

LP07/25/26

LP25/26/07 DIAG
CZLPLDO

AH-E635D-MC
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IDENTIFICATION

PRODUCT CODE : AC-E634D-MC
PRODUCT NAME: CZLPLD0 LP25/26/07 DIAG
MAINTAINER: SMALL SYSTEMS DIAGNOSTICS
PRODUCT DATE: 12-JAN-81
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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS DIAGNOSTIC PROGRAM VERIFIES PROPER OPERATION OF THE LP25, LP26, OR LP07 LINE 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 LINE PRINTER. THE INDIVIDUAL TESTS ARE IDENTIFIED AS FOLLOWS:

TEST 1	INTERFACE LOGIC
TEST 2	READY LINE INTERLOCKS
TEST 3	FORMS LENGTH SELECTION
TEST 4	PRINTING SPEED
TEST 5	DATA TRANSFER PATHS
TEST 6	PRINTABLE CHARACTERS
TEST 7	NON-PRINTABLE CHARACTERS
TEST 8	BAND PATTERN
TEST 9	SPURIOUS HAMMER FIRING
TEST 10	PRINT CONTROL
TEST 11	MULTIPLE LINE ADVANCE
TEST 12	CHARACTER ALIGNMENT

ANY MIX OF PRINTER TYPES (LP25, LP26, LP07) CAN BE TESTED UP TO A TOTAL OF SIXTEEN UNITS. BAND CONFIGURATION (64 OR 96 CHAR) IS HANDELED ON A UNIT BY UNIT BASIS. ALL UNITS NEED NOT HAVE THE SAME BAND.

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+, ACT, APT, SLIDE AND PAPER TAPE. 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 16K 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. A KW11-L LINE TIME CLOCK OR A KW11-P PROGRAMMABLE REAL-TIME CLOCK IS NECESSARY FOR MEASURING THE TIME INTERVAL FROM WHICH PRINTING SPEED IS DETERMINED. IF A CLOCK IS NOT INSTALLED IN THE SYSTEM, THE OPERATOR WILL HAVE TO USE MANUAL MODE TO MANUALLY TIME PRINTER OPERATION FOR A FIXED TIME INTERVAL TO CALCULATE THE PRINTING SPEED.

IN A MANUFACTURING ENVIRONMENT WHERE APT/ACT/SLIDE ARE USED, THE TEST STATION MUST BE EQUIPPED WITH THE APPROPRIATE INTERFACE AND A HOST PROCESSOR WITH THE NECESSARY SOFTWARE.

1.3 RELATED DOCUMENTS AND STANDARDS

PROJECT PLAN FOR LP25 DIAGNOSTIC PROGRAM
DOCUMENT: RAS-78-008-00-U
DATE: 6-SEP-78

DIAGNOSTIC ENGINEERING FUNCTIONAL SPECIFICATION
FOR CZLPLA0 LP25 DIAGNOSTIC PROGRAM (PRELIMINARY)
DATE: 29-SEP-78

LINE PRINTER, 250 LPM (LP25) PURCHASE SPECIFICATION
(PRELIMINARY)

DATAPRODUCTS 300 LPM LINE PRINTER FIELD MAINTENANCE
GUIDE (PRELIMINARY)

DATAPRODUCTS 300 LPM LINE PRINTER OPERATOR'S GUIDE
(PRELIMINARY)

LINE PRINTER, LP-07 PURCHASE SPECIFICATION (PRELIMINARY)

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 DIAGNOSTIC CAN BE USED IN A VARIETY OF OPERATING SYSTEMS TO FULFILL DIFFERENT REQUIREMENTS. THE DIAGNOSTIC CAN BE LOADED USING XXDP IN A FIELD SERVICE OPERATION, LOADED USING THE APT/ACT/SLIDE DIAGNOSTIC MONITORS IN A MANUFACTURING ENVIRONMENT, OR MANUALLY LOADED USING PAPER TAPE.

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 LINE PRINTERS UNDER TEST SHOULD HAVE POWER APPLIED AND BE PLACED ON LINE IN READINESS FOR TESTING. EACH LINE PRINTER MUST HAVE ITS OWN M7258 CONTROLLER SET UP AT A DIFFERENT DEVICE ADDRESS. THE DIAGNOSTIC PROVIDES A DEFAULT DEVICE ADDRESS OF 777514 WHICH CAN BE USED WHEN A SINGLE LINE PRINTER IS BEING TESTED OR FOR THE FIRST UNIT WHEN MULTIPLE LINE PRINTERS ARE UNDER TEST. IT WILL BE NECESSARY FOR THE OPERATOR TO RUN THE LINE PRINTER OFF LINE IN THE SELF TEST MODE BEFORE RUNNING THE DIAGNOSTIC IN ORDER TO DETERMINE WHETHER THE 64 OR 96 CHARACTER BAND IS INSTALLED.

FORMS LENGTH MUST BE PRESET TO 11 INCHES. VERTICAL PRINTING MUST BE PRESET TO 6 LINES PER INCH.
IF PRINTER IS LP07, IT MUST BE EQUIPPED WITH SPECIAL DIAG.

TCVFU PAPER TAPE.

A PATCH IS REQUIRED IN THE DIAGNOSTIC TO CIRCUMVENT AN INCOMPATIBILITY IN THE DIAGNOSTIC SUPERVISOR. IT IS NECESSARY TO ADD 11236 TO THE CONTENTS OF THE ADDRESS '\$LAST' WHICH IS FOUND AT THE END OF THE ASSEMBLY LISTING. THIS SUM IS USED AS THE ADDRESS INTO WHICH 42760 IS DEPOSITED. 177777 IS DEPOSITED INTO THE SUBSEQUENT MEMORY ADDRESS.

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 'DDDD'.

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:DDDD	EXECUTE DDDD PASSES (DDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:DDDD	REPORT END OF PASS MESSAGE AFTER EVERY

/UNITS:LIST DDDDD PASSES ONLY. (DDDDD = 1 TO 64000)
 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)
PR1	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: (0) (177514) ?
INTERRUPT VECTOR : (0) (200) ?
ENTER 0 IF LP25, 1 IF LP26, 2 IF LP07 (0) (0) ?
96 CHARACTER BAND (L) ? ANSWER Y OR N.
```

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
```

```
PERFORM MANUAL PRINT SPEED MEASUREMENT1 (N) ? DEFAULT IS AUTOMATIC
DESIRED TIME INTERVAL FOR PRINT SPEED CALCULATION (60) ? DEFAULT IS 60 SECONDS
```


MAXIMUM IS 60 SEC.
MINIMUM IS 4 SEC.

TESTING IN U.S.A. (Y) ? SELECTS U.S. OR BRITISH BAND PATTERN
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>
Q-FACTOR (O) 0 ? <CR>

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

UNIT 7
CSR ADDRESS (O) ? 160000<CR>

SUB-DEVICE # (C) ? 6<CR>
 Q-FACTOR (O) 0 ? 1<CR>

UNIT 8
 CSR ADDRESS (O) 160000<CR>
 SUB-DEVICE # (O) ? 7<CR>
 Q-FACTOR (O) 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 (D) ? 8<CR>

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

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

UNIT 7
 CSR ADDRESS (O) ? 160000<CR>
 SUB-DEVICE # (O) ? 6,7<CR>
 Q-FACTOR (O) 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 (0) ? 160000<CR>
SUB-DEVICE # (0) ? 0-7<CR>
Q-FACTOR (0) 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 LOW INTERLOCK SWITCH FAILURE' FAULTY INTERLOCK SWITCH.
9	'HAMMER BANK INTERLOCK SWITCH FAILURE' FAULTY INTERLOCK SWITCH.
10	'CHARACTER BAND 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.

- 16 'VFU INTERLOCK FAILURE'
FAULTY INTERLOCK SWITCH ON VFU TAPE READER COVER
- 17 'BAND GATE LATCH INTERLOCK FAILURE'
FAULTY INTERLOCK SWITCH

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

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

TEST 2
READY LINE INTERLOCKS
VERIFIES OPERATION OF THE READY INTERLOCK SWITCHES.

TEST 3
FORMS LENGTH SELECTION
VERIFIES ALL POSITIONS OF THE FORM LENGTH SELECT SWITCH FOR PROPER PAPER MOVEMENT.

TEST 4
PRINTING SPEED MEASUREMENT
DETERMINES PRINTING SPEED ON THE BASIS OF THE PRINTING TIME INTERVAL AND THE NUMBER OF LINES PRINTED.

TEST 5
DATA TRANSFER PATHS
CHECKS THE DATA TRANSFER PATHS FROM THE PRINTER OUTPUT TO THE PROCESSOR INTERFACE.

TEST 6
PRINTABLE CHARACTERS
CHECKS FOR PROPER PRINTING OF ALL PRINTABLE CHARACTERS.

TEST 7
NON-PRINTABLE CHARACTERS
CHECKS FOR PROPER DETECTION OF ALL NON-PRINTABLE CHARACTERS.
ALSO, ON PRINTERS WITH 64 CHARACTER BANDS, IT CHECKS TO MAKE SURE THAT CODES (140 THRU 177) ARE CONVERTED TO CODES (100 THRU 137).

TEST 8
BAND PATTERN

PRODUCES AN IMAGE OF THE ENTIRE BAND PATTERN.

TEST 9
SPURIOUS HAMMER FIRING
CHECKS FOR SPURIOUS HAMMER FIRINGS BY TAKING NOTE OF ANY
PRINTING THAT MAY OCCUR OUTSIDE A WEDGE PATTERN.

TEST 10
PRINT CONTROL
CHECKS THAT CHARACTERS IN EXCESS OF 132 CHARACTERS ON A LINE
ARE DISREGARDED.

TEST 11
CHECKS MULTIPLE LINE ADVANCE
CHECKS THE MULTIPLE LINE ADVANCE FOR PROPER PAPER MOVEMENT.

TEST 12
CHARACTER ALIGNMENT
CHECKS CHARACTER ALIGNMENT BY OVERPRINTING EACH LINE.

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.TITLE CZLPLD0 LP25, LP26, LP07 DIAGNOSTIC
.ENABL AMA
.SBTTL IDENTIFICATION

: PRODUCT CODE: AC-E634D-MC
: PRODUCT NAME: CZLPLD0 LP25, LP26, LP07 DIAG
: MAINTAINER: SMALL SYSTEMS DIAGNOSTICS
: AUTHORS: JOHN CHATALIAN
: DONALD RICE
: RALPH SCHAUBER
: GLENN A. PERNA
: DATE 12-JAN-81

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:++
: FUNCTIONAL DESCRIPTION
:
: THIS DIAGNOSTIC PROGRAM VERIFIES PROPER OPERATION OF THE LP25, LP26, LP07
: LINE PRINTER, AND IT'S ASSOCIATED INTERFACE MODULE.
:
: ANY MIX OF LP25, LP26, LP07 PRINTERS MAY BE TESTED, UP TO A TOTAL OF
: SIXTEEN UNITS.
:
: THE PROGRAM CONSISTS OF TWELVE TESTS,
: THREE OF THE PRINTER TESTS INVOLVE MANUAL INTERVENTION.
:
: THE PROGRAM IS COMPATIBLE TO THE PDP-11 DIAGNOSTIC SUPERVISOR, ACT/SLIDE, AND
: XXDP+.
:--

```

```

: VERSION      A-0    27-SEP-79      R. SCHAUBER
:
: HISTORY      REV. A-0  INITIAL RELEASE
:              REV-C SUPERVISOR / XXDP+ COMPATABLE
:
:              REV. B-0  DOCUMENTATION CHANGE 29-NOV-79
:              CHANGE INIT CODE TO SET PRIO ON NEW PASS
:
:              REV. C-0   INCLUDE LP26 SUPPORT    13-JUN-80
:              INCLUDE TEST MESSAGES TO THE PRINTERS
:              INCLUDES LINE CLOCK SUPPORT FOR LSI-11
:
:              REV. D-0   INCLUDE LP07 SUPPORT    12-JAN-81

```


CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 9
IDENTIFICATION

