RECORD IN PARTS
4786                    ;       LET R3 EQUAL RECTBL                     ; SET UP RECORD TABLE
4787                    ;       WHILE (R3) NOT EQUAL 0 DO
4788                    ;           SEND (R3)+
4789                    ;       ENDDO                                   ; SEND RECORD IN PARTS
4790                    ;       LET R3 EQUAL RECTBA                     ; SET UP NEXT REC TABLE
4791                    ;       WHILE (R3) NOT EQUAL 0 DO
4792                    ;           SEND (R3)+
4793                    ;       ENDDO                                   ; SEND RECORD IN PARTS
4794                    ;       LET R3 EQUAL RECTBB                     ; SET UP NEXT REC TABLE
4795                    ;       WHILE (R3) NOT EQUAL 0 DO
4796                    ;           SEND (R3)+
4797                    ;       ENDDO                                   ; SEND RECORD IN PARTS
4798                    ;       SEND ENDLD                              ; END OF LOAD SEQ
4799                    ;       RESET PRINTER                           ; CHECK TO SEE IF RESET DESTROYS
4800                    ;       SELECT SIZE UNIT AS DECIPOINTS
4801                    ;       TOGGLE PAPER OFFSET
4802                    ;       LET R3 EQUAL DIAGTB                     ; TABLE OF DIAG FONT ASSIGNMENT
4803                    ;       WHILE (R3) NOT EQUAL 0 DO               ; DO FOR EACH ENTRY
4804                    ;           SEND (R3)+                          ; ASSIGN DIAG FONT AND SELECT IT
4805                    ;       ENDDO
4806                    ;       INCREMENT COUNT FROM 1 TO 3 BY 1
4807                    ;           SEND OUTBUF,2 CHARACTERS, 12 TIMES  ; PRINT A LINE OF ALTERNATING LI
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4808                                    ;               DO CARRIAGE RETURN AND LINE FEED
4809                                    ;               SEND OUTBUF+1, 2 CHARACTERS, 12 TIMES   ; PRINT A LINE OF ALTERNATING DA
4810                                    ;               DO CARRIAGE RETURN AND LINE FEED
4811                                    ;       ENDINC
4812                                    ;       DO FORM FEED
4813                                    ;       RESET PRINTER
4814                                    ;       SELECT SIZE UNIT AS DECIPOINTS
4815                                    ;
4816                                    END ROUTINE FONT
4817                                    .ENDR
4818
4819
4820
4821
4822
4823
4824
4825
4826
4827
4828  070254                                    BGNTST  19.
 (3)  070254                            T19::
4829
4830                                    ;               RESIDENT SECTION (USING RESIDENT FONTS ONLY)
4831                                    ;
4832                                    ;               PART 1  SELECTION DEFAULTS
4833                                    ;
4834                                    ;PART 1 FIRST GUARANTEES THAT,  ON RESET OF THE MACHINE (RIS SEQUENCE),
4835                                    ;THE DEFAULT POWER-UP FONT IS SELECTED FOR PRINTING.
4836                                    ;PART 1 NEXT CHECKS TO SEE IF ATTEMPTS TO SELECT UNASSIGNED
4837                                    ;LEGAL LOGICAL FONT NUMBERS ARE IGNORED.
4838                                    ;IT NEXT CHECKS TO SEE IF ATTEMPTS TO SELECT ILLEGAL LOGICAL FONT NUMBERS
4839                                    ;(ABOVE OR BELOW LEGAL RANGE) ARE IGNORED
4840  070254                            OUTPUT #REINIT,#2                 ; RESET PRINTER TO ALL DEFAULT CONDITIONS
4841  070316                            OUTPUT #SELDEC,#5                 ; SELECT DECIPOINTS AS SIZE UNIT
4842  070360                            OUTPUT #DECFIN,#5                 ; TOGGLE PAPER OFFSET
4843  070422                            OUTPUT #FONTST,#19.               ; TEST ID AND TWO LF'S
4844  070464                            OUTPUT #ASSDIA,#20.               ; ASSIGN DIAGNOSTIC FONT TO LOGICAL FONT #10
4845  070526                            OUTPUT #ASDIA1,#20.               ;       "       "       "       #11
4846  070570                            OUTPUT #SEL11,#5                  ; SELECT PORTRAIT FONT (LOG NUMBER 11)
4847  070632                            OUTPUT #REINIT,#2                 ; SHOULD REASSIGN #10 TO DEFAULT (LANDSCAPE) AND SELECT
4848  070674                            OUTPUT #SELDEC,#5                 ; SELECT DECIPOINTS AS SIZE UNIT
4849  070736                            OUTPUT #FONDEMES,#50.             ; PRINT DEFAULT MESSAGE
4850  071000                            LET R3 := #NSELTB                 ; FONT NUMBER IN MESSAGE TABLE
 (4)  071000  012703  074070                      MOV     #NSELTB,R3
4851  071004                            WHILE (R3) NE #0 DO               ; DO FOR EACH ENTRY SEQ TABLE
 (4)  071004                            50522$:
 (6)  071004  005713                              TST     (R3)
 (8)  071006  001002                              BNE     .+6
 (9)  071010  000137  071326                      JMP     50523$
4852  071014                                     OUTPUT #SELBGN,#2         ; BEGINNING OF SELECT SEQUENCE
4853  071056                                     OUTPUT (R3),#2            ; OUTPUT THE PARAMETER
4854  071116                                     OUTPUT #SELEND,#1         ; FINAL CHAR. FOR SELECT SEQ.
4855  071160                                     OUTPUT #FONSLA,#14.       ; BEGINNING OF FONT ID MESSAGE
4856  071222                                     OUTPUT (R3)+,#3           ; OUTPUT THE CORRECT FONT NUMBER FOR MESSAGE
4857  071262                                     OUTPUT #FONSLB,#51.       ; REST OF FONT NUMBER ID MESSAGE
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4858  071324                          ENDDO
 (3)  071324  000627                        BR      505228
 (3)  071326                          505238:
4859  071326                          OUTPUT @BELOW,#56.              ; ATTEMPTS TO SELECT NUMBER BELOW RANGE
4860  071370                          OUTPUT @ABOVE,#57.              ;       "       "       "   ABOVE   "
4861  071432                          OUTPUT @COMMEN,#56.             ; MESSAGE IDENTIFYING 2 PREVIOUS LINES AS LANDSCAPE
4862  071474                          OUTPUT @PRTEN1,#29.             ; END OF PART 1 MESSAGE + LF AND FF
4863                                  ;
4864                                  ;*****************************************************************************
4865                                  ;               PART 2  ASSIGNING OF RESIDENT FONTS
4866                                  ;
4867                                  ;OUTPUT @REINIT,#2              ; START THIS PART FRESH FROM RESET CONDITION
4868                                  ;OUTPUT @SELDEC,#5              ; SELECT DECIPOINTS AS SIZE UNIT
4869                                  ;OUTPUT @DECFIN,#5
4870                                  ;LET R3 := @EVENTB              ; TABLE OF EVEN PARAMS FOR ASSIGNMENT SEQS
4871                                  ;LET R4 := @ODDTB               ;       "  ODD  "       "       "
4872                                  ;WHILE (R3) NE #0 DO            ; ASSIGNS BOTH EVEN AND ODD NUMBERS
4873                                  ;       OUTPUT @ASBGIN,#4       ; BEGINNING OF ASSIGNMENT SEQ
4874                                  ;       OUTPUT (R3)+,#2         ; EVEN PARAM FOR SEQ
4875                                  ;       OUTPUT @ASENDP,#14.     ; END OF SEQ ASSIGNING PORTRAIT TO EVEN #
4876                                  ;       OUTPUT @ASBGIN,#4       ; BEGINNING OF ASSIGNMENT SEQ
4877                                  ;       OUTPUT (R4)+,#2         ; ODD PARAM
4878                                  ;       OUTPUT @ASENDL,#20.     ; END OF SEQ ASSIGNINC LANDSCAPE TO ODD #
4879                                  ;ENDDO
4880                                  ;LET R3 := @EVENTB              ; TABLE OF EVEN PARAMS
4881                                  ;LET R4 := @ODDTB               ;       "  ODD  "
4882                                  ;OUTPUT @SEQEVE,#15.            ; SEQUENTIAL EVEN SELECTIONS FROM 16-12
4883                                  ;WHILE (R3) NE #0 DO            ; NOW SELECT EVEN INDIVIDUALLY AND IDENTIFY
4884                                  ;       OUTPUT @SELBGN,#2       ; BEGINNING OF SELECTION SEQUENCE
4885                                  ;       OUTPUT (R3)+,#2         ; EVEN NUMBERED PARAMS
4886                                  ;       OUTPUT @SELEND,#1       ; FINAL CHAR OF SELECT ESC SEQUENCE
4887                                  ;       OUTPUT @PORFON,#47.     ; IDENTIFIES THIS FONT AS PORTRAIT
4888                                  ;ENDDO
4889                                  ;OUTPUT @PGEND,#17.             ; END OF PAGE MESSAGE
4890                                  ;OUTPUT @SEL11,#5               ; SELECTS LOG FONT #11 (LANDSCAPE NOW)
4891                                  ;OUTPUT @NEWPG,#36.             ; IDENTIFY NEW PAGE
4892                                  ;OUTPUT @SEQODD,#20.            ; SEQUENTIAL SELECTION OF ODD NUMBERS
4893                                  ;WHILE (R4) NE #0 DO            ; NOW SELECT THE ODD NUMBERS INDIVIDUALLY AND IDENTIFY
4894                                  ;       OUTPUT @SELBGN,#2       ; BEGINNING OF SELECT SEQUENCE
4895                                  ;       OUTPUT (R4)+,#2         ; ODD NUMBERED PARAMS
4896                                  ;       OUTPUT @SELEND,#1       ; FINAL CHAR OF ESC SEQUENCE
4897                                  ;       OUTPUT @LANFON,#47.     ; IDENTIFIES THIS FONT AS DEFAULT LANDSCAPE
4898                                  ;ENDDO
4899                                  ;OUTPUT @PRTEN2,#29.            ; END OF PART MESSAGE AND FF
4900                                  ;OUTPUT @REINIT,#2              ; RESET PRINTER
4901                                  ;OUTPUT @SELDEC,#5              ; SELECT DECIPOINTS AS SIZE UNIT
4902                                  ;OUTPUT @DECFIN,#5              ; TOGGLE PAPER OFFSET
4903                                  ;*****************************************************************************
4904                                  ;
4905                                  ;
4906                                  ;               PART 3    "FONT LOAD SECTION"
4907                                  ;
4908  071536                          LET OUTBUF :B= #40                              ; CODE FOR 1ST CHAR IN DIAG FONT
 (4)  071536  112737  000040  003114          MOVB    #40,OUTBUF
4909  071544                          LET OUTBUF+1 :B= #41                            ;       "       2ND
 (4)  071544  112737  000041  003115          MOVB    #41,OUTBUF+1
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4910 071552                             LET OUTBUF+2 :B= #40                ; "        1ST          "
 (4) 071552 112737 000040 003116                MOVB    #40,OUTBUF+2
4911 071560                             LET OUTBUF+3 :B= #15                ; CR
 (4) 071560 112737 000015 003117                MOVB    #15,OUTBUF+3
4912 071566                             LET OUTBUF+4 :B= #12                ; LF
 (4) 071566 112737 000012 003120                MOVB    #12,OUTBUF+4
4913 071574                             LET OUTBUF+5 :B= #14                ; FF
 (4) 071574 112737 000014 003121                MOVB    #14,OUTBUF+5
4914 071602                             OUTPUT #BGNLD,#6.                   ; BEGINNING OF LOAD SEQ
4915 071644                             LET R3 := #RECTBO                   ; SET UP RECORD TABLE
 (4) 071644 012703 074154                       MOV     #RECTBO,R3
4916 071650                             WHILE (R3) NE #0 DO
 (4) 071650                             50524$:
 (6) 071650 005713                              TST     (R3)
 (8) 071652 001002                              BNE     .+6
 (9) 071654 000137 071726                       JMP     50525$
4917 071660                                     OUTPUT (R3)+,#128.