```

758          .TITLE CZLPLD0 LP25, LP26, LP07 TEST
759          .SBTTL PROGRAM HEADER
760
761          .MCALL SVC
762 000000    SVC ;INITIALIZE SUPERVISOR MACROS
763          .MCALL STRUCT
764 000000    STRUCT ;STRUCTURED MACRO PACKAGE
765          000000 $LSTIN= 0 ; LIST ASSY CODE LEFT
766          000000 $LSTTAG= 0 ; LIST TAGS LEFT
767          177777 $LOCTAG= -1
768
769          SVCINS= 0 ;LIST INSTRUCTIONS
770          SVCTST= 0 ;LIST TEST TAGS
771          SVCSUB= 0 ;LIST SUBTEST TAGS
772          SVCGBL= 0 ;LIST GLOBAL TAGS
773          SVCTAG= 0 ;LIST OTHER TAGS
774
775          .ENABL AMA
776 000000    .ENABL ABS
777          .ENABL LC
778          002000 . =2000
779
780 002000    BGNMOD
781 002000    POINTER BGNSW,BGNSFT
782
783 002000    HEADER CZLPL,D,0,60,1,340
002000      L$NAME:: ;DIAGNOSTIC NAME
002000      .ASCII /C/
002001      .ASCII /Z/
002002      .ASCII /L/
002003      .ASCII /P/
002004      .ASCII /L/
002005      .BYTE 0
002006      .BYTE 0
002007      .BYTE 0
002010      L$REV:: ;REVISION LEVEL
002010      .ASCII /D/
002011      L$DEPO:: ;0
002011      .ASCII /O/
002012      L$UNIT:: ;NUMBER OF UNITS
002012      000000 .WORD 0
002014      L$TIML:: ;LONGEST TEST TIME
002014      000060 .WORD 60
002016      L$HPCP:: ;PTR. TO H.W. QUES.
002016      036700 .WORD L$HARD
002020      L$SPCP:: ;PTR. TO S.W. QUES.
002020      037072 .WORD L$SOFT
002022      L$HPTP:: ;PTR. TO DEF. H.W. PTABLE
002022      002244 .WORD L$HW
002024      L$SPTP:: ;PTR. TO S.W. PTABLE
002024      002262 .WORD L$SW
002026      L$LADP:: ;DIAG. END ADDRESS
002026      037450 .WORD L$LAST
002030      L$STA:: ;RESERVED FOR APT STATS
002030      000000 .WORD 0
002032      L$CO::
002032      000000 .WORD 0

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 9-1
PROGRAM HEADER

002034		L\$DTYP::		;DIAGNOSTIC TYPE
002034	000001	L\$APT::	.WORD 1	;APT EXPANSION
002036		L\$DTP::	.WORD 0	;PTR. TO DISPATCH TABLE
002040		L\$DISPATCH		
002040	002132	L\$PRIOR::	.WORD 340	;DIAGNOSTIC RUN PRIORITY
002042		L\$ENVI::	.WORD 0	;FLAGS DESCRIBE HOW IT WAS SETUP
002042	000340	L\$EXP1::	.WORD 0	;EXPANSION WORD
002044		L\$MREV::	.WORD 0	;SVC REV AND EDIT #
002044	000000	C\$REVISION		
002046		C\$EDIT		
002046	000000	L\$EF::	.WORD 0	;DIAG. EVENT FLAGS
002050			.WORD 0	
002050	003	L\$SPC::	.WORD 0	
002051	003	L\$DEVP::	.WORD 0	; POINTER TO DEVICE TYPE LIST
002052		L\$REPP::	.WORD 0	;PTR. TO REPORT CODE
002052	000000	L\$EXP4::	.WORD 0	
002054	000000	L\$EXP5::	.WORD 0	
C02056		L\$AUT::	.WORD 0	;PTR. TO ADD UNIT CODE
002056	000000	L\$DUT::	.WORD 0	;PTR. TO DROP UNIT CODE
002060		L\$LUN::	.WORD 0	;LUN FOR EXERCISERS TO FILL
002060	002222	L\$DESP::	.WORD 0	;POINTER TO DIAG. DESCRIPTION
002062		L\$LOAD::	.WORD 0	;GENERATE SPECIAL AUTOLOAD EMT
002062	000000	EMT E\$LOAD		
002064		L\$ETP::	.WORD 0	;POINTER TO ERR_TBL
002064	000000	L\$ICP::	.WORD 0	;PTR. TO INIT CODE
002066		L\$CCP::	.WORD 0	;PTR. TO CLEAN-UP CODE
002066	000000	L\$ACP::	.WORD 0	;PTR. TO AUTO CODE
002070		L\$PRT::	.WORD 0	;PTR. TO PROTECT TABLE
002070	000000	L\$TEST::	.WORD 0	;TEST NUMBER
002072		L\$DLY::	.WORD 0	;DELAY COUNT
002072	000000	L\$HIME::	.WORD 0	;PTR. TO HIGH MEM
002074				
002074	000000			
002076				
002076	002162			
002100				
002100	104035			
002102				
002102	000000			
002104				
002104	005754			
002106				
002106	010064			
002110				
002110	002254			
002112				
002112	002122			
002114				
002114	000000			
002116				
002116	000000			
002120				
002120	000000			

784
785
786

; THE FOLLOWING IS A LOAD PROTECTION TABLE

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 9-2
PROGRAM HEADER

787
788 002122
002122
789 002122 000000
790 002124 177777
791 002126 177777
792 002130

;
BGNPROT
L\$PROT::
.WORD 0
.WORD -1
.WORD -1
ENDPROT

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 10
DISPATCH TABLE

794
795
796
797
798
799
800
801

802
803
804
805

806

807
808
809

002130	000014		
002132	010260		
002134	011550		
002136	014542		
002140	017650		
002142	025256		
002144	025702		
002146	026600		
002150	030320		
002152	033020		
002154	033476		
002156	035034		
002160	035512		
002162			
002162	103	132	114
002165	120	114	104
002170	060	040	114
002173	111	116	105
002176	040	120	122
002201	111	116	124
002204	105	122	040
002207	104	111	101
002212	107	116	117
002215	123	124	111
002220	103	000	
002222			
002222	114	120	062
002225	065	054	114
002230	120	062	066
002233	054	114	120
002236	060	067	000

.SBTTL DISPATCH TABLE

;++
: THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
: IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
:--

```

DISPATCH      12      ;X= NUMBER OF TESTS
.WORD 12
L$DISPATCH::
.WORD T1
.WORD T2
.WORD T3
.WORD T4
.WORD T5
.WORD T6
.WORD T7
.WORD T8
.WORD T9
.WORD T10
.WORD T11
.WORD T12

```

:FOR USE ON REVISION C OF THE SUPERVISOR

```

DESCRIP      <CZLPLD0 LINE PRINTER DIAGNOSTIC>
L$DESC::
.ASCIZ /CZLPLD0 LINE PRINTER DIAGNOSTIC/

```

```

.EVEN
DEV TYP      <LP25,LP26,LP07>
L$DVTYP::
.ASCIZ /LP25,LP26,LP07/

```

.EVEN

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 11
DEFAULT HARDWARE P-TABLE

811
812
813
814
815
816
817
818
819 002242
002242 000004
002244
002244
820 002244 177514
821 002246 000200
822 002250 000000
823
824
830 002252 000000
831
832
833
834
835
836 002254
002254
837
838
839
840 002254
002254
841
842 002254 000240
843
844 002256
002256
002256 104461

.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.
:--

BGNHW DFPTBL
.WORD L10001-L\$HW/2
L\$HW::
DFPTBL::
.WORD 177514 ;LP25 REGISTER ADDRESS
.WORD 200 ;LP25 INTERRUPT VECTOR
.WORD 0 ; 0 IF LP25
; 1 IF LP26
; 2 IF LP07
.WORD 0 ; 0 IF 64 CHAR BAND
; 1 IF 96 CHAR BAND

: INTERRUPT VECTOR PRIORITY IS 4 AND CANNOT BE CHANGED

ENDHW
L10001:
BGNAUTO
L\$AUTO::
NOP ; NOT USED
ENDAUTO
L10002:
TRAP C\$AUTO

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 12
SOFTWARE P-TABLE

846
847
848
849
850
851
852
853 002260
002260 000005
002262
002262
854
855 002262 000000
856
857
858 002264 000000
859
860
861 002266 000074
862
863
864
865 002270 000001
866
867
868 002272 000005
869
870
871 002274
002274
872

.SBTTL SOFTWARE P-TABLE

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

BGNSW SFPTBL
.WORD L10003-L\$SW/2
L\$SW::
SFPTBL::

INHINT: .WORD 0 ;0 IF NO INTERVENTION TESTS
;1 IF MANUAL INTERVENTION TESTS
;DEFAULT IS NO
MANSPD: .WORD 0 ;0 FOR AUTOMATIC PRINT SPEED
;1 FOR MANUAL PRINT SPEED TEST
;AUTOMATIC DEFAULT VALUE
PERIOD: .WORD 60. ;OPERATOR TO SELECT TIMING VALUE
;FROM 4 TO 60 SECONDS. INITIAL
;DEFAULT VALUE IS 60 SECONDS.
USA: .WORD 1 ; 1 FOR TESTING IN U.S.A.
; 0 FOR TESTING IN G.B./EUROPE
; * DIFFERENT BAND PATTERNS *
MAXERR: .WORD 5 ; AUTODROP ERROR COUNT
; IF ERROR COUNT EXCEEDS MAXERR THE UNIT WILL BE DROPPED FROM TEST

ENDSW
L10003:

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 13
I/O MACRO DEFINITIONS

874 :
875 :
876 :
877 :
878 :
879 :
880 :
881 :
882 :
883 :
884 :
885 :
886 :
887 :
888 :
889 :
890 :
891 :
892 :
893 :
894 :
895 :
896 :
897 :
898 :
899 :
900 :
901 :
902 :
903 :
904 :
905 :
906 :
907 :
908 :
909 :
910 :
911 :
912 :
913 :
914 :
915 :
916 :
917 :
918 :
919 :
920 :
921 :
922 :
923 :
924 002274

```

.SBTTL I/O MACRO DEFINITIONS

.MACRO OUTPUT ADD,BFCNT,ERR,PRINTS
MOV ADD,BUFADD ;SAVE THE BUFFER ADDRESS
MOV BFCNT,BUFCNT ;BUFFER BYTE COUNT BFCNT
MOV #-1,PRINTR ; OUTPUT TO ALL UNITS
.IF B ERR
MOV #LPERR,ERRSVC
.ENDC
.IF NB ERR
MOV ERR,ERRSVC
.ENDC
.IF B PRINTS
MOV #1,BUFREP ; PRINT ONCE DEFAULT
.ENDC
.IF NB PRINTS
MOV PRINTS,BUFREP ; SUPPLY PRINT COUNT
.ENDC
JSR PC,IOCTRL ;CALL THE DRIVER
.ENDM OUTPUT

.MACRO OUTPUTI ADD,BFCNT,ERR,UNIT,PRINTS
MOV ADD,BUFADD ;SAVE BUFFER ADDRESS
MOV BFCNT,BUFCNT ;BUFFER BYTE COUNT BFCNT
.IF B ERR
MOV #LPERR,ERRSVC
.ENDC
.IF NB ERR
MOV ERR,ERRSVC
.ENDC
.IF B PRINTS
MOV #1,BUFREP ; PRINT ONCE DEFAULT
.ENDC
.IF NB PRINTS
MOV PRINTS,BUFREP ; SUPPLY PRINT COUNT
.ENDC
MOV UNIT,PRINTR ; SUPPLY UNIT NUMBER
JSR PC,IOCTRL ;CALL THE DRIVER
.ENDM

: PRINTS IS A PARAMETER CONTROLLING THE NUMBER IF TIMES THE DATA OR
: MESSAGE IS TO BE PRINTED (SENT TO THE PRINTER). DEFAULT IS 1.
:
: A TIMEOUT OF 20. SECONDS IS FURNISHED BASED ON THE FOLLOWING ASSUMPTIONS :
: 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.
:.....
.ENDMOD

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 14
GLOBAL AREAS

926
927
928 002274
929
930
931
932
933
934
938 002274

.SBTTL GLOBAL AREAS

BGNMOD

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

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

000340	PRI07== 340
000300	PRI06== 300
000240	PRI05== 240
000200	PRI04== 200

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 14-1
GLOBAL AREAS

000140
000100
000040
000000

PRI03== 140
PRI02== 100
PRI01== 40
PRI00== 0
:
:OPERATOR FLAG BITS
:

000004
000010
000020
000040
000100
000200
000400
001000
002000
004000
010000
020000
040000
100000

EVL== 4
LOT== 10
ADR== 20
IDU== 40
ISR== 100
UAM== 200
BOE== 400
PNT== 1000
PRI== 2000
IXE== 4000
IBE== 10000
IER== 20000
LOE== 40000
HOE== 100000

939
943 000012
944 000014
945 000015
946 000177

LF==12
FF==14
CR==15
DEL==177
:
:PRIORITY LEVEL DEFINITIONS
:

949
950 000340
951 000300
952 000240
953 000200
954 000100
955 000100
956 000040
957 000000

PRI07== 340
PRI06== 300
PRI05== 240
PRI04== 200
PRI03== 140
PRI02== 100
PRI01== 40
PRI00== 0

958
959
960
961
962 000001
963 000002
964
965
966 000003
967
968

:
:GLOBAL ERROR CODES FOR USE BY GENERAL ERROR ROUTINE
:
:STATER= 1 ;TRANSMITTER STATUS ERROR IN OUTPUT
:TIMOUT= 2 ;TIMEOUT ERROR IN IO DRIVER MODULE
:NOINTR= 3 ;THIS ERROR INDICATES THE LAST CHARACTER
;WAS NOT TRANSMITTED WITHIN A GIVEN TIME
;GROSS TIME OUT ERROR. THE SPECIFIED DID NOT
;INTERRUPT. THEREFORE IO DRIVER MODULE WAS
;NOT CALLED

969
970
971
972
973
974
975
976
977

:
:SBTTL GENERAL REGISTER USAGE DEFINITIONS
:
:R0 RESERVED FOR USE BY THE MACRO PACKAGES
:R1 MAXIMUM NUMBER OF UNITS TO TEST L\$UNIT-1
:R2 UNIT NUMBER BY 2. USED TO CALCULATE OFFSET INTO PROPER
:PRINTER TABLE
:R3 TEMPORARY STORAGE
:R4

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 14-2
GENERAL REGISTER USAGE DEFINITIONS