4918 071720 004737 005306                       JSR PC, QUIET
4919 071724                             ENDDO                               ; SEND RECORD IN PARTS
 (3) 071724 000751                              BR      50524$
 (3) 071726                             50525$:
4920 071726                             LET R3 := #RECTBL                   ; SET UP RECORD TABLE
 (4) 071726 012703 074216                       MOV     #RECTBL,R3
4921 071732                             WHILE (R3) NE #0 DO
 (4) 071732                             50526$:
 (6) 071732 005713                              TST     (R3)
 (8) 071734 001002                              BNE     .+6
 (9) 071736 000137 072010                       JMP     50527$
4922 071742                                     OUTPUT (R3)+,#128.
4923 072002 004737 005306                       JSR PC, QUIET
4924 072006                             ENDDO                               ; SEND RECORD IN PARTS
 (3) 072006 000751                              BR      50526$
 (3) 072010                             50527$:
4925 072010                             LET R3 := #RECTBA                   ; SET UP NEXT REC TABLE
 (4) 072010 012703 074260                       MOV     #RECTBA,R3
4926 072014                             WHILE (R3) NE #0 DO
 (4) 072014                             50530$:
 (6) 072014 005713                              TST     (R3)
 (8) 072016 001002                              BNE     .+6
 (9) 072020 000137 072072                       JMP     50531$
4927 072024                                     OUTPUT (R3)+,#128.
4928 072064 004737 005306                       JSR PC, QUIET
4929 072070                             ENDDO                               ; SEND RECORD IN PARTS
 (3) 072070 000751                              BR      50530$
 (3) 072072                             50531$:
4930 072072                             LET R3 := #RECTBB                   ; SET UP NEXT REC TABLE
 (4) 072072 012703 074322                       MOV     #RECTBB,R3
4931 072076                             WHILE (R3) NE #0 DO
 (4) 072076                             50532$:
 (6) 072076 005713                              TST     (R3)
 (8) 072100 001002                              BNE     .+6
 (9) 072102 000137 072154                       JMP     50533$
4932 072106                                     OUTPUT (R3)+,#128.
4933 072146 004737 005306                       JSR PC, QUIET
4934 072152                             ENDDO                               ; SEND RECORD IN PARTS
 (3) 072152 000751                              BR      50532$
```

```
 (3)  072154                                50533$:
4935  072154                                OUTPUT @ENDLD,@3                          ; END OF LOAD SEQ
4936  072216                                OUTPUT @REINIT,@2                         ; CHECK TO SEE IF RESET DESTROYS FONTS L
4937  072260                                OUTPUT @SELDEC,@5                         ; SELECT DECIPOINTS AS PARAMETER
4938  072322                                OUTPUT @DECFIN,@5                         ; TOGGLE PAPER OFFSET
4939  072364                                LET R3 := @DIAGTB                         ; TABLE OF DIAG FONT ASSIGNMENT AND SELE
 (4)  072364  012703  074364                      MOV     @DIAGTB,R3
4940  072370                                LET R4 := @DIAGX
 (4)  072370  012704  074514                      MOV     @DIAGX,R4
4941  072374                                WHILE (R3) NE @0 DO                       ; DO FOR EACH ENTRY
 (4)  072374                                50534$:
 (6)  072374  005713                              TST     (R3)
 (8)  072376  001002                              BNE     .+6
 (9)  072400  000137  072754                      JMP     50535$
4942  072404                                      OUTPUT (R4)+,@13.                  ; ASSIGN DIAGX AND SELECT IT FOR TITLES
4943  072444                                      OUTPUT (R3)+,@21.                  ; ASSIGN DIAG FONT AND SELECT IT.
4944  072504                                      INCR COUNT FROM @1 TO @2 BY @1     ; PRINT ONLY TWO LINE (2*2=4 AS TOTAL OF LIN
 (5)  072504  012737  000001  002276              MOV     @1,COUNT
 (7)  072512  000402                              BR      50537$
 (6)  072514                                50536$:
 (8)  072514  005237  002276                      INC     COUNT
 (6)  072520                                50537$:
 (7)  072520  023727  002276  000002              CMP     COUNT,@2
 (9)  072526  003402                              BLE     50540$
 (7)  072530  000137  072752                      JMP     50541$
 (6)  072534                                50540$:
4945  072534                                      OUTPUT @OUTBUF,@2,,@12.                ; PRINT A LINE OF ALTERNATING LI
4946  072576                                      OUTPUT @OUTBUF+3,@2                    ; CRLF
4947  072640                                      OUTPUT @OUTBUF+1,@2,,@12.              ; PRINT A LINE OF ALTERNATING DA
4948  072702                                      OUTPUT @OUTBUF+3,@2                    ; CRLF
4949  072744  004737  005306                      JSR PC,QUIET
4950  072750                                ENDINC
 (4)  072750  000661                              BR      50536$
 (4)  072752                                50541$:
4951  072752                                ENDDO
 (3)  072752  000610                              BR      50534$
 (3)  072754                                50535$:
4952  072754                                OUTPUT @OUTBUF+5,@1                       ; FF
4953  073016                                OUTPUT @REINIT,@2                         ; RESET TO DEFAULT FONT
4954  073060                                OUTPUT @SELDEC,@5                         ; SELECT DECIPOINTS AS SIZE UNIT
4955  073122  004737  005306                JSR PC,QUIET
4956
4957  073126                                      EXIT TST
 (3)  073126  104432                              TRAP    C$EXIT
 (3)  073130  006464                              .WORD   L10032-.
4958
4959                                        .NLIST BEX
4960                                        ;                 LOCAL VARIABLES, TABLES, MESSAGES
4961  073132  055433  030061  043155       FONTST: .ASCII  <33>/[10mFONT TEST 19/<12><12>
4962  073155     104  043105  052501       FONDEMES:       .ASCII  /DEFAULT FONT PRINTED - SHOULD BE DEFAULT POWER-UP/<12> ; IDENTI
4963  073237     114  043517  041511       FONSLA: .ASCII  /LOGICAL FONT @/                                               ; BEGINN
4964  073255     123  046105  041505       FONSLB: .ASCII  /SELECTED - DEFAULT POWER-UP FONT SHOULD BE PRINTED/<12>       ; END OF
4965  073340  044124  051511  051440       NEWPG:  .ASCII  /THIS SHOULD BE TOP LINE OF NEW PAGE/<12>                      ; 36 CHA
4966  073404  050033  035461  030061       ASSDIA: .ASCII  <33>/P1;10/<175>/DIAG000/<33>/\/                               ; ASSIGN
4967  073424  050033  035461  030461       ASDIA1: .ASCII  <33>/P1;11/<175>/DIAG00)/<33>/\/                               ; ASSIGN
4968  073444  055433  030461     155       SEL11:  .ASCII  <33>/[11m/                      ; SELECTS LOGICAL FONT @11
```

```
073451     033  033533  040555  BELOW:  .ASCII  <33>/[7mATTEMPTING TO SELECT FONT NUMBER BELOW LEGAL RANGE./<12>
073541     033  031133  066460  ABOVE:  .ASCII  <33>/[20mATTEMPTING TO SELECT FONT NUMBER ABOVE LEGAL RANGE./<12>
073632  051120  041505  042105  COMMEN: .ASCII  /PRECEDING TWO LINES SHOULD BE THE DEFAULT POWER UP FONT/<12>
073722  047105  020104  043117  PGEND:  .ASCII  /END OF THIS PAGE/<12>
073743     105  042116  047440  PRTEN1: .ASCII  /END OF PART 1 AND THIS PAGE/<12><14>
                                ;PRTEN2:        .ASCII  /END OF PART 2 AND THIS PAGE/<12><14>
                                ;LANFON:        .ASCII  /THIS LINE SHOULD BE THE DEFAULT LANDSCAPE FONT/<12>
                                ;PORFON:        .ASCII  /THIS LINE SHOULD BE THE RESIDENT PORTRAIT FONT/<12>
                                ;ASSLAN:        .ASCII  <33>/P1;10/<175>/DELandscape13.6-Ø/<33>/\/                ; ASSIGN
074000  055433  033061  015555  SEQEVE: .ASCII  <33>/[16m/<33>/[14m/<33>/[12m/                        ; SEQUENTIAL SELECTION O
074017     033  030533  066467  SEQODD: .ASCII  <33>/[17m/<33>/[15m/<33>/[13m/<33>/[11m/              ;      "        "
074043     033  030533  066466  SEQALL: .ASCII  <33>/[16m/<33>/[15m/<33>/[14m/<33>/[13m/              ;      "        "
        074070                          .EVEN
074070  074416  074421  074424  NSELTB: .WORD   ASSI12,ASSI13,ASSI14,ASSI15,ASSI16,ASSI17,0           ;
074106  074410  074413  074416  ASSTBL: .WORD   ASSI10,ASSI11,ASSI12,ASSI13,ASSI14,ASSI15,ASSI16,ASSI17,0    ; TABLE
074130  074410  074416  074424  EVENTB: .WORD   ASSI10,ASSI12,ASSI14,ASSI16,0                         ; TABLE OF EVEN PARAMETE
074142  074413  074421  074427  ODDTB:  .WORD   ASSI11,ASSI13,ASSI15,ASSI17,0                         ;    "    ODD
074154  075014  076014  076214  RECTB0: .WORD   REC0,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,REC
074216  075214  076014  076214  RECTBL: .WORD   REC1,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,REC
074260  075414  076014  076214  RECTBA: .WORD   REC1A,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,RE
074322  075614  076014  076214  RECTBB: .WORD   REC1B,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,RE
074364  074616  074643  074670  DIAGTB: .WORD   DIAG12,DIAG13,DIAG14,DIAG15,DIAG16,DIAG17,0           ; ASSIGNS AND SELECTS LO
074402  050033  035461          ASBGIN: .ASCII  <33>/P1;/                                             ; BEGINNING OF ASSIGNMEN
074406  055433                  SELBGN: .ASCII  <33>/[/                                               ; BEGINNING OF SELECTION
074410  030061     040          ASSI10: .ASCII  /10 /
074413     061  020061          ASSI11: .ASCII  /11 /
074416  031061     040          ASSI12: .ASCII  /12 /
074421     061  020063          ASSI13: .ASCII  /13 /
074424  032061     040          ASSI14: .ASCII  /14 /
074427     061  020065          ASSI15: .ASCII  /15 /
074432  033061     040          ASSI16: .ASCII  /16 /
074435     061  020067          ASSI17: .ASCII  /17 /
074440  042175  052105  072151  ASENDP: .ASCII  <175>/DETitan10-R/<33>/\/                                      ; END OF ASSIGNM
074456  042175  046105  067141  ASENDL: .ASCII  <175>/DELandscape13.6-Ø/<33>/\/                        ;      "       "
074502     155                  SELEND: .ASCII  /m/                                                   ; END OF SELECTION SEQUE
074503     033     120     061  BGNLD:  .BYTE   33,120,61,73,61,171                               ; FIRST PART OF FONT LOAD SEQ
074511     073     033     134  ENDLD:  .BYTE   73,33,134                                             ; LAST  "          "
                                ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
074514  074532  074547  074564  DIAGX:  .WORD   DIAG0,DIAG1,DIAG2,DIAG3,DIAG0,DIAG1,0                 ; FONT BEING SELECTED TO
074532  055433  030461  042155  DIAG0:  .ASCII  <33>/[11mDIAG000/<12>
074547     033  030533  066461  DIAG1:  .ASCII  <33>/[11mDIAG001/<12>
074564  055433  030461  042155  DIAG2:  .ASCII  <33>/[11mDIAG002/<12>
074601     033  030533  066461  DIAG3:  .ASCII  <33>/[11mDIAG003/<12>
                                ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
074616     033     120     061  DIAG12: .BYTE   33,120,61,73,61,62,175,104,111,101,107  ; SEQS TO ASSIGN AND SELECT DIAG
074631     060     060     060          .BYTE   60,60,60,33,134,33,133,61,62,155
074643     033     120     061  DIAG13: .BYTE   33,120,61,73,61,63,175,104,111,101,107  ; SEQS TO ASSIGN AND SELECT DIAG
074656     060     060     061          .BYTE   60,60,61,33,134,33,133,61,63,155
074670     033     120     061  DIAG14: .BYTE   33,120,61,73,61,64,175,104,111,101,107  ; SEQS TO ASSIGN AND SELECT DIAG
074703     060     060     062          .BYTE   60,60,62,33,134,33,133,61,64,155
074715     033     120     061  DIAG15: .BYTE   33,120,61,73,61,65,175,104,111,101,107  ; SEQS TO ASSIGN AND SELECT DIAG
074730     060     060     063          .BYTE   60,60,63,33,134,33,133,61,65,155
074742     033     120     061  DIAG16: .BYTE   33,120,61,73,61,66,175,104,111,101,107  ; SEQS TO ASSIGN AND SELECT DIAG
074755     060     060     060          .BYTE   60,60,60,33,134,33,133,61,66,155
074767     033     120     061  DIAG17: .BYTE   33,120,61,73,61,67,175,104,111,101,107  ; SEQS TO ASSIGN AND SELECT DIAG
075002     060     060     061          .BYTE   60,60,61,33,134,33,133,61,67,155
```

```
075014  064551  040147  062477  REC0:    .ASCII  /iig@?e_CPCd@Pr?oKA?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
075102  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
075214  064551  040147  062477  REC1:    .ASCII  /iig@?e_CPCd@Pr?oKQ?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
075302  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
075414  064551  040147  062477  REC1A:   .ASCII  /iig@?e_CPCd@Pr?oKa?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
075502  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
075614  064551  040147  062477  REC1B:   .ASCII  /iig@?e_CPCd@Pr?oKq?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
075702  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
076014  037477  037477  037477  REC2:    .ASCII  /??????????????????????????????????????????????????????/
076102  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
076214  037477  037477  037477  REC3:    .ASCII  /??????????????????????????????????????????????????????/
076302  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
076414  037477  037477  037477  REC4:    .ASCII  /???????????????????????G?O?F/<176>/NO@cF_LA?†/<173>/t?EO????????????/
076502  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
076614  037477  037477  037477  REC5:    .ASCII  /???????????????????N/<176>/w??????????@/<176><176><176><173>/????????F/<17
076702  047077  077176  077176           .ASCII  /?N/<176><176><176><176>/w??????N/<176><176><176><176><176><176>/_?
076744  037575  037477  037477           .ASCII  <175>/?????@/<176><176><173>/?F/<176><176>/o?????/<176><176>/o??N/<176><
077014  057576  037477  037477  REC6:    .ASCII  <176>/_????B/<176>/_???F/<176>/w????@/<176>/o???@/<176><175>/?????†/<173
077102  037573  037477  041077           .ASCII  <173>/????B/<176>/_????/<176><176>/?????/<176>/w????N/<176>/o????N/<175>
077166  077176  037477  037477           .ASCII  <176><176>/?????/<176>/w????N/<176>/o????N/<175>
077214  037477  037477  077102  REC7:    .ASCII  /????B/<176><173>/????B/<176>/_????/<176><176>/?????/<176><174>/????N/<1
077271     176  037573  037477           .ASCII  <176><173>/????@/<176>/o/
077302  037477  040077  077176           .ASCII  /???@/<176><176>/?????†/<175>/????†/<176>/_????F/<176>/_???N/<176>/w????
077366  067576  037477  077100           .ASCII  <176>/o??@/<176><176>/?????B/<176><176>/_?@/<176><176>/o?/
077414  037477  037477  077176  REC8:    .ASCII  /????/<176><176><176>/_B/<176><176><173>/?????F/<176><176><176><176><175
077456  077176  077176  037537           .ASCII  <176><176><176><176>/_?????N/<176><176><176><176><176><176>/o??/
077502  037477  037477  077176           .ASCII  /????/<176><176><176><176><176><176>/_??????@/<176><176><176><176><176>/
077546  037477  037477  037477           .ASCII  /???????????/<176><176>/_???????????????????????????/
077614  037477  037477  037477  REC9:    .ASCII  /?????????????????????????????????????????†/<176><176><176><176><17
077702  057576  037477  043077           .ASCII  <176>/_???F/<176><176><176><176><176><176><176><176>/w???@/<176><176><17
077736  037477  037477  077136           .ASCII  /????†/<176><176><176><176><176><176><176><176>/_???F/<176><176><176><17
077776  077176  077176  077176           .ASCII  <176><176><176><176><176><176><176><175>/????†/<176>
100014  077176  077176  077176  REC10:   .ASCII  <176><176><176><176><176><176><176>/_???F/<176><176><176><176><176><176>
100052  037477  037477  037477           .ASCII  /???????????F/<176><173>/??????????/
100102  077102  057576  037477           .ASCII  /B/<176><176>/_?????????@/<176><176><173>/??????????/<176><176><175>/_??
100170  063176  057576  037477           .ASCII  <176>/f/<176>/_????????F/<176>/o/<176><173>/???/
100214  037477  037477  041077  REC11:   .ASCII  /?????B/<176>/wF/<176>/_???????@/<176><173>/?/<176><173>/????????/<175><
100275     176  037573  037477           .ASCII  <176><173>/???/
100302  037477  037477  077116           .ASCII  /????N/<176>/_?F/<176>/_??????F/<176>/o??/<176><173>/??????B/<176>/w??F/
100363     176  037573  037477           .ASCII  <176><173>/??????/<176><175>/???F/<176>/_?????†/<176>/??/
100414  037477  075576  037477  REC12:   .ASCII  /??/<176><173>/?????N/<176>/_???F/<176>/_????F/<176>/o????/<176><173>/??
100475     176  037573  037477           .ASCII  <176><173>/???/
100502  037477  075576  037477           .ASCII  /??/<176><173>/????N/<175>/?????F/<176>/????B/<176>/??????/<176>
100540  042137  052124  052124           .ASCII  /_DTTTTTTTTTT???????????????????????????????????/
100614  037477  037477  037477  REC13:   .ASCII  /??????????????????????????????????????????????????????/
100702  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
101014  037477  037477  037477  REC14:   .ASCII  /??????????????????????????????????????????????????????/
101102  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
101214  037477  037477  037477  REC15:   .ASCII  /??????????????????????????????????????????????????????/
101302  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
101414  037477  037477  037477  REC16:   .ASCII  /??????????????????????????????????????????????????????/
101502  037477  037477  037477           .ASCII  /???????????????????????????????????????????????????????????????????????
                                .EVEN
                                .LIST BEX
101614                                   ENDTST
(3)  101614                     L10032:
```

```
 (3)  101614  104401                    TRAP    C$ETST
5080  101616                            ENDMOD
5081
5082
5083
5084
5085
5086
5087
5088
5089
5090
5093                                .SBTTL  MISCELANEOUS CONTROL FUNCTIONS TEST
5094                                ;MODULE MISCON.P11
5095
5096  101616                        BGNMOD
5097
5098                                ;++
5099                                ;               FUNCTIONAL DESCRIPTION
5100                                ;
5101                                ;       THE MISCELANEOUS CONTROL FUNCTIONS TEST WAS CREATED FOR USE ON
5102                                ;THE LN01 PRINTER.  IT IS A COMPILATION OF SUBTESTS THAT ARE SHORT IN
5103                                ;DURATION AND DO NOT REQUIRE A SEPARATE TEST ALL OF THERE OWN.  THE
5104                                ;FUNCTIONS THAT ARE TESTED ARE AS FOLLOWS:
5105                                ;       1: "CANCEL" CHARACTER
5106                                ;       2: "SUBSTITUTE" CHARACTER
5107                                ;       3: USE OF CONTROL CHARACTERS INSIDE ESCAPE AND CONTRL SEQUENCES
5108                                ;--
5109
5110                                ;               GLOBALS REFERENCED:
5111                                ;       MESSAGES, VARIABLES, SUBROUTINES
5112
5113         000000                 .REPT   0
5114
5115                                ;               PDL
5116                                ;
5117                                ;BEGIN ROUTINE MISCON
5118                                ;       DO RESET                                                ; RESET
5119                                ;       SELECT SIZE UNIT AS DECIPOINTS
5120                                ;       PRINT TEST ID
5121                                ;
5122                                ;                       "CANCEL" SECTION
5123                                ;
5124                                ;       MOVE TO ABSOLUTE POSITION 1 INCH (VERTICAL AND HORIZONTAL)
5125                                ;       WHILE SEQUENCE TABLE NE TO 0 DO                         ; DO FOR
5126                                ;       ;       SEND ESCAPE OR CONTROL SEQUENCE WITH "CANCEL" CHARACTER INSIDE  ; SEQUEN
5127                                ;       ENDDO
5128                                ;       SEND SECTION ID AND LINE LOCATION AND CR                ; LINE L
5129                                ;       SEND 1 "CANCEL" CHARACTER OUTSIDE A SEQUENCE            ; NOTHIN
5130                                ;                                                               ; SHOULD
5131                                ;                       "SUBSTITUTE" SECTION
5132                                ;
5133                                ;       MOVE TO ABSOLUTE POSITION 2 INCHES VERTICAL, 1 INCH HORIZONTAL
5134                                ;       SEND SECTION ID WITH LINE LOC.                          ; LINE L
5135                                ;       WHILE TABLE1 OF SEQUENCES NE TO 0 DO                    ; DO FOR
5136                                ;       ;       SEND ESC OR CONT SEQUENCE WITH "SUBSTITUTE" CHAR INSIDE  ; SHOULD
```

```
5137                                    ;       ENDDO
5138                                    ;       SEND  SUBSTITUTE" CHAR (OCTAL CODE 32) OUTSIDE SEQUENCE                 ; SHOULD
5139                                    ;
5140                                    ;                       "CONTROL CHARACTERS INSIDE SEQUENCE" SECTION
5141                                    ;
5142                                    ;       CLEAR ALL HORIZONTAL AND VERTICAL TABS
5143                                    ;       SET A VERTICAL TAB AT THE 4 INCH MARK
5144                                    ;       SET A HORIZONTAL TAB AT THE 2 INCH MARK
5145                                    ;       MOVE TO HORIZONTAL POSITION ABSOLUTE 1 INCH MARK
5146                                    ;       MOVE RELATIVE VERTICALLY 1 INCH                                         ; RESULT
5147                                    ;       SEND ESCAPE SEQUENCE TO CLEAR VERTICAL TABS
5148                                    ;            INSIDE THE SEQUENCE:- SEND VT, CR, HT                              ; SHOULD
5149                                    ;       SEND SECTION, ID WITH LINE LOCATION MESSAGE                             ; LINE
5150                                    ;       MOVE TO HORIZONTAL POSITION 1 INCH
5151                                    ;       SEND SEQUENCE TO TURN UNDERLINE
5152                                    ;            INSIDE THE SEQUENCE:  SEND LF,FF,HT                                ; SHOULD
5153                                    ;       PRINT "BELID" MESSAGE                                                   ; IDENTI
5154                                    ;                                                                               ; SECTIO
5155                                    ;       RESET THE PRINTER
5156                                    ;       SELECT SIZE UNIT AS DECIPOINTS
5157                                    ;       DO A FORM FEED
5158                                    .ENDR
5159
5160
5161
5162
5163
5164
5165
5166
5167
5168
5169  101616                            BGNTST  20.