```

978      ;R5
979      ;R6      STACK POINTER
980      ;R7      PROGRAM COUNTER
981      :
982      :
983      :
984      :
985      : LP STATUS TABLE BIT DEFINITIONS
986      :
987      100000   ERROR = BIT15
988      040000   DROPED = BIT14
989      020000   ACTIVE = BIT13
990      010000   FLAG96 = BIT12 ; 96 CHAR BAND
991      :BIT11
992      002000   FLAG07 = BIT10 ;SEE DEVICE CODE BELOW
993      001000   FLAG26 = BIT9  ;SEE DEVICE CODE BELOW
994      000377   LOBYTE = 377  ; BIT MASK FOR CLEARING LOBYTE (COUNTER)
995
996
997
998
999

```

DEVICE CODE

BITS 9 AND 10 ARE A DEVICE CODE , SUCH THAT:

BIT 10	BIT 9	DEVICE
0	0	LP25
0	1	LP26
1	0	LP07
1	1	RESERVED FOR FUTURE EXPANSION

```

1000
1001
1002
1003
1004
1005
1006

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 15
GLOBAL DATA SECTION

```

1008          .SBTTL GLOBAL DATA SECTION
1009
1010
1011
1012 002274 000000 FLAG: .WORD 0          ;<CR> FLAG FOR USE BY SUPERVISOR
1013 002276 000000 LINCNT: .WORD 0        ;LINE COUNTER
1014 002300 000000 LSTCNT: .WORD 0
1015 002302 000000 COUNT: .WORD 0
1016 002304 000000 CCNT: .WORD 0
1017 002306 000000 STRCNT: .WORD 0
1018 002310 000000 CHRGEN: .WORD 0
1019 002312 000000 UNIT: .WORD 0          ;UNIT COUNTER FOR SINGLE UNIT TESTING
1020 002314 000000 LUNIT: .WORD 0         ;UNIT COUNTER FOR ERRORS
1021                                     ;AND TESTS NOT USING THE OUTPUT
1022                                     ;MACROS.
1023 002316 000000 PTABAD: .WORD 0        ;P-TABLE ADDRESS RETURNED BY GPHARD
1024 002320 000000 PRINTR: .WORD 0        ;SELECTED LINE NO.
1025                                     ;MACRO
1026 002322 000000 CLKTYP: .WORD 0        ;CLOCK TYPE CONTROL WORD
1027                                     ;1= NO CLOCK AVAILABLE
1028                                     ;2= KW11-L LINE CLOCK
1029                                     ;3= KW11-P PROGRAMABLE CLOCK
1030 002324 000000 CLOCKP: .WORD 0        ; CLOCK P-TABLE ADDRESS
1031 002326 000000 CLKCSR: .WORD 0        ;CLOCK CSR ADDRESS
1032 002330 000000 CLKSET: .WORD 0        ; CLOCK TIME SET REG ADDRESS
1033 002332 000000 CLKVEC: .WORD 0        ;CLOCK VECTOR ADDRESS
1034 002334 000000 CLKENA: .WORD 0        ;CLOCK ENABLE BITS
1035 002336 000000 ERRCOD: .WORD 0        ;ERROR CODE TYPE FOR GENERAL
1036                                     ;ERROR ROUTINE
1037 002340 000000 ERRFLG: .WORD 0        ;EXPECTED ERROR INDICATOR
1038 002342 000000 UUT: .WORD 0          ; # UNITS ACTUALLY UNDER TEST
1039                                     ;EXITS BACK TO IO DRIVER EQUAL
1040                                     ;1 IF ERROR WAS EXPECTED.
1041
1042 002344 000000 INDEX: .WORD 0
1043 002346 000000 VFUCMD: .WORD 0
1044                                     ;
1045                                     ;MACRO VARIABLES
1046
1047 002350 000000 BUFADD: .WORD 0        ;BUFFER ADDRESS OF DATA TO BE SENT
1048                                     ;TO THE PRINTER
1049 002352 000000 BUFCNT: .WORD 0        ;NUMBER OF BYTES TO TRANSFER
1050
1051 002354 000000 BUFREP: .WORD 0        ; NUMBER OF TIMES TO PRINT
1052                                     ;
1053                                     ;
1054                                     ;
1055                                     ;LP25 PARAMETER WORD TABLES
1056                                     ;
1057 002356 000020 LPCSR: .REPT 16.        ; ADDRESS OF CSR FOR EACH LP11
1058                                     ;.WORD 0
1059                                     ;.ENDR
1060 002416 000016 LPVEC: .REPT 16        ; INTERRUPT VECTOR ADDRESS
1061                                     ;.WORD 0
1062                                     ;.ENDR
1063 002452 000020 LPBUF: .REPT 16.        ; DATA BUFFER REGISTER ADDRESS
1064                                     ;.WORD 0

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 15-1
 GLOBAL DATA SECTION

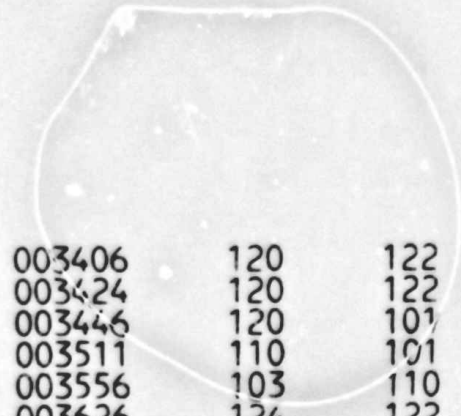
```

1065
1066 002512 000020 STATUS: .ENDR
                                .REPT 16. ; UNIT STATUS
1067                                .WORD 0
1068                                .ENDR
1069 002552 000020 CURADD: .REPT 16. ; CURRENT ADDRESS OF OUTPUT DATA BYTE
1070                                .WORD 0
1071                                .ENDR
1072 002612 000020 MSGCNT: .REPT 16. ; INITIAL BYTE COUNT OF MSG FOR REPEAT RESTORE
1073                                .WORD 0
1074                                .ENDR
1075 002652 000020 REPCNT: .REPT 16. ; NO. OF TIMES TO REPEAT MESSAGE
1076                                .WORD 0
1077                                .ENDR
1078 002712 000020 MSGADR: .REPT 16. ; ADDRESS OF DATA TO PRINT START OF DATA
1079                                .WORD 0
1080                                .ENDR
1081 002752 000020 CURCNT: .REPT 16. ; CURRENT COUNT REMAINING TO OUTPUT
1082                                .WORD -1
1083                                .ENDR
1084 003012 000020 LPINTR: .REPT 16. ; INTERRUPT ROUTINE ADDRESS
1085                                .WORD 0
1086                                .ENDR
1087 003052 000020 DELCNT: .REPT 16. ; TIMEOUT DELAY COUNTER
1088                                .WORD 0
1089                                .ENDR
1090 003112 000000 ERRSVC: .WORD 0 ; ERROR ROUTINE DISPATCH ADDRESS
1091 003114 000020 ERRTBL: .REPT 16. ; ERROR COUNT FOR EACH UNIT
1092                                .WORD 0
1093                                .ENDR
1094
1095 003154 000000 WORK:: .WORD 0 ; WORK AREA
1096 003156 000000 WORK1: .WORD 0
1097
1098
1099
1100 .SBTTL OUTPUT BUFFER
1101 :
1102 :150 BYTES IS RESERVED FOR THE OUTPUT BUFFER AREA
1103 :
1104
1105
1106 003160 000226 OUTBUF: .EVEN
                                .REPT 150.
1107                                .BYTE 0
1108                                .ENDR
1109

```

CZLPLDO LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 16
GLOBAL TEXT SECTION

1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149



.SBTTL GLOBAL TEXT SECTION

.NLIST BEX

:++
: THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
: MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
: MORE THAN ONE TEST.

:--

111 CSRERR: .ASCIZ /PRINTER ERROR/
111 RDYERR: .ASCIZ /PRINTER NOT READY/
120 PAPSWI: .ASCIZ /PAPER LOW INTERLOCK SWITCH FAILURE/
115 BNKSWI: .ASCIZ /HAMMER BANK INTERLOCK SWITCH FAILURE/
101 BNSWI: .ASCIZ /CHARACTER BAND INTERLOCK SWITCH FAILURE/
101 INTER1: .ASCIZ /TRANSMIT INTERRUPT TIMEOUT/
111 TXERR: .ASCIZ /PRINTER STATUS ERROR/
124 OUTTIM: .ASCIZ /OUTPUT TIMEOUT ERROR/
111 TXNOIN: .ASCIZ /UNIT FAILED TO INTERRUPT/
114 UUTEQ0: .ASCIZ /ALL UNITS HAVE BEEN DROPPED..RESTART../
045 VFUSEL: .ASCII /%N%AINSURE THAT VFU-FLS SWITCH ON EACH UNIT IS IN THE /
045 VFUSE1: .ASCIZ /%N%A'VFU' POSITION.%N/
040 NOCLK: .ASCIZ /NO CLOCK AVAILABLE FOR TIMING TESTS/<7><7>
116 BGTSWI: .ASCIZ /BAND GATE LATCH INTERLOCK FAILURE/
125 VFUINF: .ASCIZ /VFU INTERLOCK FAILURE/
.EVEN

:
:

.LIST BEX

:
: FORMAT STATEMENTS USED IN PRINT CALLS
:

114 LPDROP: .ASCIZ /%ALP11 UNIT %D2%A DROPPED FROM TEST%N/
061
116
040
062
040
117
105
106
115
105
045

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 17
GLOBAL SUBROUTINES SECTION

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1177
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.SBTTL GLOBAL SUBROUTINES SECTION

+++
: THE GLOBAL SUBROUTINE SECTION CONTAINS THE SUBROUTINES
: THAT ARE USED BY MORE THAN ONE TEST.
:--

+++
: FUNCTIONAL DESCRIPTION:
: SUBROUTINE TO PRINT THE GENERAL ERROR INFORMATION.
: PRINTS THE ERROR MESSAGE IN THE FOLLOWING FORMAT:
:
: 'ERROR AT CSR XXXXXX UNIT YY'
:
: WHERE XXXXXX= DEVICE CSR ADDRESS
: YY= UNIT NUMBER THAT FAILED
:
: CALLING SEQUENCE
: JSR PC,LPERR
: REQUIRED PARAMETERS
: ERRCOD MUST BE SET TO ONE OF THE ERROR CODES DESCRIBED
: UNDER ERROR CODES.

:
: R2 IS USED INTERNAL TO THE ROUTINE.
: THE ROUTINE DOES A SAVE ON R2
: AND RESTORES IT PRIOR TO EXITING.

004354
004354 013746 002336
004360 002454
004362 023727 002336 000003
004370 003050
004372 006316
004374 062716 004402
004400 013607
004402
004402 004512
004404 004412
004406 004440
004410 004466

1184
1185 004412
004412
1186 004412
004412 005262 003114
1187 004416
004416 010237 002074
004422 006237 002074
1188 004426
004426 104456
004430 000016
004432 003661

LPERR: SELECT ERRCOD OF 3 VERIFY ;SELECT PROPER MESSAGE FORMAT
MOV ERRCOD,-(SP)
BLT 50005\$
CMP ERRCOD,#3
BGT 50005\$
ASL (SP)
ADD #50000\$,(SP)
MOV @ (SP)+,PC

50000\$:
.WORD 50004\$
.WORD 50003\$
.WORD 50002\$
.WORD 50001\$

50003\$: CASE 1 ;STATUS ERROR
LET ERRTBL(R2) := ERRTBL(R2) + #1
INC ERRTBL(R2)
LET L\$LUN := R2 SHIFT -1
MOV R2,L\$LUN
ASR L\$LUN
ERRHRD 14, TXERR
TRAP C\$ERHRD
.WORD 14
.WORD TXERR

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 17-1
GLOBAL SUBROUTINES SECTION