 (3)  101616                            T20::
5170
5171                                    ;               SOURCE CODE
5172
5173  101616                            LET OUTBUF    :B= #11                                   ; CODE FOR HT
 (4)  101616  112737  000011  003114            MOVB    #11,OUTBUF
5174  101624                            LET OUTBUF+1  :B= #12                                   ;       LF
 (4)  101624  112737  000012  003115            MOVB    #12,OUTBUF+1
5175  101632                            LET OUTBUF+2  :B= #13                                   ;       VT
 (4)  101632  112737  000013  003116            MOVB    #13,OUTBUF+2
5176  101640                            LET OUTBUF+3  :B= #14                                   ;       FF
 (4)  101640  112737  000014  003117            MOVB    #14,OUTBUF+3
5177  101646                            LET OUTBUF+4  :B= #15                                   ;       CR
 (4)  101646  112737  000015  003120            MOVB    #15,OUTBUF+4
5178  101654                            LET OUTBUF+5  :B= #30                                   ;       CANCEL
 (4)  101654  112737  000030  003121            MOVB    #30,OUTBUF+5
5179  101662                            LET OUTBUF+6  :B= #32                                   ;       SUBSTITUTE
 (4)  101662  112737  000032  003122            MOVB    #32,OUTBUF+6
5180  101670                            LET OUTBUF+7  :B= #33                                   ;       ESCAPE
 (4)  101670  112737  000033  003123            MOVB    #33,OUTBUF+7
5181  101676                            OUTPUT #REINIT,#2
5182  101740                            OUTPUT #SELDEC,#5                                       ; DECIPOINTS AS PARAMETERS
5183  102002                            OUTPUT #MISCON,#42.                                     ; TEST ID
```

```
5184                                    ;
5185                                    ;                       "CANCEL " SECTION
5186                                    ;
5187  102044                            OUTPUT #ABPO1,#12.                      ; ABSOLUTE POSITION 1 INCH VERTI
5188  102106                            LET R3 :* #SEQTAB
 (4)  102106  012703  104364                    MOV     #SEQTAB,R3
5189  102112                            LET R4 :* #CNTTAB
 (4)  102112  012704  104410                    MOV     #CNTTAB,R4
5190  102116                            WHILE (R3) NE #0 DO                     ; DO FOR EACH SEQUENCE IN TABLE
 (4)  102116                            50542$:
 (6)  102116  005713                            TST     (R3)
 (8)  102120  001002                            BNE     .+6
 (9)  102122  000137  102230                    JMP     50543$
5191  102126                                    OUTPUT (R3)+,(R4)+                      ; OUTPUT THE SEQUENCE WITHOUT A
5192  102164                                    OUTPUT #OUTBUF+5,#1                     ; ABORT THE SEQUENCE BY SENDING
5193  102226                            ENDDO
 (3)  102226  000733                            BR      50542$
 (3)  102230                            50543$:
5194  102230                            OUTPUT #CANSEC,#87.                     ; OUTPUT TEST ID AND LINE LOCATI
5195  102272                            OUTPUT #OUTBUF+5,#1                     ; SEND 1 CANCEL CHAR. NOTHING SH
5196  102334  004737  005306           JSR PC, QUIET
5197
5198                                    ;                       "SUBSTITUTE" SECTION
5199
5200  102340                            OUTPUT #ABPO2,#13.                      ; ABSOLUTE POS. 2 INCHES VER AND
5201  102402                            OUTPUT #SUBSEC,#89.                     ; SECTION ID PLUS LINE LOCATION
5202  102444                            LET R3 :* #SQTAB1
 (4)  102444  012703  104376                    MOV     #SQTAB1,R3
5203  102450                            LET R4 :* #CNTTAB
 (4)  102450  012704  104410                    MOV     #CNTTAB,R4
5204  102454                            WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN THIS TABL
 (4)  102454                            50544$:
 (6)  102454  005713                            TST     (R3)
 (8)  102456  001002                            BNE     .+6
 (9)  102460  000137  102566                    JMP     50545$
5205  102464                                    OUTPUT (R3)+,(R4)+                      ; SEND ESC OR CONT SEQ WITHOUT A
5206  102522                                    OUTPUT #OUTBUF+6,#1                     ; ABORT THE SEQUENCE BY SENDING
5207                                                                                    ; SHOULD PRINT NOTHING
5208  102564                            ENDDO
 (3)  102564  000733                            BR      50544$
 (3)  102566                            50545$:
5209  102566                            OUTPUT #OUTBUF+6,#1                     ; SUBSTITUTE CHAR OUTSIDE SEQUEN
5210                                    ;
5211                                    ;                       CONTROL CHARACTERS INSIDE SEQUENCE SECTION"
5212                                    ;
5213  102630                            OUTPUT #CLHVTB,#8.                      ; CLEAR ALL HOR AND VER TABS
5214  102672                            OUTPUT #STVR4,#7                        ; SET VERTICAL TAB AT 4 INCH MAR
5215  102734                            OUTPUT #STHOR2,#7                       ; SET HORIZONTAL TAB AT 2 INCH M
5216  102776                            OUTPUT #ABPO1H,#7                       ; MOVE TO ABSOLUTE POSITION HORI
5217  103040                            OUTPUT #RLTV1,#6                        ; RELATIVE VERTICAL 1 INCH (SHOU
5218  103102                            OUTPUT #CONSEQ,#8.                      ; SEND SEQ TO CLEAR VERTICAL TAB
5219  103144                            OUTPUT #CONSEC,#107.                    ; SEND SECTION ID AND LINE LOCAT
5220  103206                            OUTPUT #ABPO1H,#7                       ; HOR ABSOLUTE TO 1 INCH
5221  103250                            OUTPUT #CONSQ1,#8.                      ; SEND SEQ TO TURN ON UNDERLINE
5222  103312                            OUTPUT #BELID,#81.                      ; IDENTIFIES LINE LOC AS BEING 1
5223                                                                            ; AND IDENTIFIES THE LINE AS BE
```

```
5224  103354                          OUTPUT #REINIT,#2                       ; RESET THE MACHINE TO DEFAULT
5225  103416                          OUTPUT #SELDEC,#5                       ; SELECT DECIPOINTS
5226  103460                          OUTPUT #OUTBUF+3,#1                     ; FORM FEED
5227  103522  004737  005306          JSR PC,QUIET                            ; GUARANTEE THE FORM FEED
5228  103526                                  EXIT TST
 (3)  103526  104432                          TRAP    C$EXIT
 (3)  103530  001072                          .WORD   L10033-.
5229
5230                                  .NLIST BEX
5231                                  ;               LOCAL VARIABLES, TABLES, MESSAGES
5232  103532  055433  030061  046555  MISCON: .ASCII  <33>/[10mMISCELLANEOUS CONTROL FUNCTIONS TEST 20/<12>
5233  103607     042  040503  041516  CANSEC: .ASCII  /"CANCEL" SECTION - THIS LINE POSITION SHOULD BE APPROX. 1 INCH VERTICAL
5234  103736  051442  041125  052123  SUBSEC: .ASCII  /"SUBSTITUTE" SECTION - THIS LINE POSITION SHOULD BE APPROX. 2 INCHES VE
5235  104067     042  047503  052116  CONSEC: .ASCII  /"CONTROL CHARACTERS INSIDE A SEQUENCE" SECTION   LINE POSITION SHOULD B
5236  104242  044124  051511  046040  BELID:  .ASCII  /THIS LINE SHOULD BE 1 LINE BELOW SECTION ID AND IT SHOULD BE UNDERLINED
5237          104364                  .EVEN
5238  104364  104422  104463  104466  SEQTAB: .WORD   INTCAN,UNDSEQ,JUSSEQ,0,VECSEQ                  ; TABLE OF CANCEL SEQUEN
5239  104376  104431  104463  104466  SQTAB1: .WORD   INTSUB,UNDSEQ,JUSSEQ,VECSEQ,0                 ; TABLE OF SUBSTITUTE SE
5240  104410  000007  000003  000004  CNTTAB: .WORD   7,3,4,19.,0                                   ; TABLE OF BYTE COUNTS F
5241  104422     033     030     033  INTCAN: .BYTE   33,30,33,133,30,33,120                        ; POSSIBLE SEQUENCE INTR
5242  104431     033     032     033  INTSUB: .BYTE   33,32,33,133,32,33,120                        ; POSSIBLE SEQUENCE INTR
5243  104440     033     133     060  VECSEQ: .BYTE   33,133,60,73,63,60,60,73,63,60,60,73,71,60,60,73,61,65,60      ; DRWVEC
5244  104463     033     133     064  UNDSEQ: .BYTE   33,133,64                                    ; UNDERLINE SEQ WITHOUT
5245  104466     033     133     060  JUSSEQ: .BYTE   33,133,60,40                                  ; TURN ON JUSTIFY SEQ WI
5246  104472     033     133     067  ABPO1:  .BYTE   33,133,67,62,60,144,33,133,67,62,60,140       ; ABSOLUTE POSITION 1 IN
5247  104506     033     133     061  ABPO2:  .BYTE   33,133,61,64,64,60,144,33,133 67,62,60,140    ;       "           2
5248  104523     033     133     063  CLHVTB: .BYTE   33,133,63,147,33,133,64,147                   ; CLEAR ALL HOR AND VER
5249  104533     033     133     062  STVR4:  .BYTE   33,133,62,70,70,60,166                       ; SET VER TAB AT 4 INCH
5250  104542     033     133     061  STHOR2: .BYTE   33,133,61,64,64,60,165                       ; SET HOR TAB AT 2 INCH
5251  104551     033     133     062  ABPO3:  .BYTE   33,133,62,61,66,60,140                       ; ABSOLUTE HOR POSITION
5252  104560     033     133     060  ABPO1H: .BYTE   33,133,60,67,62,60,140                       ; ABSOLUTE HOR POSITION
5253  104567     033     133     067  RLTV1:  .BYTE   33,133,67,62,60,145                          ; RELATIVE VER 1 INCH
5254  104575     033     133     064  CONSEQ: .BYTE   33,133,64,13,15,12,11,147                             ; CLEAR VER TABS
5255  104605     033     133     064  CONSQ1: .BYTE   33,133,64,12,15,14,11,155                             ; TURN ON UNDERL
5256          104616                  .EVEN
5257                                  .LIST BEX
5258  104616  004737  005306                  JSR     PC,QUIET
5259  104622                                  ENDTST
 (3)  104622                          L10033:
 (3)  104622  104401                          TRAP    C$ETST
5260  104624                                  ENDMOD
5261
5262
5263
5264
5265
5266
5267
5268
5269
5270
5273                                  .SBTTL  INTERRUPT SERVICE ROUTINES
5274  104624                          BGNSRV
5275                                  ;
5276                                  ;++
5277                                  ;INTERRUPT VECTORS ARE ESTABLISHED DURING INITIALIZATION
```

```
5278                                    ;POINTING TO THE BASIC ROUTINES WHICH
5279                                    ;SET UP THE UNIT NUMBER CAUSING THE INTERRUPTS.
5280                                    ;LINE NUMBER IS RETURNED IN R2
5281                                    ;
5282                                    ;
5283            000000                  X=0
5284  104624    000020                  INT00:  .REPT 16.
5285                                            SETPRI #PRIO4
5286                                            PUSH    R2
5287                                            LET R2 := #X
5288                                            INLINE <JMP     IODRV>
5289                                    X=X+2
5290                                            .ENDR
 (4)  104624  012700  000200                    MOV     #PRIO4,R0
 (4)  104630  104441                            TRAP    C$SPRI
 (3)  104632  010246                            MOV     R2,-(SP)
 (5)  104634  012702  000000                    MOV     #X,R2
 (3)  104640  000137  004542                    JMP     IODRV
 (4)  104644  012700  000200                    MOV     #PRIO4,R0
 (4)  104650  104441                            TRAP    C$SPRI
 (3)  104652  010246                            MOV     R2,-(SP)
 (5)  104654  012702  000002                    MOV     #X,R2
 (3)  104660  000137  004542                    JMP     IODRV
 (4)  104664  012700  000200                    MOV     #PRIO4,R0
 (4)  104670  104441                            TRAP    C$SPRI
 (3)  104672  010246                            MOV     R2,-(SP)
 (5)  104674  012702  000004                    MOV     #X,R2
 (3)  104700  000137  004542                    JMP     IODRV
 (4)  104704  012700  000200                    MOV     #PRIO4,R0
 (4)  104710  104441                            TRAP    C$SPRI
 (3)  104712  010246                            MOV     R2,-(SP)
 (5)  104714  012702  000006                    MOV     #X,R2
 (3)  104720  000137  004542                    JMP     IODRV
 (4)  104724  012700  000200                    MOV     #PRIO4,R0
 (4)  104730  104441                            TRAP    C$SPRI
 (3)  104732  010246                            MOV     R2,-(SP)
 (5)  104734  012702  000010                    MOV     #X,R2
 (3)  104740  000137  004542                    JMP     IODRV
 (4)  104744  012700  000200                    MOV     #PRIO4,R0
 (4)  104750  104441                            TRAP    C$SPRI
 (3)  104752  010246                            MOV     R2,-(SP)
 (5)  104754  012702  000012                    MOV     #X,R2
 (3)  104760  000137  004542                    JMP     IODRV
 (4)  104764  012700  000200                    MOV     #PRIO4,R0
 (4)  104770  104441                            TRAP    C$SPRI
 (3)  104772  010246                            MOV     R2,-(SP)
 (5)  104774  012702  000014                    MOV     #X,R2
 (3)  105000  000137  004542                    JMP     IODRV
 (4)  105004  012700  000200                    MOV     #PRIO4,R0
 (4)  105010  104441                            TRAP    C$SPRI
 (3)  105012  010246                            MOV     R2,-(SP)
 (5)  105014  012702  000016                    MOV     #X,R2
 (3)  105020  000137  004542                    JMP     IODRV
 (4)  105024  012700  000200                    MOV     #PRIO4,R0
 (4)  105030  104441                            TRAP    C$SPRI
 (3)  105032  010246                            MOV     R2,(SP)
```

```
   (5)  105034  012702  000020              MOV     #X,R2
   (3)  105040  000137  004542              JMP     IODRV
   (4)  105044  012700  000200              MOV     #PRI04,R0
   (4)  105050  104441                      TRAP    C$SPRI
   (3)  105052  010246                      MOV     R2,-(SP)
   (5)  105054  012702  000022              MOV     #X,R2
   (3)  105060  000137  004542              JMP     IODRV
   (4)  105064  012700  000200              MOV     #PRI04,R0
   (4)  105070  104441                      TRAP    C$SPRI
   (3)  105072  010246                      MOV     R2,-(SP)
   (5)  105074  012702  000024              MOV     #X,R2
   (3)  105100  000137  004542              JMP     IODRV
   (4)  105104  012700  000200              MOV     #PRI04,R0
   (4)  105110  104441                      TRAP    C$SPRI
   (3)  105112  010246                      MOV     R2,-(SP)
   (5)  105114  012702  000026              MOV     #X,R2
   (3)  105120  000137  004542              JMP     IODRV
   (4)  105124  012700  000200              MOV     #PRI04,R0
   (4)  105130  104441                      TRAP    C$SPRI
   (3)  105132  010246                      MOV     R2,-(SP)
   (5)  105134  012702  000030              MOV     #X,R2
   (3)  105140  000137  004542              JMP     IODRV
   (4)  105144  012700  000200              MOV     #PRI04,R0
   (4)  105150  104441                      TRAP    C$SPRI
   (3)  105152  010246                      MOV     R2,-(SP)
   (5)  105154  012702  000032              MOV     #X,R2
   (3)  105160  000137  004542              JMP     IODRV
   (4)  105164  012700  000200              MOV     #PRI04,R0
   (4)  105170  104441                      TRAP    C$SPRI
   (3)  105172  010246                      MOV     R2,-(SP)
   (5)  105174  012702  000034              MOV     #X,R2
   (3)  105200  000137  004542              JMP     IODRV
   (4)  105204  012700  000200              MOV     #PRI04,R0
   (4)  105210  104441                      TRAP    C$SPRI
   (3)  105212  010246                      MOV     R2,-(SP)
   (5)  105214  012702  000036              MOV     #X,R2
   (3)  105220  000137  004542              JMP     IODRV
 5291
 5292
 5293
 5294
 5295
 5296
 5297
 5298
 5299
 5300
 5301
 5302                           .SBTTL CLOCK SERVICE ROUTINE
 5303                           ;++
 5304                           ;UPDATES THE COUNTER AT A RATE OF 16.67 MILLISECONDS PER TICK
 5305                           ;AND UPDATES A SECOND COUNTER WHEN THE FIRST OVERFLOWS.
 5306                           ;
 5307
 5308  105224                   BGNSRV
 5309  105224                   CLKTCK: SETPRI #PRI06
```

```
  (3)  105224  012700  000300              MOV     #PRIO6,R0
  (3)  105230  104441                      TRAP    C$SPRI
5310   105232                              IF TICK EQ #0 THEN
  (6)  105232  005737  105310              TST     TICK
  (8)  105236  001402                      BEQ     .+6
  (9)  105240  000137  105256              JMP     50546$
5311   105244                                  LET TICK := #60.            ;60 TICKS PER SECOND
  (4)  105244  012737  000074  105310      MOV     #60.,TICK
5312   105252                                  LET TIME := TIME + #1
  (7)  105252  005237  105306              INC     TIME
5313   105256                              ENDIF
  (4)  105256                          50546$:
5314   105256                              LET TICK := TICK - #1           ;BACK UP SECOND TIMER
  (7)  105256  005337  105310              DEC     TICK
5315   105262                              IF CLKTYP EQ #2 THEN
  (6)  105262  023727  002316  000002      CMP     CLKTYP,#2
  (8)  105270  001402                      BEQ     .+6
  (9)  105272  000137  105304              JMP     50547$
5316   105276                                  LET @CLKCSR := #100
  (4)  105276  012777  000100  075016      MOV     #100,@CLKCSR
5317   105304                              ENDIF
  (4)  105304                          50547$:
5318
5319   105304                          ENDSRV                              ;AND EXIT
  (3)  105304                          L10035:
  (2)  105304  000002                      RTI
5320                                    ;
5321   105306  000000                   TIME:   .WORD   0
5322   105310  000000                   TICK:   .WORD   0
5323                                    .SBTTL  HARDWARE PARAMETER SECTION
5324   105312                           BGNMOD
5325
5326                                    ;++
5327                                    ;THIS SECTION INCLUDES THE QUESTIONS WHICH REQUEST THE OPERATOR TO
5328                                    ;FURNISH THE HARDWARE INFORMATION NECESSARY TO BUILD THE HARDWARE
5329                                    ;P-TABLES.
5330                                    ;
5331                                    ;--
5332   105312                           BGNHRD
  (3)  105312  000010                       .WORD L10036-L$HARD/2
  (3)  105314                          L$HARD::
5333
5334   105314                                  GPRMA   GETADR,0,0,160000,177516,YES
  (4)  105314  000031                       .WORD   T$CODE
  (4)  105316  105334                       .WORD   GETADR
  (4)  105320  160000                       .WORD   T$LOLIM
  (4)  105322  177516                       .WORD   T$HILIM
5335   105324                                  GPRMA   GETVEC,2,0,110,770,YES
  (4)  105324  001031                       .WORD   T$CODE
  (4)  105326  105351                       .WORD   GETVEC
  (4)  105330  000110                       .WORD   T$LOLIM
  (4)  105332  000770                       .WORD   T$HILIM
5336   105334                           ENDHRD
  (2)                                       .EVEN
  (3)  105334                          L10036:
5337                                    .NLIST BEX
```

```
 5338  105334  050114  030461  040440  GETADR: .ASCIZ  /LP11 ADDRESS/
 5339  105351     111  052116  051105  GETVEC: .ASCIZ  /INTERRUPT VECTOR/
 5340                                  .LIST BEX
 5341                                  .EVEN
 5342                                  .SBTTL  SOFTWARE PARAMETER SECTION
 5343                                  ;
 5344                                  ;++
 5345                                  ;THIS SECTION INCLUDES THE QUESTIONS WHICH REQUEST THE OPERATOR TO FURNISH
 5346                                  ;THE SOFTWARE INFORMATION NECESSARY TO BUILD THE SOFTWARE P-TABLES.
 534~                                  ;
 5348                                  ;
 5349  105372                          BGNSFT
  (3)  105372  000010                          .WORD L10037 L$SOFT/2
  (3)  105374                          L$SOFT::
 5350  105374                                  GPRML   MGTINT,0,1,YES
  (4)  105374  000130                          .WORD   T$CODE
  (4)  105376  105414                          .WORD   MGTINT
  (4)  105400  000001                          .WORD   1
 5351  105402                                  GPRMD   GETMAX,2,D,377,1,255.,YES
  (4)  105402  001052                          .WORD   T$CODE
  (4)  105404  105452                          .WORD   GETMAX
  (4)  105406  000377                          .WORD   377
  (4)  105410  000001                          .WORD   T$LOLIM
  (4)  105412  000377                          .WORD   T$HILIM
 5352  105414                          ENDSFT
  (2)                                          .EVEN
  (3)  105414                          L10037:
 5353                                  .NLIST BEX
 5354  105414  052522  020116  040515  MGTINT: .ASCIZ  /RUN MANUAL INTERVENTION TESTS/
 5355  105452  052501  047524  051104  GETMAX: .ASCIZ  /AUTODROP ERROR COUNT/
 5356                                  .LIST BEX
 5357          105500                  .EVEN
 5358                                  ;
 5359
 5360  105500  000020                  PATCH:  .BLKW   20
 5361  105540                          LASTAD
  (2)                                          .EVEN
  (4)  105540  000000                          .WORD   0
  (4)  105542  000000                          .WORD   0
  (3)  105544                          L$LAST::
 5362  105544                          ENDMOD