```

1189 004434 000000 .WORD 0
1190 004436 000425 CASE 2 ;OUTPUT TIMEOUT ERROR
004440 50002$: BR 50005$
1191 004440 005262 003114 LET ERRTBL(R2) := ERRTBL(R2) + #1
004440 INC ERRTBL(R2)
1192 004444 010237 002074 LET L$LUN := R2 SHIFT -1
004444 MOV R2,L$LUN
004450 006237 002074 ASR L$LUN
1193 004454 104456 ERRHRD 15,OUTTIM ;
004454 TRAP C$ERHRD
004456 000017 .WORD 15
004460 003706 .WORD OUTTIM
004462 000000 .WORD 0

1194
1195 004464 000412 CASE 3
004464 BR 50005$
004466 50001$: ; NEVER RECIEVED THE INTERRUPT
1196 LET ERRTBL(R2) := ERRTBL(R2) + #1
1197 004466 005262 003114 INC ERRTBL(R2)
1198 004472 010237 002074 LET L$LUN := R2 SHIFT -1
004472 MOV R2,L$LUN
004476 006237 002074 ASR L$LUN
1199 004502 104456 ERRHRD 16,TXNOIN
004502 TRAP C$ERHRD
004504 000020 .WORD 16
004506 003733 .WORD TXNOIN
004510 000000 .WORD 0

1200
1201
1202
1203 004512 ENDSELECT
004512 50004$:
004512 50005$:

1204
1205 004512 026237 003114 002272 IF ERRTBL(R2) GT MAXERR THEN
004512 CMP ERRTBL(R2),MAXERR
004520 003402 BLE 50006$
1206 004522 004737 005612 JSR PC,DROPIT ; MAXIMUM ERROR COUNT EXCEEDED !
1207 004526 004526 ENDIF
004526 50006$:
1208 004526 042762 100000 002512 LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR
004526 BIC #ERROR,STATUS(R2)
1209 004534 005037 002336 LET ERRCOD := #0
004534 CLR ERRCOD
1210 004540 012772 000100 002356 LET @LPCSR(R2) := #100 ; CLEAR THE ERROR BIT AND ENABLE INTERRUPTS
004540 MOV #100,@LPCSR(R2)
1211 004546 000207 RTS PC ;AND EXIT
1212
1213
1214 :-----:
1215 : BIN2DA BINARY TO DECIMAL ASCII CONVERSION ROUTINE
1216 : ENTER WITH NUMBER TO BE CONVERTED ON THE STACK
1217 : FOLLOWED BY THE ADDRESS OF A 5 BYTE BUFFER
1218 : FOR THE ASCII STRING. 5 DIGITS WILL BE CONVERTED
: LEADING ZEROES WILL BE CONVERTED TO SPACES.

```

CZLPLD0 LP25, LP26, LP07 TEST
GLOBAL SUBROUTINES SECTION

MACRO M1113 30-DEC-80 09:36 PAGE 17-2

```

1219                                     :----- CALL BY JSR PC,BIN2DA
1220                                     :-----
1221                                     :-----
1222 004550                               BIN2DA: PUSH R4,R5
      004550 010446                       MOV     R4,-(SP)
      004552 010546                       MOV     R5,-(SP)
1223 004554                               LET R4 := 6(SP)           ; GET ADDRESS FOR ASCII STRING
      004554 016604 000006                 MOV     6(SP),R4
1224 004560                               LET R5 := #TABLDA        ; GET ADDRESS OF DECIMAL TABLE
      004560 012705 004742                 MOV     #TABLDA,R5
1225 004564                               LET FLAGDA := #0        ; LEADING ZERO FLAG
      004564 005037 004754                 CLR     FLAGDA
1226 004570                               LET COUNTD := #0
      004570 005037 004756                 CLR     COUNTD
1227                                     ; 8.(SP) HAS NUMBER TO BE CONVERTED
1228 004574                               DECR DIGITS FROM #4 TO #0 BY #1 ; DO 5 DIGITS
      004574 012737 000004 004760         MOV     #4,DIGITS
      004602 000402                               BR     50007$
      004604                               50010$: DEC     DIGITS
      004604 005337 004760                               50007$: TST     DIGITS
      004610                               BLT     50011$
      004610 005737 004760                               WHILE 8.(SP) GE (R5) DO ; CREATE A DIGIT
      004614 002435                               50012$: CMP     8.(SP),(R5)
      004616                               BLT     50013$
      004616 026615 000010                               LET 8.(SP) := 8.(SP) - (R5)
      004622 002405                               SUB     (R5),8.(SP)
1230 004624                               LET COUNTD := COUNTD + #1
      004624 161566 000010                               INC     COUNTD
1231 004630                               ENDDO
      004630 005237 004756                               BR     50012$
1232 004634                               50013$: ; CONVERT DIGIT TO ASCII OR SUPPLY A SPACE
      004634 000770                               IF COUNTD GT #0 OR FLAGDA GT #0 THEN
      004636                               TST     COUNTD
      004636 005737 004756                               BGT     50014$
      004642 003003                               TST     FLAGDA
      004644 005737 004754                               BLE     50015$
      004650 003410                               50014$: LET COUNTD := COUNTD SET.BY #60
      004652                               BIS     #60,COUNTD
      004652 052737 000060 004756         LET (R4)+ :B= COUNTD
1236 004660                               MOV     COUNTD,(R4)+
      004660 113724 004756                               LET FLAGDA := FLAGDA + #1
1237 004664                               INC     FLAGDA
      004664 005237 004754                               ELSE
1238 004670                               BR     50016$
      004670 000402                               50015$: LET (R4)+ :B= #40
      004672                               MOV     #40,(R4)+
1239 004672                               50016$: ENDDO
      004672 112724 000040
1240 004676                               ; DO THE NEXT DIGIT
      004676                               LET R5 := R5 + #2
1241                               ADD     #2,R5
      004676 062705 000002

```


CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 17-3
 GLOBAL SUBROUTINES SECTION

1243	004702					LET COUNTD := #0
	004702	005037	004756			CLR COUNTD
1244	004706					ENDDECR
	004706	000736				BR 50010\$
	004710				50011\$:	
1245						: IF NUMBER WAS A ZERO PRINT A '0'
1246	004710					IF FLAGDA EQ #0 THEN
	004710	005737	004754			TST FLAGDA
	004714	001002				BNE 50017\$
1247	004716					LET -(R4) :B= #60
	004716	112744	000060			MOVB #60, -(R4)
1248	004722					ENDIF
	004722				50017\$:	
1249						: CLEAN UP THE STACK AND EXIT
1250	004722					LET 8.(SP) := 4(SP)
	004722	016666	000004	000010		MOV 4(SP), 8.(SP)
1251	004730					POP R5, R4
	004730	012605				MOV (SP)+, R5
	004732	012604				MOV (SP)+, R4
1252	004734					LET SP := SP + #4
	004734	062706	000004			ADD #4, SP
1253	004740	000207				RTS PC
1254						
1255						
1256	004742	023420	001750	000144	TABLDA: .WORD	10000., 1000., 100., 10., 1
	004750	000012	000001			
1257	004754	000000			FLAGDA: .WORD	0
1258	004756	000000			COUNTD: .WORD	0
1259	004760	000000			DIGITS: .WORD	0
1260						

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 18
I/O DRIVER

```

1262          .SBTTL  I/O DRIVER
1263
1264          :
1265          :
1266          :++
1267          :THE I/O DRIVER ROUTINE IS INVOKED BY MEANS OF THE INTERRUPT SYSTEM.
1268          :CALL TO IT IS JMP  IODRV.
1269          :RETURN  RTI.
1270          :ENTER ROUTINE WITH R2 SET UP TO DESIRED UNIT *2. R2 IS USED
1271          :TO CALCULATE OFFSET INTO PROPER TABLE.
1272          :R1 EQUALS MAXIMUM NUMBER OF UNITS ON SYSTEM UNDER TEST.
1273          :
1274          :--
1275          :
1276          : CHECK FOR ERROR FLAG IN STATUS REG.
1277          :
1278 004762      IODRV: IF #BIT15 NOTSET IN @LPCSR(R2) THEN
004762      BIT      #BIT15,@LPCSR(R2)
004770      BNE      50020$
1279          :
1280          : IF COUNT NOT ZERO SEND NEXT BYTE
1281          :
1282          : IF CURCNT(R2) GT #0 THEN
004772      TST      CURCNT(R2)
004772      BLE      50021$
004776      MOV      @LPCSR(R2),@LPCSR(R2)
1283 005000      LET @LPBUF(R2) :B= @CURADD(R2)
005000      MOV      @CURADD(R2),@LPBUF(R2)
1284 005006      LET CURADD(R2) := CURADD(R2) + #1
005006      INC      CURADD(R2)
1285          :
1286          : ENABLE INTERRUPT FOR NEXT BYTE
1287          :
1288 005012      LET STATUS(R2) := STATUS(R2) SET.BY #ACTIVE
005012      BIS      #ACTIVE,STATUS(R2)
1289 005020      LET CURCNT(R2) := CURCNT(R2) - #1
005020      DEC      CURCNT(R2)
1290 005024      LET @LPCSR(R2) := @LPCSR(R2) SET.BY #100
005024      BIS      #100,@LPCSR(R2)
1291 005032      ELSE
005032      BR      50022$
005034      50021$:
1292          : CURRENT MSG DONE, IF PRINT COUNT NOT ZERO SEND AGAIN
1293          : LET REPCNT(R2) := REPCNT(R2) - #1
005034      DEC      REPCNT(R2)
1294          : IF REPCNT(R2) GT #0 THEN
005040      TST      REPCNT(R2)
005040      BLE      50023$
1295          : LET CURADD(R2) := MSGADR(R2) ; RESTORE THE MSG ADDR
005046      MOV      MSGADR(R2),CURADD(R2)
1296          : LET CURCNT(R2) := MSGCNT(R2) ; RESTORE THE BYTE COUNT
005054      MOV      MSGCNT(R2),CURCNT(R2)
1297          : LET @LPBUF(R2) :B= @CURADD(R2) ; RESEND THE MESSAGE
005062      MOV      @CURADD(R2),@LPBUF(R2)
1298          : LET CURADD(R2) := CURADD(R2) + #1 ; BUMP THE POINTER
005070      INC      CURADD(R2)
1299          : LET CURCNT(R2) := CURCNT(R2) - #1 ; DROP BYTE COUNT
005074      DEC      CURCNT(R2)
005074