 5363          000001                  .END
```

ABMAR	067236	4505	4604#									
ABOVE	073541	4860	4970#									
ABP01	104472	5187	5246#									
ABP01M	104560	5216	5220	5252#								
ABP02	104506	5200	5247#									
ABP03	104551	5251#										
ABREL	024656	2585	2613#									
ABS3	063566	4331#										
ABS7	063575	4332#										
ABTBCT	067534	4539	4625#									
ABTBL	067512	4538	4624#									
ACRLF	004043 G	1078#	2717	2728	3701	3702	3711	3712	3719	3720	3727	3728
ACTIVE=	020000	950#	1233	1245	1250	1314	1316	1321	1595	1700	2439	
ADR =	000020 G	910#										
AMAR	067062	4594	4595#									
APTBL	044254	3426	3558#									
ASBGIN	074402	4991#										
ASDIA1	073424	4845	4967#									
ASENDL	074456	5002#										
ASENDP	074440	5001#										
ASSDIA	073404	4844	4966#									
ASSEMB=	000010	748	750									
ASSI10	074410	4983	4984	4993#								
ASSI11	074413	4983	4985	4994#								
ASSI12	074416	4982	4983	4984	4995#							
ASSI13	074421	4982	4983	4985	4996#							
ASSI14	074424	4982	4983	4984	4997#							
ASSI15	074427	4982	4983	4985	4998#							
ASSI16	074432	4982	4983	4984	4999#							
ASSI17	074435	4982	4983	4985	5000#							
ASSTBL	074106	4983#										
ATBL	044160	3425	3555#									
ATHRUZ	050354	3691	3752#									
AVEC	053735	4009	4040#									
BELID	104242	5222	5236#									
BELOW	073451	4859	4969#									
BEM	033221	2982	2996#									
BGNLD	074503	4914	5004#									
BGNSEQ	043254	3512#	3568									
BIN2DA	004330	1168#										
BIT0 =	000001 G	910#										
BIT00 =	000001 G	910#										
BIT01 =	000002 G	910#										
BIT02 =	000004 G	910#										
BIT03 =	000010 G	910#										
BIT04 =	000020 G	910#										
BIT05 =	000040 G	910#										
BIT06 =	000100 G	910#										
BIT07 =	000200 G	910#	1660	1670								
BIT08 =	000400 G	910#										
BIT09 =	001000 G	910#										
BIT1 =	000002 G	910#										
BIT10 =	002000 G	910#										
BIT11 =	004000 G	910#										
BIT12	010000 G	910#										
BIT13 =	020000 G	910#	950									

	2306#	2314#	2318#	2323#	2330#	2338#	2388#	2389#	2412#	2416#	2421#	2483#	2583#
	2584#	2585#	2586#	2587#	2588#	2589#	2592#	2593#	2595#	2599#	2600#	2601#	2602#
	2604#	2605#	2606#	2714#	2715#	2716#	2717#	2718#	2719#	2725#	2726#	2728#	2729#
	2730#	2732#	2733#	2735#	2736#	2737#	2738#	2899#	2900#	2901#	2902#	2912#	2914#
	2915#	2917#	2919#	2921#	2926#	2927#	2929#	2930#	2933#	2937#	2938#	2940#	2941#
	2943#	2947#	2948#	2949#	2953#	2957#	2959#	2960#	2962#	2966#	2968#	2969#	2971#
	2975#	2976#	2978#	2979#	2982#	2983#	3142#	3143#	3144#	3145#	3146#	3147#	3148#
	3149#	3150#	3151#	3152#	3153#	3154#	3155#	3156#	3157#	3158#	3159#	3161#	3164#
	3166#	3167#	3168#	3170#	3171#	3173#	3174#	3175#	3176#	3178#	3179#	3181#	3182#
	3183#	3184#	3185#	3187#	3190#	3192#	3193#	3194#	3195#	3196#	3408#	3409#	3410#
	3411#	3412#	3414#	3415#	3417#	3420#	3421#	3423#	3428#	3434#	3437#	3438#	3439#
	3440#	3444#	3445#	3447#	3450#	3455#	3461#	3466#	3467#	3468#	3470#	3474#	3475#
	3479#	3480#	3484#	3487#	3488#	3489#	3490#	3491#	3682#	3683#	3684#	3685#	3686#
	3687#	3689#	3690#	3691#	3693#	3694#	3695#	3697#	3698#	3700#	3701#	3702#	3704#
	3705#	3707#	3709#	3711#	3712#	3714#	3716#	3719#	3720#	3722#	3723#	3724#	3725#
	3727#	3728#	3730#	3731#	3732#	3733#	3734#	3842#	3843#	3844#	3845#	3846#	3850#
	3851#	3852#	3853#	3854#	3856#	3857#	3859#	3860#	3862#	3864#	3865#	3866#	3986#
	3987#	3988#	3989#	3990#	3994#	3996#	3997#	3998#	3999#	4000#	4197#	4198#	4199#
	4200#	4204#	4205#	4206#	4207#	4208#	4209#	4211#	4212#	4214#	4215#	4216#	4218#
	4219#	4222#	4225#	4227#	4228#	4229#	4231#	4232#	4233#	4236#	4239#	4241#	4242#
	4243#	4244#	4245#	4247#	4252#	4253#	4254#	4255#	4256#	4257#	4258#	4262#	4265#
	4266#	4270#	4273#	4275#	4276#	4277#	4278#	4487#	4488#	4492#	4496#	4497#	4498#
	4499#	4500#	4503#	4504#	4505#	4506#	4508#	4509#	4517#	4522#	4523#	4524#	4526#
	4527#	4528#	4529#	4531#	4536#	4537#	4540#	4541#	4543#	4544#	4546#	4547#	4555#
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	5224#	5225#	5226#										
BUFREP 002350	9976	1345	1369#	1430#	1525#	1709#	1710#	1712#	1715#	1787#	1790#	1791#	1811#
	1816#	1851#	1856#	1857#	1865#	1869#	1877#	1881#	1884#	1886#	1887#	1888#	1941#
	1942#	1973#	2008#	2014#	2123#	2125#	2130#	2135#	2138#	2142#	2144#	2147#	2149#
	2150#	2157#	2215#	2217#	2218#	2239#	2244#	2291#	2293#	2294#	2295#	2296#	2306#
	2314#	2318#	2323#	2330#	2338#	2388#	2389#	2412#	2416#	2421#	2483#	2583#	2584#
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                        5225#  5226#
BYTTBL  053000           3992   4010@
CANSEC  103607           5194   5233@
CCNT    002300            962@  1800#  2226#
CHAR    011722           1795#  1797#  1801   1802#  1803#  1804   1805#  1806#  1820@
CHAR24  057737           4294@
CHAR44  057663           4293@
CHRGEN  002304            964@
CK1     006342           1509@
CLEAN   007276           1589@
CLEART  067333           4606   4610@
CLHVTB  104523           5213   5248@
CLKCSR  002322            977@  1502#  1503#  1513#  1516#  1604#  5316#
CLKENA  002330            980@
CLKSET  002324            978@
CLKTCK  105224           5309@
CLKTYP  002316            972@  1497#  1500#  1511#  1519   1602   1606   5315
CLKVEC  002326            979@  1505#  1506   1514#  1603   1607
CLOCKP  002320            976@  1501#  1502   1512#  1513
CLRHOR  036610           3146   3167   3208@
CLRTAB  043170           3508@
CLRUND  047760           3724   3730   3739@
CLRVER  036604           3145   3207@
CMAR    067112           4594   4597@
CNTTAB  104410           5189   5203   5240@
COMMEN  073632           4861   4971@
CONSEC  104067           5219   5235@
CONSEQ  104575           5218   5254@
CONSQ1  104605           5221   5255@
COUNT   002276            961@  1861#  1873#  1948#  1983#  2131#  2151#  2152   2913#  2918#  2928#  2939#  2958#
                        2967#  2977#  3160#  3163#  3169#  3177#  3186#  3189#  3413#  3446#  3483#  3715#  3721#
                        3849#  4213#  4215   4220#  4221   4224   4228   4234#  4235   4238   4243   4525#  4944#
COUNTD  004536           1172#  1177#  1180   1181#  1182   1189#  1204@
CPTBL   044646           3453   3572@
CR    = 000015 G          917@
CSRERR  003342           1065@  1647   2381
CTBL    044554           3452   3568@
CURADD  002546           1015@  1228   1229#  1240#  1242   1243#  1341#  2441#
CURCNT  002746           1027@  1227   1234#  1241#  1244#  1326   1343#  1346   1382#  1464#  1596#  2440#  2481#
C$AU  = 000052            748@
C$AUTO= 000061            748@   818
C$BRK = 000022            748@
C$BSEG= 000004            748@
C$BSUB= 000002            748@
C$CEFG= 000045            748@
C$CLCK= 000062            748@  1498   1509
C$CLEA= 000012            748@  1610
C$CLOS= 000035            748@
C$CLP1= 000006            748@
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C$CVEC= 000036          748#  1603
C$DCLN= 000044          748#  1389
C$DODU= 000051          748#
C$DRPT= 000024          748#
C$DU  = 000053          748#
C$EDIT= 000003          748#   769
C$ERDF= 000055          748#
C$ERHR= 000056          748#  1134  1139  1145  1647  1664  1674  1698  1728  2381  2422  2460  2477
C$ERRO= 000060          748#
C$ERSF= 000054          748#
C$ERSO= 000057          748#
C$ESCA= 000010          748#
C$ESEG= 000005          748#
C$ESUB= 000003          748#
C$ETST= 000001          748#  1752  1829  1899  2089  2185  2260  2348  2508  2641  2750  3001  3237
                       3581   3759  3879  4048  4335  4661  5079  5259
C$EXIT= 000032          748#  1434  1526  1719  1818  1891  2016  2161  2246  2341  2368  2371  2485
                       2608   2740  2985  3201  3493  3736  3868  4002  4280  4565  4957  5228
C$GETB= 000026          748#
C$GETW= 000027          748#
C$GMAN= 000043          748#  1454  2408  2430  2452  2456  2469  2473
C$GPHR= 000042          748#  1404  1460
C$GPLO= 000030          748#
C$GPRI= 000040          748#
C$INIT= 000011          748#  1541
C$INLP= 000020          748#
C$MANI= 000050          748#  1443  2366
C$MEM = 000031          748#
C$MSG = 000023          748#
C$OPEN= 000034          748#
C$PNTB= 000014          748#
C$PNTF= 000017          748#  1384  1388  1440  1441  1446  1520  1521  2405  2406  2407  2428  2449
                       2450   2451  2454  2455  2467  2468  2471  2472
C$PNTS= 000016          748#
C$PNTX= 000015          748#
C$QIO = 000377          748#
C$RDBU= 000007          748#
C$REFG= 000047          748#  1422  1424
C$RESE= 000033          748#  1438  1587
C$REVI= 000003          748#   769
C$RFLA= 000021          748#
C$RPT = 000025          748#
C$SEFG= 000046          748#
C$SPRI= 000041          748#  1428  1523  1586  1609  1681  1692  1708  5290  5309
C$SVEC= 000037          748#  1482  1506  1566  1607  1682  1693
C$TPRI= 000013          748#
DATPTH  011724         1791   1821#
DEBUG = ****** U       2653   2762  3012  3593  3771  3891  4060  4347  4673  5091  5271
DECFIN  004052 G       1060#  1712  1787  1857  2123  2215  2291  2901  3193  3410  3862  4252  4842
                       4938
DECLCS  051704         3850   3871#
DEFMAR  043713         3547#  3568  3570
DEFMR1  037372         3155   3229#
DEFMR2  037402         3156   3230#
DEL   = 000177 G        918#
DFAULT  010634         1710   1742#
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DIAGTB	074364	4939	4990#									
DIAGX	074514	4940	5007#									
DIAGO	074532	5007	5008#									
DIAG1	074547	5007	5009#									
DIAG12	074616	4990	5013#									
DIAG13	074643	4990	5015#									
DIAG14	074670	4990	5017#									
DIAG15	074715	4990	5019#									
DIAG16	074742	4990	5021#									
DIAG17	074767	4990	5023#									
DIAG2	074564	5007	5010#									
DIAG3	074601	5007	5011#									
DIGITS	004540	1174*	1205#									
DISANL	027126	2718	2743#									
DMAR	067126	4594	4598#									
DONE	013132	1884	1894#									
DOORDY	023372	2471	2503#									
DOORD1	023441	2472	2504#									
DOORSW	023265	2467	2501#									
DOOSWI	003556	1069#	2477									
DOOSW1	023342	2468	2502#									
DPTBL	045010	3459	3577#									
DROPED=	040000	949#	1303	1381	1491	1595	1700					
DROPIT	005354	1152	1381#									
DRULE1	043636	3543#	3562									
DRULE2	043664	3545#	3569									
DRWVEC	052632	3987	3998	4006#								
DSSU	067504	4546	4622#									
DTBL	044740	3458	3574#									
DVEC	053417	4009	4029#									
EF.CON=	000036 G	910#										
EF.NEW=	000035 G	910#										
EF.PWR=	000034 G	910#										
EF.RES=	000037 G	910#	1424									
EF.STA=	000040 G	910#	1422									
EMAR	067142	4594	4599#									
ENABNL	027177	2729	2744#									
ENDHAB	043566	3535#	3555	3556	3557	3560						
ENDHR	043565	3534#	3556									
ENDHT	043564	3533#										
ENDLD	074511	4935	5005#									
ENDLRM	043562	3531#										
ENDPLP	043570	3537#										
ENDTBM	043563	3480	3532#	3568	3569	3570	3574	3575				
ENDTS	044113	3488	3550#									
ENDVAB	043567	3536#	3569	3576								
END2	010224	1699#	1729	1736								
ENJUS	063472	4275	4323#									
EOIGN	042772	3487	3502#									
EOPLP	042676	3470	3501#									
ERFLG =	000400	1129#	1335#									
ERRCOD	002332	981#	1129	1155*	1258*	1299*	1308*	1320*	1330*	1334	1451*	2438*
ERRFLG	002334	983#	2393*	2410*	2418	2419	2426*	2437*				
ERROR =	100000	948#	1154	1257	1309	1322	1595	1644	1661	1671	1700	2439

GETVEC	105351		5335	5339#									
GMAR	067172		4594	4601#									