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 18-1
I/O DRIVER

```

1300 005100          LET STATUS(R2) := STATUS(R2) SET.BY #ACTIVE
      005100 052762 020000 002512      BIS #ACTIVE,STATUS(R2)
1301 005106          LET @LPCSR(R2) := #100 ; RE-ENABLE INTERRUPTS
      005106 012772 000100 002356      MOV #100,@LPCSR(R2)
1302 005114          ELSE
      005114 000406          BR 50024$
      005116
50023$:
; CURRENT MSG DONE, REPEAT COUNT =0
; CLEAR ACTIVE AND DISABLE INTERRUPTS.
1303          LET STATUS(R2) := STATUS(R2) CLR.BY #ACTIVE
1304          BIC #ACTIVE,STATUS(R2)
1305 005116 042762 020000 002512
      005116          LET @LPCSR(R2) := #00
1306 005124          MOV #00,@LPCSR(R2)
      005124 012772 000000 002356
1307 005132          ENDIF
      005132
50024$:
1308 005132          ENDIF
      005132
50022$:
1309 005132          ELSE
      005132 000410          BR 50025$
      005134
50020$:
; CLEAR ERROR CONDITION, ENABLE INTERRUPTS
; SET ERROR FLAG
1310          LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
1311          BIS #ERROR,STATUS(R2)
1312 005134 052762 100000 002512
      005134          LET ERRCOD := #STATER ; STATUS ERROR
1313 005142          MOV #STATER,ERRCOD
      005142 012737 000001 002336
1314 005150          JSR PC,@ERRSVC
      004777 175736
1315          ; ERROR SERVICE SHOULD CLEAR ERROR BIT AND ENABLE INTR
1316 005154          ENDIF
      005154
50025$:
1317 005154          POP R2
      005154 012602          MOV (SP)+,R2
1318 005156          RTI
      000002

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 19
I/O CONTROL

```

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1331
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1333
1334 005160
      005160 010246
      005162 010346
1335
1336
1337
1338
1339 005164
      005164 023727 002320 177777
      005172 001005
1340 005174
      005174 013703 002012
1341 005200
      005200 005037 002074
1342 005204
      005204 000405
      005206
1343 005206
      005206 012703 000001
1344 005212
      005212 013737 002320 002074
1345 005220
      005220
1346
1347
1348
1349 005220
1350 005220
      005220 005703
      005222 001002
1351 005224
      005224 000137 005536
1352 005230
      005230
1353
1354
1355
1356 005230
      005230 013702 002074
      005234 006302
1357 005236
      005236 005037 002336
1358

```

```

.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
:              BUF CNT  BYTE COUNT TO TRANSMIT TO PRINTER
:
:              ERRSVC  ADDRESS OF ERROR SERVICE SUBROUTINE
:              BUFREP  IS NO. OF TIMES TO PRINT THE MSG
:--
IOCTRL: PUSH R2,R3
        MOV   R2,-(SP)
        MOV   R3,-(SP)
:
: IF PRINTR IS -1 QUE OUTPUT TO ALL PRINTERS SELECTED
: OTHERWISE TO UNIT NUMBER IN PRINTR.
:
        IF PRINTR EQ #-1 THEN
        CMP   PRINTR,#-1
        BNE   50026$
        LET  R3 := L$UNIT
        MOV  L$UNIT,R3
        LET  L$LUN := #0
        CLR  L$LUN
        ELSE
        BR   50027$
50026$:
        LET  R3 := #1
        MOV  #1,R3
        LET  L$LUN := PRINTR
        MOV  PRINTR,L$LUN
        ENDIF
50027$:
: REPEAT TILL R3 = 0
:CTLLOP:
        IF R3 EQ #0 THEN
        TST  R3
        BNE  50030$
        INLINE <JMP CTLEND>
        JMP  CTLEND
        ENDIF
50030$:
: USE R2 AS AN INDEX INTO THE UNIT TABLES
:
        LET  R2 := L$LUN SHIFT 1
        MOV  L$LUN,R2
        ASL  R2
        LET  ERRCOD := #0
        CLR  ERRCOD
:

```


CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 19-2
I/O CONTROL

```

1386 005406 012737 000002 002336      MOV      #TIMOUT,ERRCOD      LET STATUS(R2) := STATUS(R2) CLR.BY #ACTIVE
      005414 042762 020000 002512      BIC      #ACTIVE,STATUS(R2)
1387 005422 052762 100000 002512      BIS      #ERROR,STATUS(R2)      LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
      005430                                ENDIF
1388 005430                                50041$:
      005430                                ENDDO
1389 005430 000736                                BR      50037$
      005432                                50040$:
1390 005432                                ENDIF
      005432                                50036$:
1391 005432                                ENDIF
      005432                                50034$:
1392 005432                                ENDIF
      005432                                50033$:
1393 005432                                IF ERRCOD NE #0 THEN
      005432 005737 002336      TST      ERRCOD
      005436 001403      BEQ      50042$
1394
1395      : REPORT THE ERROR
1396      :
1397 005440 004777 175446      JSR      PC,@ERRSVC
1398 005444                                ELSE
      005444 000425      BR      50043$
      005446                                50042$:
1399      :
1400      : Q UP THE MESSAGE AND ENABLE INTERRUPTS
1401      : THE I/O DRIVER WILL PICK UP FROM HERE.
1402      :
1403 005446                                LET CURADD(R2) := BUFADD      ; BYTE ADDRESS
1404 005446 013762 002350 002552      MOV      BUFADD,CURADD(R2)
      005454                                LET MSGADR(R2) := BUFADD      ; MESSAGE ADDRESS
1405 005454 013762 002350 002712      MOV      BUFADD,MSGADR(R2)
      005462                                LET CURCNT(R2) := BUF CNT      ; OUTPUT COUNT
1406 005462 013762 002352 002752      MOV      BUF CNT,CURCNT(R2)
      005470                                LET MSGCNT(R2) := BUF CNT      ; BYTE COUNT
1407 005470 013762 002352 002612      MOV      BUF CNT,MSGCNT(R2)
      005476                                LET REPCNT(R2) := BUFREP      ; PRINT COUNT
1408 005476 013762 002354 002652      MOV      BUFREP,REPCNT(R2)
      005504                                IF CURCNT(R2) GT #0 THEN
1409 005504 005762 002752      TST      CURCNT(R2)
      005510 003403      BLE      50044$
      005512                                LET @LPCSR(R2) := #100      ; ENABLE INTERRUPTS
1410 005512 012772 000100 002356      MOV      #100,@LPCSR(R2)
      005520                                ENDIF
1411 005520                                50044$:
      005520                                ENDIF
1412 005520                                50043$:
      005520                                ENDIF
1413      :
1414      : CLEAR OUT ANY TIMEOUT COUNT
1415      :
1416 005520                                LET DELCNT(R2) := #0
      005520 005062 003052      CLR      DELCNT(R2)
1417      :

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 19-3
I/O CONTROL

```

1418      ; SELECT THE NEXT UNIT AND DECRIMENT THE LINECOUNT
1419      ;
1420      005524      005303      DEC      LET R3 := R3 - #1
1421      005526      005237      002074      LET L$LUN := L$LUN + #1
1422      005532      000137      005220      INC      L$LUN
1423      005536      012603      JMP      CTLL0P
1424      005536      012602      CTLEND:    POP      R3,R2
1425      005542      000207      MOV      (SP)+,R3
1426      MOV      (SP)+,R2
1427      RTS      PC
1428      ;++++
1429      ; SUBROUTINE      QUIET
1430      ; THIS SUBROUTINE WILL EFFECTIVLY DELAY UNTIL ALL QUEUED OUTPUT
1431      ; IS FINISHED. THE DELAY IS ACCOMPLISHED BY QUEUEING A NULL
1432      ; MESSAGE TO ALL LINES.
1433      ;-----
1434      QUIET:    OUTPUT #0,#0      ; NULL MESSAGE OUTPUT
1435      NOP
1436      RTS      PC
1437
1438

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 20
I/O CONTROL

```

1440
1441
1442
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1444
1445
1446
1447
1448 005612
      005612 052762 040000 002512
1449 005620
      005620 012762 177777 002752
1450 005626
      005626 005072 002356
1451 005632
      005632 013746 002074
      005636 012746 004306
      005642 012746 000002
      005646 010600
      005650 104417
      005652 062706 000006
1452 005656
      005656 005062 003114
1453 005662
      005662 005337 002342
1454 005666
      005666 005737 002342
      005672 001011
1455 005674
      005674 012746 003764
      005700 012746 000001
      005704 010600
      005706 104417
      005710 062706 000004
1456 005714
      005714 104444
1457 005716
      005716
1458 005716 000207
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469 005720
      005720 005037 002074
1470 005724
      005724
      005724 023737 002074 002012
      005732 002007
1471 005734
      005734 013700 002074

```

```

=====
: DROPIIT          FUNCTIONAL DESCRIPTION :
:
: THIS SUBROUTINE IS USED TO DROP A BAD PRINTER FROM THE TEST
: DISABLE ANY INTERRUPTS FROM THE PRINTER, AND NOTIFY THE
: OPERATOR THAT THE PRINTER WAS DROPPED.
=====

```

```

DROPIIT: LET STATUS(R2) := STATUS(R2) SET.BY #DROPED
        BIS      #DROPED,STATUS(R2)
        LET CURCNT(R2) := #-1
        MOV      #-1,CURCNT(R2)
        LET @LPCSR(R2) := #0
        CLR      @LPCSR(R2)
        PRINTF #LPDROP, L$LUN
        MOV      L$LUN,-(SP)
        MOV      #LPDROP,-(SP)
        MOV      #2,-(SP)
        MOV      SP,R0
        TRAP     C$PNTF
        ADD      #6,SP
        LET ERRTBL(R2) := #0
        CLR      ERRTBL(R2)
        LET UUT := UUT - #1
        DEC      UUT
        IF UUT EQ #0 THEN
        TST      UUT
        BNE      50045$
        PRINTF #UUTEQ0
        MOV      #UUTEQ0,-(SP)
        MOV      #1,-(SP)
        MOV      SP,R0
        TRAP     C$PNTF
        ADD      #4,SP
        DOCLN    ; NOTHING TO TEST
        TRAP     C$DCLN
        ENDIF
50045$: RTS      PC

```

```

=====
: FAKE          FUNCTIONAL DESCRIPTION:
:
: THIS SUBROUTINE IS REQUIRED TO INSURE PROPER PASS COUNT REPORTS
: IN A MULTI UNIT MODE OF OPERATION.
=====

```

```

FAKE: LET L$LUN := #0
      CLR      L$LUN
      WHILE L$LUN LT L$UNIT DO
50046$: CMP      L$LUN,L$UNIT
      BGE      50047$
      GPHARD   L$LUN, R3
      MOV      L$LUN,R0

```


CZLPLDO LP25, LP26, LP07 TEST. MACRO M1113 30-DEC-80 09:36 PAGE 20-1
I/O CONTROL

005740 104442
005742 010003
1472 005744
005744 005237 002074
1473 005750
005750 000765
005752
1474 005752 000207
1475
1476
1477 005754

TRAP C\$GPHRD
MOV RO,R3
LET L\$LUN := L\$LUN + #1
INC L\$LUN
ENDDO
BR 50046\$
50047\$: RTS PC
ENDMOD

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 21
 INITIALIZATION SECTION

```

1479
1480
1481
1482
1483
1484
1485
1486
1487 005754
1488 005754
    005754
1489
1490
1491 005754
    005754 012700 000040
    005760 104447
1492 005762
    005762 103466
1493 005764
    005764 012700 000037
    005770 104447
1494 005772
    005772 103462
1495
1496 005774 004737 005720
1497 006000
    006000 012700 000000
    006004 104441
1498 006006
    006006 112737 000014 003160
1499 006014
1500 006056
    006056 012737 000006 003156
    006064 000402
    006066
    006066 005337 003156
    006072
    006072 023727 003156 000001
    006100 002415
1501 006102
    006102 012727 000250
    006106 000000
    006110 013727 002116
    006114 000000
    006116 005367 177772
    006122 001375
    006124 005367 177756
    006130 001367
1502 006132
    006132 000755
    006134
1503 006134
    006134 104432
    006136 001640
1504
1505
1506
    
```

```

.SBTTL  INITIALIZATION SECTION
:++
:THE INITIALIZE ROUTINE IS EXECUTED AT THE BEGINNING OF EACH SUB-PASS AND IS
:PRIMARYLY USED FOR REQUESTING P-TABLE PARAMETERS. INFORMATION REQUESTED FROM
:THE OPERATOR INCLUDE THE NUMBER OF UNITS UNDER TEST, DEVICE ADDRESSES, VECTORS,
:CLOCK TYPE, AUTO OR MANUAL PRINTING SPEED MEASUREMENT, AND WHETHER A DAVFU
:OPTION IS INSTALLED IN THE SYSTEM.
:--
BGNMOD
BGNINIT
L$INIT::
:RESET EXTERNAL BUS IF START EVENT FLAG IS SET
:OR POWER FAIL RESTART
    READEF #EF.START ;TEST START EF INDICATOR
    MOV #EF.START,R0
    TRAP C$REFG
    BCOMPLETE 1$ ;BRANCH IF FROM START UP
    BCS 1$
    READEF #EF.RESTART ;NOW THE RESTARTFLAG
    MOV #EF.RESTART,R0
    TRAP C$REFG
    BCOMPLETE 1$ ;IF EITHER START OR POWER FAIL RESTART
    BCS 1$
    JSR PC,FAKE ;DO A BUS RESET
    SETPRI #PRI00 ;UPDATE PASS COUNT
    MOV #PRI00,R0 ;PRIORITY ZERO
    TRAP C$SPRI
    LET OUTBUF :B= #14
    MOVB #14,OUTBUF
    OUTPUT #OUTBUF,#1
    DECR WORK1 FROM #6 TO #1 BY #1
    MOV #6,WORK1
    BR 50050$
50051$: DEC WORK1
50050$: CMP WORK1,#1
    BLT 50052$
    DELAY 250
    MOV #250,(PC)+
    .WORD 0
    MOV L$DLY,(PC)+
    .WORD 0
    DEC -6(PC)
    BNE .-4
    DEC -22(PC)
    BNE .-20
    ENDDEC
    BR 50051$
50052$: EXIT INIT ; ELSE EXIT INIT CODE
    TRAP C$EXIT
    .WORD L10004-.
:
:POWER UP RESTART OR START COMMAND ISSUED
:
    
```

CZLPLDO LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 21-1
INITIALIZATION SECTION

```

1507 006140          1507 006140          104433          1$: BRESET          ;RESET THE BUS
      006140          104433          TRAP CSRESET
1508 006142          1508 006142          023727 002012 000020 IF L$UNIT GT #16. THEN
      006142          023727 002012 000020 CMP L$UNIT,#16.
      006150          003420          BLE 50053$
1509 006152          1509 006152          012746 007156 PRINTF #NRGT16
      006152          012746 007156 MOV #NRGT16,-(SP)
      006156          012746 000001 MOV #1,-(SP)
      006162          010600          MOV SP,R0
      006164          104417          TRAP C$PNTF
      006166          062706 000004 ADD #4,SP
1510 006172          1510 006172          012746 007241 PRINTF #NRGT17
      006172          012746 007241 MOV #NRGT17,-(SP)
      006176          012746 000001 MOV #1,-(SP)
      006202          010600          MOV SP,R0
      006204          104417          TRAP C$PNTF
      006206          062706 000004 ADD #4,SP
1511 006212          1511 006212          50053$: ENDIF
      006212          50053$: MANUAL          ; CHECK FOR UNATTENDED MODE
1512 006212          1512 006212          104450          TRAP C$MANI
1513 006214          1513 006214          103034          BNCOMPLETE 2$          ; IF UNATTENDED BYPASS MANUAL INSTRUCTIONS
      006214          103034          BCC 2$
1514 006216          1514 006216          PRINTF #RESET1
1515 006216          1515 006216          012746 007374 MOV #RESET1,-(SP)
      006222          012746 000001 MOV #1,-(SP)
      006226          010600          MOV SP,R0
      006230          104417          TRAP C$PNTF
      006232          062706 000004 ADD #4,SP
1516 006236          1516 006236          012746 007467 PRINTF #RESET2
      006236          012746 007467 MOV #RESET2,-(SP)
      006242          012746 000001 MOV #1,-(SP)
      006246          010600          MOV SP,R0
      006250          104417          TRAP C$PNTF
      006252          062706 000004 ADD #4,SP
1517 006254          1517 006254          ;WAIT FOR A 'CR' BEFORE GOING ON
1518 006254          1518 006254          ;
1519 006254          1519 006254          ;
1520 006256          1520 006256          005037 002274 LET FLAG := #0
      006256          005037 002274 CLR FLAG
1521 006262          1521 006262          005037 002336 LET ERRCOD := #0
      006262          005037 002336 CLR ERRCOD
1522 006266          1522 006266          005037 002342 LET UUT := #0
      006266          005037 002342 CLR UUT
1523 006272          1523 006272          100$: GMANIL READY,FLAG,100000,YES
1524 006272          1524 006272          104443          TRAP C$GMAN
      006274          000404          BR 10000$
      006276          002274          .WORD FLAG
      006300          000130          .WORD T$CODE
      006302          007603          .WORD READY
      006304          100000          .WORD 100000
      006306          100000$:
1525 006306          1525 006306          ;REQUEST P-TABLE FOR PRINTERS UNDER TEST
1526 006306          1526 006306          ;
1527 006306          1527 006306          ;

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 21-2
INITIALIZATION SECTION

1528	006306			2\$:	LET R1 := L\$UNIT - #1	;MAXIMUM NUMBER OF UNITS
	006306	013701	002012		MOV L\$UNIT,R1	
	006312	005301			DEC R1	
1529	006314				INCR L\$LUN FROM #0 TO R1 BY #1	
	006314	005037	002074		CLR L\$LUN	
	006320	000402			BR 50054\$	
	006322			50055\$:	INC L\$LUN	
	006322	005237	002074	50054\$:	CMP L\$LUN,R1	
	006326				BGT 50056\$	
	006326	023701	002074		GPHARD L\$LUN,R3	;REQUEST P-TABLE ADDRESS
	006332	003135			MOV L\$LUN,R0	
1530	006334				TRAP C\$GPHRD	
	006334	013700	002074		MOV R0,R3	
	006340	104442			BNCOMPLETE 3\$;BRANCH IF DEVICE NOT PRESENT
	006342	010003			BCC 3\$	
1531	006344				LET R2 := L\$LUN SHIFT 1	
	006344	103124			MOV L\$LUN,R2	
1532	006346				ASL R2	
	006346	013702	002074			
	006352	006302				
1533				:		
1534				:	CLEAR ERROR COUNT, OUTPUT COUNT, GET DEVICE TYPE TO STATUS.	
1535				:		
1536	006354			:	IF 4(R3) EQ #0 THEN	
	006354	005763	000004		TST 4(R3)	
	006360	001004			BNE 50057\$	
1537	006362				LET STATUS(R2) := STATUS(R2) CLR.BY #FLAG26!FLAG07	
	006362	042762	003000 002512		BIC #FLAG26!FLAG07,STATUS(R2)	
1538	006370				ELSE	
	006370	000421			BR 50060\$	
	006372			50057\$:		
1539	006372				IF 4(R3) EQ #1 THEN	
	006372	026327	000004 000001		CMP 4(R3),#1	
	006400	001007			BNE 50061\$	
1540	006402				LET STATUS(R2) := STATUS(R2) SET.BY #FLAG26	
	006402	052762	001000 002512		BIS #FLAG26,STATUS(R2)	
1541	006410				LET STATUS(R2) := STATUS(R2) CLR.BY #FLAG07	
	006410	042762	002000 002512		BIC #FLAG07,STATUS(R2)	
1542	006416				ELSE	
	006416	000406			BR 50062\$	
	006420			50061\$:		
1543	006420				LET STATUS(R2) := STATUS(R2) CLR.BY #FLAG26	
	006420	042762	001000 002512		BIC #FLAG26,STATUS(R2)	
1544	006426				LET STATUS(R2) := STATUS(R2) SET.BY #FLAG07	
	006426	052762	002000 002512		BIS #FLAG07,STATUS(R2)	
1545	006434				ENDIF	
	006434			50062\$:		
1546	006434				ENDIF	
	006434			50060\$:		
1547				:		
1548				:	NOW GET THE BAND TYPE 64 OR 96 CHARACTER	
1549				:		
1550	006434			:	IF 6(R3) EQ #0 THEN	
	006434	005763	000006		TST 6(R3)	
	006440	001004			BNE 50063\$	
1551	006442				LET STATUS(R2) := STATUS(R2) CLR.BY #FLAG96	
	006442	042762	010000 002512		BIC #FLAG96,STATUS(R2)	

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 21-3
INITIALIZATION SECTION

```

1552 006450          ELSE
      006450 000403          BR      50064$
      006452          50063$:
1553 006452          LET STATUS(R2) := STATUS(R2) SET.BY #FLAG96
      006452 052762 010000 002512  BIS      #FLAG96,STATUS(R2)
1554 006460          ENDIF
      006460          50064$:
1555 006460          LET ERR TBL(R2) := #0
      006460 005062 003114  CLR      ERR TBL(R2)
1556 006464          LET CURCNT(R2) := #-1
      006464 012762 177777 002752  MOV      #-1,CURCNT(R2)
1557 006472          LET DELCNT(R2) := #0
      006472 005062 003052  CLR      DELCNT(R2)
1558 006476          LET REPCNT(R2) := #0
      006476 005062 002652  CLR      REPCNT(R2)
1559
1560          :;LOAD CSR ADDRESS INTO TABLE
1561          :
1562 006502          LET LPCSR(R2) := (R3)+          ;SET UP CSR ADDRESS FOR DEVICE
      006502 012362 002356  MOV      (R3)+,LPCSR(R2)
1563 006506          LET LPBUF(R2) := LPCSR(R2) + #2
      006506 016262 002356 002452  MOV      LPCSR(R2),LPBUF(R2)
      006514 062762 000002 002452  ADD      #2,LPBUF(R2)
1564
1565          :;SET UP VECTOR ADDRESS INTO GIVEN TABLE
1566          :
1567 006522          LET LPVEC(R2) := (R3)+
      006522 012362 002416  MOV      (R3)+,LPVEC(R2)
1568
1569          :;SET UP DEVICE INTERRUPT VECTOR INFORMATION
1570          :
1571 006526          LET WORK := R2 SHIFT 3
      006526 010237 003154  MOV      R2,WORK
      006532 006337 003154  ASL      WORK
      006536 006337 003154  ASL      WORK
      006542 006337 003154  ASL      WORK
1572 006546          LET WORK := WORK + #INT00
      006546 062737 036220 003154  ADD      #INT00,WORK
1573 006554          LET LPINTR(R2) := WORK
      006554 013762 003154 003012  MOV      WORK,LPINTR(R2)
1574 006562          SETVEC LPVEC(R2), LPINTR(R2), #PRI04
      006562 012746 000200  MOV      #PRI04,-(SP)
      006566 016246 003012  MOV      LPINTR(R2),-(SP)
      006572 016246 002416  MOV      LPVEC(R2),-(SP)
      006576 012746 000003  MOV      #3,-(SP)
      006602 104437          TRAP      C$SVEC
      006604 062706 000010  ADD      #10,SP
1575
1576          :; ADD ONE TO UNIT UNDER TEST COUNT
1577          :
1578 006610          LET UUT := UUT + #1
      006610 005237 002342  INC      UUT
1579 006614          BR      4$
1580
1581          :;INDICATE L$LUN NOT AVAILABLE FOR TESTING
1582          :
1583 006616          3$:          LET STATUS(R2) := STATUS(R2) SET.BY #DROPE

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 21-4
INITIALIZATION SECTION

```

1584 006616 052762 040000 002512 4$: BIS #DROPE,STATUS(R2) ;GO BACK AND DO IT AGAIN
      006624 000636 50055$: ENDINC
      006624 50056$: BR 50055$
      006626
1585 .....
1586 : SETUP TO HANDLE CLOCK INTERRUPTS
1587 : IF AN L-CLOCK IS ON THE SYSTEM THEN SETUP A NOOP INTERRUPT
1588 : HANDLER BECAUSE LSI SYSTEMS MAY HAVE THE CLOCK ENABLD AT ALL TIMES.
1589 006626 LET CLKTYP := #1 ; DEFAULT FOR NO CLOCK ON SYSTEM
      006626 012737 000001 002322 MOV #1,CLKTYP
1590 006634 CLOCK L,R4 ; TEST FOR L-CLOCK
      006634 012700 000114 MOV #L,R0
      006640 104462 TRAP C$CLCK
      006642 010004 MOV R0,R4
1591 006644 IFCOND CS THEN ; WE HAVE AN L-CLOCK
      006644 103031 BCC 50065$
1592 006646 LET CLKTYP := #2
      006646 012737 000002 002322 MOV #2,CLKTYP
1593 006654 LET CLOCKP := R4
      006654 010437 002324 MOV R4,CLOCKP
1594 006660 LET CLKCSR := @CLOCKP
      006660 017737 173440 002326 MOV @CLOCKP,CLKCSR
1595 006666 LET @CLKCSR := #00 ; TRY TO DISABLE INTERRUPTS
      006666 012777 000000 173432 MOV #00,@CLKCSR
1596 ; SETUP THE NOOP HANDLER
1597 006674 LET CLKVEC := 4(R4)
      006674 016437 000004 002332 MOV 4(R4),CLKVEC
1598 006702 SETVEC CLKVEC,#IGNORE,#PRI06
      006702 012746 000300 MOV #PRI06,-(SP)
      006706 012746 010000 MOV #IGNORE,-(SP)
      006712 013746 002332 MOV CLKVEC,-(SP)
      006716 012746 000003 MOV #3,-(SP)
      006722 104437 TRAP C$SVEC
      006724 062706 000010 ADD #10,SP
1599 006730 ENDIF
      006730
50065$:
1600 ; IF THE OPERATOR WANTS MANUAL SPEED TEST SET CLOCK TYPE = 4
1601 006730 TST MANSPP
1602 006734 BEQ CK1
1603 006736 LET CLKTYP := #4
      006736 012737 000004 002322 MOV #4,CLKTYP
1604 006744 SETPRI #PRI00 ; START TEST AT PRI 0
      006744 012700 000000 MOV #PRI00,R0
      006750 104441 TRAP C$SPRI
1605 006752 EXIT INIT
      006752 104432 TRAP C$EXIT
      006754 001022 .WORD L10004-
1606 ; IF A P-CLOCK IS ON THE SYSTEM UPGRADE CLOCK TYPE TO 3
1607 CK1: CLOCK P,R4
      006756 012700 000120 MOV #P,R0
      006762 104462 TRAP C$CLCK
      006764 010004 MOV R0,R4
1608 006766 IFCOND CS THEN ; WE HAVE A P-CLOCK
      006766 103016 BCC 50066$
1609 006770 LET CLKTYP := #3
      006770 012737 000003 002322 MOV #3,CLKTYP
1610 006776 LET CLOCKP := R4

```


CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 21-6
INITIALIZATION SECTION