GRID	025507		2593	2630#									
GRID1	025654		2595	2637#									
GVEC	053545		4009	4034#									
G$CN'O-	000200		748#										
G$DELM-	000372		748#	1317	1432	1654	1685	1695					
G$DISP-	000003		748#										
G$EXCP-	000400		748#										
G$HILI-	000002		748#										
G$LOLI-	000001		748#										
G$NO -	000000		748#										
G$OFFS-	000400		748#	1454	2408	2430	2452	2456	2469	2473	5334	5335	5350	5351
G$OFSI-	000376		748#	1454	2408	2430	2452	2456	2469	2473	5334	5335	5350	5351
G$PRMA-	000001		748#	5334	5335									
G$PRMD-	000002		748#	5351										
G$PRML-	000000		748#	1454	2408	2430	2452	2456	2469	2473	5350			
G$RADA-	000140		748#											
G$RADB-	000000		748#											
G$RADD-	000040		748#	5351										
G$RADL-	000120		748#	1454	2408	2430	2452	2456	2469	2473	5350			
G$RADO-	000020		748#	5334	5335									
G$XFER-	000004		748#											
G$YES -	000010		748#	1454	2408	2430	2452	2456	2469	2473	5334	5335	5350	5351
HANRDY	023132		2454	2499#										
HANRD1	023217		2455	2500#										
HANRSW	022675		2449	2496#										
HANSWI	003503		1068#	2460										
HANSW1	023006		2450	2497#										
HANSW2	023073		2451	2498#										
HILOSQ	025427		2600	2602	2627#									
HMAR	067206		4594	4602#										
HOE -	100000	G	910#											
HORA	067554		4624	4626#										
HORB	067562		4624	4627#										
HORC	067571		4624	4628#										
HORD	067600		4624	4629#										
HORDEF	032562		2912	2990#										
HORE	067607		4624	4630#										
HORF	067624		4624	4631#										
HORG	067641		4624	4632#										
HORH	067656		4624	4633#										
HORTB1	037115		3152	3182	3220#									
HORTB2	037237		3153	3183	3224#									
HOR3	067752		4635	4639#										
HOR4	070222		4655	4656#										
HOR5	070232		4655	4657#										
HOR6	070242		4655	4658#										
IBE -	010000	G	910#											
IDMAR	066636		4581#											
IDU -	000040	G	910#											
IDVCNT	067712		4553	4636#										
IDVEC	067666		4552	4635#										
IER -	020000	G	910#											
IGNORA	043606		3539#	3564	3566									
IGNORB	043611		3540#	3564	3566									

IGNORC	043615	3541#	3566											
IGNORE	007202	1506	1549#	1607										
IGNOR1	043571	3538#												
IGNOR2	043623	3542#												
IGNTBL	044532	3476	3566#											
IGNTBP	044544	3477	3567#											
IGSEC	043103	3484	3503#											
IGTBL	044474	3441	3564#											
IGTBLP	044514	3442	3565#											
IMAR	067222	4594	4603#											
INDEX	002340	988#												
INHINT	002264	828#	2370											
INSTRC	024751	2586	2614#											
INSTR1	025140	2587	2616#											
INTCAN	104422	5238	5241#											
INTERR	010516	1682	1726#											
INTER1	003622	1070#												
INTFAC	010554	1709	1740#											
INTHDL	010546	1693	1736#											
INTLK	022244	2388	2489#											
INTSUB	104431	5239	5242#											
INTOO	104624	1480	5284#											
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		1973	2008	2014	2123	2125	2130	2135	2138	2142	2144	2147	2149	2150
		2157	2215	2217	2218	2239	2244	2291	2293	2294	2295	2296	2306	2314
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		2586	2587	2588	2589	2592	2593	2595	2599	2600	2601	2602	2604	2605
		2606	2714	2715	2716	2717	2718	2719	2725	2726	2728	2729	2730	2732
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		2948	2949	2953	2957	2959	2960	2962	2966	2968	2969	2971	2975	2976
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		3168	3170	3171	3173	3174	3175	3176	3178	3179	3181	3182	3183	3184
		3185	3187	3190	3192	3193	3194	3195	3196	3408	3409	3410	3411	3412
		3414	3415	3417	3420	3421	3423	3428	3434	3437	3438	3439	3440	3444
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		3709	3711	3712	3714	3716	3719	3720	3722	3723	3724	3725	3727	3728
		3730	3731	3732	3733	3734	3842	3843	3844	3845	3846	3850	3851	3852
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		3989	3990	3994	3996	3997	3998	3999	4000	4197	4198	4199	4200	4204
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		4562	4563	4840	4841	4842	4843	4844	4845	4846	4847	4848	4849	4852
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		4954	5181	5182	5183	5187	5191	5192	5194	5195	5200	5201	5205	5206
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                       3388    3673    3840    3985    4188    4472    4828    5169
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JUSTON  054055          4044#
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NOSPA	057656	4291#								
NOTAB	050046	3694	3700	3744#						
NOTIM	007105	1521	1536#							
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NVEC	053203	4009	4021#							
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OFFJUS	063551	4211	4232	4244	4266	4328#				
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OFFSPA	057645	4288#								
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		2979	2983	3135*	3136*	3137*	3138*	3139*	3140*	3141*	3157	3158	3159	3161
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REC5	076614	4986	4987	4988	4989	5039#								
REC6	077014	4986	4987	4988	4989	5042#								
REC7	077214	4986	4987	4988	4989	5045#								
REC8	077414	4986	4987	4988	4989	5049#								
REC9	077614	4986	4987	4988	4989	5053#								
REINIT	004027	1075#	1790	1887	1941	2125	2217	2293	2583	2605	2714	2737	2899	3142
		3195	3408	3490	3682	3733	3842	3865	3999	4197	4277	4487	4562	4840
		4847	4936	4953	5181	5224								
REPCNT	002646	1021#	1238*	1239	1345*	1466*	1599*	2442*						
RESET1	006735	1446	1532#											
RESVEC	007204 G	1562#	1601	1707										
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RMANL	027337	2719	2735	2746#										
SCALE	033340	2919	2997#											
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SEC0	066554	4489	4576#											
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SEC3	066456	4523	4572#											
SEC4	066513	4537	4573#											
SEC5	066542	4574#	4635											
SELBGN	074406	4852	4992#											
SELDEC	004031	1076#	1856	1888	2584	2606	2715	2738	2900	3143	3196	3409	3491	3562

		3569	3683	3734	3843	3866	4000	4198	4278	4488	4563	4576	4635	4841
		4848	4937	4954	5182	5225								
SELEND	074502	4854	5003#											
SELPIX	004036	1077#	3562	3569	4576	4635								
SEL11	073444	4846	4968#											
SEQALL	074043	4980#												
SEQEVE	074000	4978#												
SEQODD	074017	4979#												
SEQTAB	104364	5188	5238#											
SFPTBL	002264 G	826#												
SKIP3	004046 G	1079#	3844	3846	4257	4265	4273							
SMANL	027345	2730	2747#											
SPACES	050332	3704	3750#											
SPAJUS	057626	4215	4228	4243	4286#									
SPAOFF	057612	4284#												
SQTAB1	104376	5202	5239#											
STACHR	017140	2220^	2223	2227	2238^	2249#								
STATER=	000001	923#	1258	1308										
STATUS	002506	1012#	1154^	1233^	1245^	1250^	1257^	1303	1309^	1314	1316	1321^	1322^	1381^
		1491^	1595^	1644^	1661^	1671^	1700^	2439^						
STHOR2	104542	5215	5250#											
STOPS3	037415	3168	3231#											
STRCNT	002302	963#												
STTAB	047775	3695	3742#											
STVER4	067320	4606	4609#											
STVR4	104533	5214	5249#											
SUBSEC	103736	5201	5234#											
SVCGBL=	000000	748#	758#	769	774	786	790	791	803	814	826	1419	1585	5332
		5349	5361#											
SVCINS=	000000	748#	755#	769	786	790	791	803	818	826	1134	1139	1145	1317
		1384	1388	1389	1404	1422	1423	1424	1425	1428	1432	1434	1438	1440
		1441	1443	1444	1446	1454	1460	1461	1482	1498	1506	1509	1520	1521
		1523	1526	1541	1566	1586	1587	1603	1607	1609	1610	1647	1654	1664
		1674	1681	1682	1685	1692	1693	1695	1698	1708	1719	1728	1730	1737
		1752	1818	1829	1891	1899	2016	2089	2161	2185	2246	2260	2341	2348
		2366	2367	2368	2371	2381	2405	2406	2407	2408	2422	2428	2430	2449
		2450	2451	2452	2454	2455	2456	2460	2467	2468	2469	2471	2472	2473
		2477	2485	2508	2608	2641	2740	2750	2985	3001	3201	3237	3493	3581
		3736	3759	3868	3879	4002	4048	4280	4335	4565	4661	4957	5079	5228
		5259	5290	5309	5319	5332	5334	5335	5336	5349	5350	5351	5352	5361
SVCSUB=	000000	748#	757#											
SVCTAG=	000000	748#	759#	810	818	835	1454	1541	1574	1584	1610	1730	1737	1752
		1829	1899	2089	2185	2260	2348	2408	2430	2452	2456	2469	2473	2508
		2641	2750	3001	3237	3581	3759	3879	4048	4335	4661	5079	5259	5319
		5336	5352											
SVCTST=	000000	748#	756#	1627	1784	1850	1938	2121	2210	2288	2364	2581	2712	2897
		3134	3388	3673	3840	3985	4188	4472	4828	5169				
SYM	= 000037	1129#												
SYMD	- 000007	1132#	1133#	1137#	1138#	1143#	1144#	1154#	1174#	1176#	1177#	1181#	1183#	1188#
		1198#	1229#	1233#	1234#	1238#	1243#	1244#	1245#	1250#	1257#	1298#	1309#	1381#
		1386#	1405#	1431#	1458#	1459#	1462#	1471#	1479#	1480#	1486#	1491#	1567#	1568#
		1589#	1590#	1593#	1595#	1628#	1642#	1644#	1645#	1653#	1661#	1663#	1671#	1672#
		1683#	1684#	1691#	1694#	1696#	1700#	1726#	1793#	1800#	1803#	1806#	1810#	1949#
		1954#	1961#	1975#	1984#	1989#	1996#	2010#	2126#	2129#	2151#	2224#	2226#	2232#
		2237#	2238#	2300#	2302#	2309#	2324#	2326#	2333#	2374#	2377#	2378#	2380#	2398#
		2413#	2423#	2431#	2439#	2445#	2446#	2458#	2464#	2465#	2475#	2597#	2724#	2731#

		2913#	2918#	2932#	2944#	5312#	5314#							
SYMS =	000007	1132#	1133#	1137#	1138#	1143#	1144#	1154#	1174#	1176#	1177#	1181#	1183#	1188#
		1198#	1229#	1233#	1234#	1238#	1243#	1244#	1245#	1250#	1257#	1298#	1309#	1381#
		1386#	1405#	1431#	1458#	1459#	1462#	1471#	1479#	1480#	1486#	1491#	1567#	1568#
		1589#	1590#	1593#	1595#	1628#	1642#	1644#	1645#	1653#	1661#	1663#	1671#	1672#
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		1954#	1961#	1975#	1984#	1989#	1996#	2010#	2126#	2129#	2151#	2224#	2226#	2232#
		2237#	2238#	2300#	2302#	2309#	2324#	2326#	2333#	2374#	2377#	2378#	2380#	2398#
		2413#	2423#	2431#	2439#	2445#	2446#	2458#	2464#	2465#	2475#	2597#	2724#	2731#
		2913#	2918#	2932#	2944#	5312#	5314#							
S$LSYM=	010000	748#	810#	818#	835#	1454#	1541#	1610#	1730#	1737#	1752#	1829#	1899#	2089#
		2185#	2260#	2348#	2408#	2430#	2452#	2456#	2469#	2473#	2508#	2641#	2750#	3001#
		3237#	3581#	3759#	3879#	4048#	4335#	4661#	5079#	5259#	5319#	5336#	5352#	
S1	067452	4526	4529	4618#										
S2	067456	4527	4528	4619#										
TABLDA	004522	1170	1202#											
TABLE1	016424	2133	2180#											
TABLE2	016460	2140	2181#											
TABMS	043174	3412	3509#											
TABS	050344	3693	3751#											
TABSTR	017142	2220	2251#											
TABTST	036560	3144	3206#											
TABUCT	067274	4515	4608#											
TABUND	067246	4514	4606#											
TBMAR1	036614	3147	3209#											
TDONE	051755	3860	3873#											
TEM	032724	2994#												
TEXT	061614	4309#	4325											
TEXTBL	063506	4259	4267	4325#										
TEXTBP	063526	4260	4268	4326#										
TEXT1	062031	4311#	4325											
TEXT2	062251	4313#	4325											
TEXT3	062476	4315#	4325											
TEXT4	062700	4317#	4325											
TEXT5	063110	4319#	4325											
TEXT6	063257	4321#	4325											
TICK	105310	5310	5311*	5314*	5322#									
TIME	105306	5312*	5321#											
TIMOUT=	000002	924#	1320											
TOPBOT	025316	2588	2618#											
TOPMAR	043736	3548#	3568	3571	3574	3575								
TOPNUM	044127	3551#	3568	3571	3574	3575								
TOPSEC	037435	3171	3232#											
TOPVEC	053074	3989	4017#											
TSET	067337	4606	4611#											
TSTMRA	042514	3411	3498#											
TSTMRB	042552	3499#	3570											
TVEC	053665	4009	4038#											
TXERR	003655	1071#	1134											
TXNOIN	003727	1073#	1145											
T$ARGC=	000001	769#	1384#	1388#	1440#	1441#	1446#	1520#	1521#	2405#	2406#	2407#	2428#	2449#