```

1643
1644
1645
1646
1647
1648 010000
1649 010000 000002
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661 010002
      010002 010346
      010004 010446
1662 010006
      010006 005004
1663 010010
      010010 013703 002012
1664 010014
      010014
      010014 005703
      010016 003417
1665 010020
      010020 012746 000200
      010024 016446 003012
      010030 016446 002416
      010034 012746 000003
      010040 104437
      010042 062706 000010
1666 010046
      010046 062704 000002
1667 010052
      010052 005303
1668 010054
      010054 000757
      010056
1669 010056
      010056 012604
      010060 012603
1670 010062 000207
1671

```

```

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

```

```

IGNORE: ; NOOP
RTI

```

```

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

```

```

RESVEC:: PUSH R3,R4
          MOV R3,-(SP)
          MOV R4,-(SP)
          LET R4 := #0
          CLR R4
          MOV LET R3 := L$UNIT
          MOV L$UNIT,R3
          WHILE R3 GT #0 DO
50070$:  TST R3
          BLE 50071$
          SETVEC LPVEC(R4), LPINTR(R4), #PRI04
          MOV #PRI04,-(SP)
          MOV LPINTR(R4),-(SP)
          MOV LPVEC(R4),-(SP)
          MOV #3,-(SP)
          TRAP C$SVEC
          ADD #10,SP
          LET R4 := R4 + #2
          ADD #2,R4
          LET R3 := R3 - #1
          DEC R3
          ENDDO
          BR 50070$
50071$:  POP R4,R3
          MOV (SP)+,R4
          MOV (SP)+,R3
          RTS PC

```


CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 22
CLEANUP CODING SECTION

```

1673
1674 010064
1675
1676
1677
1678
1679
1680
1681
1682
1683
1684 010064
1685 010064
      010064
1686 010064 012700 000340
      010064 104441
      C10070
1687 010072
      010072 104433
1688
1689 010074
      010074 013701 002012
      010100 005301
1690 010102
      010102 005037 002074
      010106 000402
      010110
      010110 005237 002074
      010114
      010114 023701 002074
      010120 003020
1691
1692
1693 010122
      010122 013702 002074
      010126 006302
1694
1695 010130
      C10130 042762 160377 002512
1696 010136
      010136 012762 177777 002752
1697 010144
      010144 005062 003114
1698 010150
      010150 005062 003052
1699 010154
      010154 005062 002652
1700 010160
      010160 000753
      010162
1701 010162 004737 010002
1702 010166
      010166 023727 002322 000003
      010174 001006
1703 010176

```

```

.SBTTL CLEANUP CODING SECTION
STARS
:*****
:++
:THE PURPOSE OF THE CLEANUP SECTION IS TO CLEANUP ALL PRINTERS UNDER TEST
:AND RETEST ANY UNITS WHICH HAVE BEEN DROPPED FROM TESTING TO INSURE THAT
:THEY HAVE NOT COME BACK ON LINE. IF THE DEVICE HAS COME BACK ON LINE
:TESTING WILL BE RESTARTED ON THE DEVICE. THIS INSURES THAT
:IN THE EVENT A PAPER OUT OCCURRED AND THE OPERATOR HAS PUT ADDITIONAL PAPER
:INTO THE UNIT UNDER TEST, THE INITIALIZATION SEQUENCE DOES NOT
:HAVE TO BE DONE AGAIN IN ORDER TO GET THE DEVICE ACTIVE.
:--
STARS
:*****
BGNCLN
L$CLEAN::
      SETPRI #PRI07
      MOV #PRI07,R0
      TRAP C$SPRI
      BRESET
      TRAP C$RESET

CLEAN: LET R1 := L$UNIT - #1 ;NUMBER OF UNITS-1
      MOV L$UNIT,R1
      DEC R1
      INCR L$LUN FROM #0 TO R1 BY #1
      CLR L$LUN
      BR 50072$

50073$:
      INC L$LUN

50072$:
      CMP L$LUN,R1
      BGT 50074$
      ; DISABLE ALL INTERRUPTS, SELECT ALL LINES
      ; ZERO ALL ERROR COUNTS
      LET R2 := L$LUN SHIFT 1
      MOV L$LUN,R2
      ASL R2
      ; CLEAR ALL BITS IN STATUS EXCEPT DEVICE TYPE
      LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR!DROPE!ACTIVE!LOBYTE
      BIC #ERROR!DROPE!ACTIVE!LOBYTE,STATUS(R2)
      LET CURCNT(R2) := #-1
      MOV #-1,CURCNT(R2)
      LET ERRIBL(R2) := #0
      CLR ERRIBL(R2)
      LET DELCNT(R2) := #0
      CLR DELCNT(R2)
      LET REPCNT(R2) := #0
      CLR REPCNT(R2)
      ENDINC
      BR 50073$

50074$:
      JSR PC,RESVEC ; RESET THE VECTORS
      IF CLKTYP EQ #3 THEN
      CMP CLKTYP,#3
      BNE 50075$
      CLRVEC @CLKVEC

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 22-1
CLEANUP CODING SECTION

1704	010176	017700	172130		MOV @CLKVEC,R0
	010202	104436			TRAP C\$CVEC
	010204				LET @CLKCSR := #00
1705	010204	012777	000000	172114	MOV #00,@CLKCSR
	010212				ENDIF
1706	010212				50075\$: IF CLKTYP EQ #2 THEN
	010212	023727	002322	000002	CMP CLKTYP,#2
	010220	001013			BNE 50076\$
1707	010222				SETVEC CLKVEC,#IGNORE,#PRI06
	010222	012746	000300		MOV #PRI06,-(SP)
	010226	012746	010000		MOV #IGNORE,-(SP)
	010232	013746	002332		MOV CLKVEC,-(SP)
	010236	012746	000003		MOV #3,-(SP)
	010242	104437			TRAP C\$\$SVEC
	010244	062706	000010		ADD #10,SP
1708	010250				ENDIF
	010250				50076\$:
1709	010250				SETPRI #PRI00
	010250	012700	000000		MOV #PRI00,R0
	010254	104441			TRAP C\$SPRI
1710	010256				ENDCLN
	010256				L10005:
	010256	104412			TRAP C\$CLEAN
1711					
1712	010260				ENDMOD

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 23
INTERFACE LOGIC

```

1714      .SBTTL  INTERFACE LOGIC
1715
1716 010260  BGNMOD
1717      :++
1718      :THIS TEST VERIFIES THE OPERATION OF THE INTERFACE LOGIC. TESTS ARE
1719      :PERFORMED FOR PRINTER ERROR, PRINTER READY, AND CLEARING PRINTER READY
1720      :BY LOADING A CHARACTER INTO THE OUTPUT BUFFER. ALSO IT IS VERIFIED
1721      :THAT THE PRINTER WILL NOT INTERRUPT IF IT IS AT THE SAME PRIORITY LEVEL
1722      :AS THE PROCESSOR, BUT WILL INTERRUPT IF THE PROCESSOR IS AT A LOWER
1723      :PRIORITY LEVEL. THE PRINTER IS AT PRIORITY LEVEL 4.
1724      :
1725      :
1726      :--
1727 010260  BGNST 1
          010260  T1::
1728 010260  LET R1 := L$UNIT - #1          ;MAX NUMBER OF UNITS ON SYSTEM
          010260 013701 002012      MOV     L$UNIT,R1
          010264 005301              DEC     R1
1729
1730      :HARD CODED INCREMEMNT LOOP
1731      :INCR LUNIT FROM #0 TO R1 BY #1          ;START LOOP
1732      :
1733 010266 005037 002514      CLR     LUNIT          ;UNIT TO 0
1734 010272 000402              BR      T1C            ;DO COMPARE
1735 010274
1736 010274 005237 002314      T1A:   INC     LUNIT          ;UPDATE UNIT NUMBER
1737 010300
1738 010300 023701 002314      T1C:   CMP     LUNIT,R1      ;DO COMPARISON OF UNIT NUMBER
1739 010304 003402              BLE     1$             ;ONTO NEXT UNIT
1740 010306 000137 011052      JMP     T1B            ;EXIT LOOP
1741 010312
1742 010312
          010312 013702 002314      1$:    LET R2 := LUNIT SHIFT 1
          010316 006302              MOV     LUNIT,R2
1743 010320
          010320 032772 100000 002356      IF #BIT15 SETIN @LPCSR(R2) THEN
          010326 001416              BIT     #BIT15,@LPCSR(R2)
1744 010330
          010330 052762 100000 002512      BEQ     50077$
          010336 005262 003114      LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
1745 010336
          010342 013737 002314 002074      BIS     #ERROR,STATUS(R2)
          010350 104456              LET ERRTBL(R2) := ERRTBL(R2) + #1
          010352 000001              INC     ERRTBL(R2)
          010354 003406              LET L$LUN := LUNIT
          010356 000000              MOV     LUNIT,L$LUN
1746 010342
          010350 013737 002314 002074      ERRHRD 1,CSRERR          ;ERROR BIT WAS SET. SAY SO
          010352 000001              TRAP   C$ERRHRD
          010354 003406              .WORD 1
          010356 000000              .WORD CSRERR
1747 010350
          010352 000001              .WORD 0
          010354 003406              LET @LPCSR(R2) := #0
          010356 000000              CLR    @LPCSR(R2)
1748 010360
          010360 005072 002356      ENDIF
1749 010364
          010364
1750
          50077$:
1751      :TIME DELAY
          : IF NOT READY ALLOW 3 SECONDS TO COME UP
1752 010364
          010364 032772 000200 002356      IF #BIT7 NOTSETIN @LPCSR(R2) THEN
          010372 001027              BIT     #BIT7,@LPCSR(R2)
          BNE     50100$

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 23-1
INTERFACE LOGIC