		2450#	2451#	2454#	2455#	2467#	2468#	2471#	2472#					
T$CODE=	001052	1454#	2408#	2430#	2452#	2456#	2469#	2473#	5334#	5335#	5350#	5351#		
T$ERRN=	000012	748#	1134#	1139#	1145#	1647#	1664#	1674#	1698#	1728#	2381#	2422#	2460#	2477#
T$EXCP=	000000	5334#	5335#	5351#										
T$FLAG=	000040	1434#	1526#	1719#	1818#	1891#	2016#	2161#	2246#	2341#	2368#	2371#	2485#	2608#

	2740#	2985#	3201#	3493#	3756#	3868#	4002#	4280#	4565#	4957#	5228#		
T$GMAN= 000000	7480												
T$MILI= 000377	5334#	5335#	5351#										
T$LAST= 000001	7480	5361#											
T$LOLI= 000001	5334#	5335#	5351#										
T$LSYM= 010000	7480	810	818	835	1541	1610	1730	1737	1752	1829	1899	2089	2185
	2260	2348	2508	2641	2750	3001	3237	3581	3759	3879	4048	4335	4661
	5079	5259	5319	5336	5352								
T$LTNO= 000024	5361#												
T$NEST= 000000	7480	7660	7740	7780	8030	8100	8140	8180	8260	8350	8970	9000	14100
	14180	14190	15410	15850	16100	16120	16160	16270	17250	17300	17340	17370	17520
	17540	17690	17840	18290	18310	18450	18500	18990	19010	19150	19380	20890	20910
	21050	21210	21850	21860	22000	22100	22600	22610	22730	22880	23480	23500	23540
	23640	25080	25100	25130	25810	26410	26420	26580	27120	27500	27510	27650	28970
	30010	30140	30170	31340	32370	32390	32430	33880	35810	35820	35960	36730	37590
	37600	37750	38400	38790	38800	38950	39850	40480	40490	40650	41880	43350	43360
	43520	44720	46610	46620	46780	48280	50790	50800	50960	51690	52590	52600	52740
	53080	53190	53240	53320	53360	53490	53520	53620					
T$NSO = 000010	7660	897	9000	1410	14180	1612	16160	1754	17690	1831	18450	1901	19150
	20910	21050	2186	22000	2261	22730	2350	23540	2510	25130	2642	26580	2751
	27650	3014	30170	3239	32430	3582	35960	3760	37750	3880	38950	4049	40650
	4336	43520	4662	46780	5080	50960	5260	52740					
T$NS1 = 000000	7740	778	8030	810	8140	818	8260	835	14190	1541	15850	1610	16270
	1752	17840	1829	18500	1899	19380	2089	21210	2185	22100	2260	22880	2348
	23640	2508	25810	2641	27120	2750	28970	3001	31340	3237	33880	3581	36730
	3759	38400	3879	39850	4048	41880	4335	44720	4661	48280	5079	51690	5259
	53080	5319	53240	5362									
T$NS2 = 000005	17250	1730	17340	1737	53320	5336	53490	5352					
T$PTNU= 000000	7480												
T$SAVL= 177777	7480												
T$SEGL= 177777	7480												
T$SUBN= 000000	7480	16270	17840	18500	19380	21210	22100	22880	23640	25810	27120	28970	31340
	33880	36730	38400	39850	41880	44720	48280	51690					
T$TAGL= 177777	7480												
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	21210	22100	22880	23640	25810	27120	28970	31340	33880	36730	38400	39850	41880
	44720	48280	51690	52740	53080	53320	53490						
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	16100	16120	17190	17300	17370	17520	17540	18180	18290	18310	18910	18990	19010
	20160	20890	20910	21610	21850	21860	22460	22600	22610	23410	23480	23500	23680
	23710	24080	24300	24520	24560	24690	24730	24850	25080	25100	26080	26410	26420
	27400	27500	27510	29850	30010	30140	32010	32370	32390	34930	35810	35820	37360
	37590	37600	38680	38790	38800	40020	40480	40490	42800	43350	43360	45650	46610
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	53520	53620											
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	33880	36730	38400	39850	41880	44720	48280	51690	5361				
T$TSTM= 177777	7480	818	1134	1139	1145	1384	1388	1389	1404	1422	1424	1428	1434
	1438	1440	1441	1443	1446	1454	1460	1482	1498	1506	1509	1520	1521
	1523	1526	1541	1566	1586	1587	1603	1607	1609	1610	1647	1664	1674
	1681	1682	1692	1693	1698	1708	1719	1728	1752	1818	1829	1891	1899
	2016	2089	2161	2185	2246	2260	2341	2348	2366	2368	2371	2381	2405
	2406	2407	2408	2422	2428	2430	2449	2450	2451	2452	2454	2455	2456
	2460	2467	2468	2469	2471	2472	2473	2477	2485	2508	2608	2641	2740
	2750	2985	3001	3201	3237	3493	3581	3736	3759	3868	3879	4002	4048
	4280	4335	4565	4661	4957	5079	5228	5259	5290	5309			

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T$$AUT= 010002          814#   818
T$$CLE= 010005         1585#  1610
T$$HAR= 010036         5332#  5336
T$$HW = 010001          803#   810
T$$INI= 010004         1419#  1434   1526   1541
T$$PRO= 010000          774#
T$$SOF= 010037         5349#  5352
T$$SRV= 010035         1725#  1730   1734#  1737   5274#  5308#  5319
T$$SW = 010003          826#   835
T$$TES= 010033         1627#  1719   1752   1784#  1818   1829   1850#  1891   1899   1938#  2016   2089   2121#
                       2161   2185   2210#  2246   2260   2288#  2341   2348   2364#  2368   2371   2485   2508
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                       4335   4472#  4565   4661   4828#  4957   5079   5169#  5228   5259
T1      007456 G        786   1627#
T1A     007472         1635#  1706
T1B     010244         1640   1707#
T1C     007476         1634   1637#
T10     025724 G        786   2712#
T11     027356 G        786   2897#
T12     033354 G        786   3134#
T13     037460 G        786   3388#
T14     045074 G        786   3673#
T15     050422 G        786   3840#
T16     052016 G        786   3985#
T17     054072 G        786   4188#
T18     063606 G        786   4472#
T19     070254 G        786   4828#
T2      011226 G        786   1784#
T20     101616 G        786   5169#
T3      011774 G        786   1850#
T4      013204 G        786   1938#
T5      015154 G        786   2121#
T6      016516 G        786   2210#
T7      017316 G        786   2288#
T8      020440 G        786   2364#
T9      023476 G        786   2581#
UAM   = 000200 G        910#
UNDER   053030         3988   4011#
UNDERL  067415         4607   4615#
UNDMSG  050170         3690   3747#
UNDON   047764         3684   3689   3722   3740#
UNDROF  053034         3997   4012#
UNDSEQ  104463         5238   5239   5244#
UNDTTL  050052         3686   3745#
UNDUND  050265         3714   3749#
UNIT    002306          965#
UNOF    063562         4225   4231   4239   4247   4330#
UNON    063556         4222   4236   4329#
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VECO1   067761         4635   4640#
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VERP01  053040           3986    4013#
VERP03  053046           3990    4014#
VERP05  053055           4015#
VERP07  053064           3996    4016#
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VERTBL  024642           2590    2612#
VERTB1  036640           3149    3211#
VERTB2  036762           3150    3215#
VER2    066627           4496    4580#
VER3    066664           4499    4584#
VER5    067443           4522    4617#
VER6    067462           4536    4620#
VER7    067734           4635    4637#
VER8.5  067743           4635    4638#
VFIVE   025402           2612    2624#
VFOUR   025373           2612    2623#
VFUCMD  002342            989#
VONEHF  025346           2601    2620#
VPA     020430           2294    2346#
VSIX    025411           2612    2625#
VSIXHF  025420           2599    2626#
VTHREE  025364           2612    2622#
VTWO    025355           2612    2621#
WORK    003110 G         1041#   1479*   1480*   1481    1859*   1862    1871*   1874    1954*   1961*   1989*   1996*   2724*
                         2731*   2925*   2926    2936*   2937    3696*   3706*   3707    3848*
WORK1   003112           1042#   1431*   1653*   1684*   1858*   1880    1944*   1949    1979*   1984    2924*   2928    2932*
                         2935*   2939    2944*
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XHOR    037363           3154    3184    3228#
XVER    037106           3151    3219#
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X$FALS= 000040            748#
X$OFFS= 000400            748#
X$TRUE= 000020            748#
X0      016246           2166#   2180    2181
X1      016260           2167#   2180    2181
X11     016412           2147    2177#
X2      016272           2168#   2181
X3      016304           2169#   2181
X4      016316           2170#   2181
X5      016330           2171#   2181
X6      016342           2172#   2181
X7      016354           2173#   2181
X8      016366           2174#   2181
X9      016400           2175#   2181
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                         1319    1324    1325    1326    1334    1336    1346    1356    1387    1403    1406    1431    1433
                         1439    1459    1492    1499    1510    1519    1565    1569    1590    1600    1602    1606    1643
                         1652    1653    1655    1660    1670    1684    1686    1717    1718    1793    1794    1796    1800
                         1807    1810    1813    1814    1855#   1858    1859    1861    1863    1867    1871    1873    1875
                         1879    1880    1883    1890#   1949    1954    1956    1961    1963    1976    1984    1989    1991
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$$RTN2= 000000           750#
$$SRC = 000027           750#   2224#
$$TGSV= 050006           750#   1149#
$$TGS1= 050005           750#   1131#   1136#   1141#   1149#
$$TGS2= 000000           750#
$$TO  = 000000           750#   1335#
$$TOB = 000000          1335#
$$TOTL= 000000          1335#
$$$TAG= 050000           750#
.       105544           764#    791#   1081#   1129    1151    1175    1180    1192    1223    1227    1239    1283    1294
                        1303    1307    1314    1316    1317    1319    1326    1334    1346    1387    1403    1432    1434
                        1439    1499    1510    1519    1526    1565    1602    1606    1643    1652    1654    1660    1670
                        1685    1695    1717    1719    1751#   1794    1818    1823#   1863    1867    1875    1879    1880
                        1883    1891    1897#   2016    2085#   2134    2136    2141    2143    2148    2152    2159    2161
                        2230    2242    2246    2257#   2341    2368    2370    2371    2379    2414    2418    2419    2453
                        2470    2485    2505#   2591    2608    2639#   2740    2748#   2931    2934    2942    2945    2946
                        2951    2961    2970    2981    2985    3162    3165    3172    3180    3188    3191    3201    3235#
                        3416    3419    3424    3427    3429    3433    3435    3443    3448    3451    3454    3456    3460
                        3462    3478    3481    3485    3493    3553#   3699    3710    3717    3726    3736    3855    3858
                        3868    3877#   3993    3995    4002    4008#   4046#   4217    4221    4224    4230    4235    4238
                        4246    4261    4264    4269    4272    4280    4324#   4491    4493    4502    4507    4516    4518
                        4530    4542    4545    4554    4556    4558    4560    4565    4593#   4605#   4623#   4634#   4851
                        4858    4916    4919    4921    4924    4926    4929    4931    4934    4941    4950    4951    495?
                        4981#   5190    5193    5204    5208    5228    5237#   5256#   5310    5315    5357#   5360#

. ABS.  105544      000     OVR    RW     REL    GBL    I

 ERRORS DETECTED:  0

 CZLNAD,CZLNAD.SEQ/CRF:SYM/DOC=SPMACJ/ML,SVC33/ML,CZLNAD.P11
 RUN TIME.  134 135 6 SECONDS
 RUN-TIME RATIO: 585/276=2.1
 CORE USED:  32K  (63 PAGES)

 DOCUMENT PAGES:  171
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