```

1753 010374          DEC WORK1 FROM #12. TO #1 BY #1
      010374 012737 000014 003156      MOV #12, WORK1
      010402 000402          BR 50101$
      010404          50102$: DEC WORK1
      010410          50101$: CMP WORK1, #1
      010410 023727 003156 000001      BLT 50103$
      010416 002415          DELAY 250
1754 010420          MOV #250, (PC)+
      010420 012727 000250          .WORD 0
      010424 000000          MOV L$DLY, (PC)+
      010426 013727 002116          .WORD 0
      010432 000000          DEC -6(PC)
      010434 005367 177772          BNE -4
      010440 001375          DEC -22(PC)
      010442 005367 177756          BNE -20
      010446 001367          ENDDC
1755 010450          BR 50102$
      C10450 000755          50103$:
      010452          ENDIF
1756 010452          50100$:
      010452          :
1757          : NOW TEST FOR PRINTER READY
1758          :
1759          :
1760 010452          IF #BIT07 NOTSETIN @LPCSR(R2) THEN ;TEST FOR THE READY BIT
      010452 032772 000200 002356      BIT #BIT07, @LPCSR(R2)
      010460 001014          BNE 50104$
1761 010462          LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
      010462 052762 100000 002512      BIS #ERROR, STATUS(R2)
1762 010470          LET L$LUN := LUNIT
      010470 013737 002314 002074      MOV LUNIT, L$LUN
1763 010476          LET ERRTBL(R2) := ERRTBL(R2) + #1
      010476 005262 003114          INC ERRTBL(R2)
1764 010502          ERRHRD 2, RDYERR ;REPORT AN ERROR
      010502 104456          TRAP C$ERRHRD
      010504 000002          .WORD 2
      010506 003424          .WORD RDYERR
      010510 000000          .WORD 0
1765 010512          ENDDC
      010512          50104$:
1766          :
1767          : INSURE LOADING CHARACTER CAUSES PRINTER READY TO GO AWAY
1768          :
1769 010512          LET @LPBUF(R2) := #12
      010512 012772 000012 002452      MOV #12, @LPBUF(R2)
1770 010520          IF #BIT07 SETIN @LPCSR(R2) THEN
      010520 032772 000200 002356      BIT #BIT07, @LPCSR(R2)
      010526 001416          BEQ 50105$
1771 010530          LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
      010530 052762 100000 002512      BIS #ERROR, STATUS(R2)
1772 010536          LET ERRTBL(R2) := ERRTBL(R2) + #1
      010536 005262 003114          INC ERRTBL(R2)
1773 010542          LET L$LUN := LUNIT
      010542 013737 002314 002074      MOV LUNIT, L$LUN
1774 010550          ERRHRD 3, ERR11 ;REPORT AN ERROR
      010550 104456          TRAP C$ERRHRD

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 23-2
INTERFACE LOGIC

010552	000003				.WORD	3	
010554	011332				.WORD	ERR11	
010556	000000				.WORD	0	
1775	010560				LET @LPCSR(R2) := #0		
	010560	005072	002356		CLR @LPCSR(R2)		
1776	010564				ENDIF		
	010564				50105\$:		
1777					:		
1778					:VERIFY THAT THE PRINTER WILL NOT INTERRUPT IF IT IS AT A PRIORITY LEVEL		
1779					:THE SAME AS THE CPU		
1780					:		
1781	010564				SETPRI #PRI04		:CPU TO PRIORITY 4
	010564	012700	000200		MOV #PRI04,R0		
	010570	104441			TRAP C\$SPRI		
1782	010572				SETVEC LPVEC(R2),#INTERR,#PRI04		:LP VECTOR SET UP
	010572	012746	000200		MOV #PRI04,-(SP)		
	010576	012746	011214		MOV #INTERR,-(SP)		
	010602	016246	002416		MOV LPVEC(R2),-(SP)		
	010606	012746	000003		MOV #3,-(SP)		
	010612	104437			TRAP C\$SVEC		
	010614	062706	000010		ADD #10,SP		
1783	010620				LET @LPCSR(R2) := @LPCSR(R2) SET.BY #100		: INTERRUPT ENABLE
	010620	052772	000100	002356	BIS #100,@LPCSR(R2)		
1784	010626				DECR WORK1 FROM #12 TO #1 BY #1		
	010626	012737	000012	003156	MOV #12,WORK1		
	010634	000402			BR 50106\$		
	010636				50107\$:		
	010636	005337	003156		DEC WORK1		
	010642				50106\$:		
	010642	023727	003156	000001	CMP WORK1,#1		
	010650	002415			BLT 50110\$		
1785	010652				DELAY 250.		: ALLOW 3 SEC FOR DELAY
	010652	012727	000372		MOV #250.,(PC)+		
	010656	000000			.WORD 0		
	010660	013727	002116		MOV L\$DLY,(PC)+		
	010664	000000			.WORD 0		
	010666	005367	177772		DEC -6(PC)		
	010672	001375			BNE -.4		
	010674	005367	177756		DEC -22(PC)		
	010700	001367			BNE -.20		
1786	010702				ENDDEC		
	010702	000755			BR 50107\$		
	010704				50110\$:		
1787					:		
1788					:NOW TEST THAT THE PRINTER WILL INTERRUPT IF THE CPU PRIORITY IS LOWER THAN		
1789					:THE PRINTER PRIORITY		
1790					:		
1791	010704				LET @LPCSR(R2) := @LPCSR(R2) CLR.BY #100		: CLEAR INTERRUPT ENABLE
	010704	042772	000100	002356	BIC #100,@LPCSR(R2)		
1792	010712				SETPRI #PRI03		:CPU TO PRIORITY 3
	010712	012700	000140		MOV #PRI03,R0		
	010716	104441			TRAP C\$SPRI		
1793	010720				SETVEC LPVEC(R2),#INTHDL,#PRI04		
	010720	012746	000200		MOV #PRI04,-(SP)		
	010724	012746	011244		MOV #INTHDL,-(SP)		
	010730	016246	002416		MOV LPVEC(R2),-(SP)		
	010734	012746	000003		MOV #3,-(SP)		

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 23-3
INTERFACE LOGIC

```

010740 104437
010742 062706 000010
1794 010746 052772 000100 002356
010746 052772 000100 002356
1795 010754 012727 000030
010754 012727 000030
010760 000000
010762 013727 002116
010766 000000
010770 005367 177772
010774 001375
010776 005367 177756
011002 001367
1796 011004
011004 005262 003114
1797 011010
011010 013737 002314 002074
1798 011016
011016 104456
011020 000004
011022 011471
011024 000000
1799 011026
011026 012772 000000 002356
1800 011034
011034 042762 160000 002512
1801 011042
011042 005062 003052
1802
1803
1804
1805
1806 011046 000137 010274
1807 011052 004737 010002
1808 011056
011056 012700 000000
011062 104441
1809 011064
1810 011126
011126 112737 000014 003160
1811 011134
1812 011176
011176
011176 032772 000200 002356
011204 001001
1813 011206
011206 000773
011210
1814 011210
011210 104432
011212 000334
1815
1816
1817
1818
1819
1820 011214

TRAP C$SVEC
ADD #10,SP
LET @LPCSR(R2) := @LPCSR(R2) SET.BY #100 ; INTERRUPT ENABLE
BIS #100,@LPCSR(R2)
DELAY 30 ; ALLOW 3 SEC DELAY
MOV #30,(PC)+
.WORD 0
MOV L$DLY,(PC)+
.WORD 0
DEC -6(PC)
BNE -4
DEC -22(PC)
BNE -20
LET ERRTBL(R2) := ERRTBL(R2) + #1
INC ERRTBL(R2)
LET L$LUN := LUNIT
MOV LUNIT,L$LUN
ERRHRD 4,ERR13
TRAP C$ERHRD
.WORD 4
.WORD ERR13
.WORD 0
END2: LET @LPCSR(R2) := #00 ; CLEAR THE LPCSR
MOV #00,@LPCSR(R2)
LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR!DROPE!ACTIVE
BIC #ERROR!DROPE!ACTIVE,STATUS(R2)
LET DELCNT(R2) := #0
CLR DELCNT(R2)
;
;END OF HARD CODED INCREMENT LOOP
;ENDINC
;
T1B: JMP T1A ; UPDATE UNIT #
JSR PC,RESVEC ; RESET STANDARD VECTORS
SETPRI #PRI00
MOV #PRI00,R0
TRAP C$SPRI
OUTPUT #INTFAC,#47.
LET OUTBUF :B= #14
MOVB #14,OUTBUF
OUTPUT #OUTBUF,#1
WHILE #BIT7 NOTSETIN @LPCSR(R2) DO ; WAIT FOR READY
50111$: BIT #BIT7,@LPCSR(R2)
BNE 50112$
ENDDO
BR 50111$
50112$:
EXIT TST ; EXIT THE TEST
TRAP C$EXIT
.WORD L10006-.
;
; INTERRUPT HANDLER TO SERVICE FAULTY INTERRUPT FROM LP INTERFACE.
; THIS ROUTINE IS ENTERED ONLY WHEN THE LP INTERRUPTS AT THE SAME LEVEL AS
; THE CPU AND IS CONSIDERED AN ERROR.
;
BGNSRV

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 23-4
INTERFACE LOGIC

```

1821 011214          INTERR: LET ERRTBL(R2) := ERRTBL(R2) + #1
      011214 005262 003114          INC ERRTBL(R2)
1822 011220          LET L$LUN := LUNIT
      011220 013737 002314 002074  MOV LUNIT,L$LUN
1823 011226          ERRHRD 5,ERR12
      011226 104456          TRAP C$ERRHRD
      011230 000005          .WORD 5
      011232 011406          .WORD ERR12
      011234 000000          .WORD 0
1824 011236          LET (SP) := #END2
      011236 012716 011026          MOV #END2,(SP)
1825 011242          ENDSRV
      011242          L10007:
      011242 000002          RTI
1826
1827          ; INTERRUPT HANDLER FOR EXPECTED INTERRUPT
1828          ;
1829 011244          BGNSRV
1830          ;
1831 011244          INTHDL: LET (SP) := #END2
      011244 012716 011026          MOV #END2,(SP)
1832 011250          ENDSRV
      011250          L10010:
      011250 000002          RTI
1833
1834          ;
1835 011252          .NLIST BEX
      111          116          124  INTFAC: .ASCIZ /INTERFACE LOGIC TEST 1 ---- TEST COMPLETE/<12><12>
1836          ;
1837          ; ERROR MESSAGES ASSOCIATED WITH THIS TEST
1838          ;
1839 011332          114          117          101  ERR11: .ASCIZ /LOADING PRINTER BUFFER DOES NOT CLEAR READY/
1840 011406          120          122          111  ERR12: .ASCIZ /PRINTER INTERRUPTED AT SAME LEVEL AS THE PROCESSOR/
1841 011471          120          122          111  ERR13: .ASCIZ /PRINTER DID NOT INTERRUPT AT CPU PRIORITY 3/
1842          .EVEN
1843 011546          ENDTST
      011546          L10006:
      011546 104401          TRAP C$ETST
1844          .LIST BEX
1845 011550          ENDMOD
1846

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 24
 READY LINE INTERLOCKS TEST 2

```

1848          .SBTTL  READY LINE INTERLOCKS  TEST 2
1849
1850 011550    BGNMOD
1851          :++
1852          :THIS TEST CHECKS THE OPERATION OF THE
1853          :PRINTER READY INTERLOCK SWITCHES.
1854          :MANUAL INTERVENTION IS USED TO
1855          :OPEN THE INTERLOCKS TO PRODUCE FAULTS
1856          :IN THE PRINTER AFTER WHICH THE RESULTANT ERROR
1857          :INDICATION IS VERIFIED.
1858          :--
1859
1860 011550    BGNTST 2
1861          T2::
1862          :DETERMINE IF MANUAL INTERVENTION IS ALLOWED
1862 011550    MANUAL
1862 011550 104450 TRAP  C$MANI
1863 011552    BCOMPLETE 11$
1863 C11552 103402 BCS  11$
1864 011554    EXIT TST
1864 011554 104432 TRAP  C$EXIT
1864 011556 002762 .WORD  L10011-.
1865          :EXIT TEST IF MANUAL INTERVENTION TESTS ARE NOT SPECIFIED
1866 011560    11$: IF INHINT EQ #0 THEN
1866 011560 005737 002262 TST  INHINT
1866 011564 001002 BNE  50113$
1867 011566    EXIT TST
1867 011566 104432 TRAP  C$EXIT
1867 011570 002750 .WORD  L10011-.
1868
1869 011572    ENDIF
1869 011572    50113$:
1870 011572    LET FLAG := #0
1870 011572 005037 002274 CLR  FLAG
1871 011576    LET R1 := L$UNIT - #1
1871 011576 013701 002012 MOV  L$UNIT,R1
1871 011602 005301 DEC  R1
1872
1873          :CHECK FOR ERROR IN EACH PRINTER UNDER TEST
1874 011604    INCR LUNIT FROM #0 TO R1 BY #1
1874 C11604 005037 002314 CLR  LUNIT
1874 011610 000402 BR   50114$
1874 011612    50115$:
1874 011612 005237 002314 INC  LUNIT
1874 011616    50114$:
1874 011616 023701 002314 CMP  LUNIT,R1
1874 011622 003020 BGT  50116$
1875 011624    LET R2 := LUNIT SHIFT 1
1875 011624 013702 002314 MOV  LUNIT,R2
1875 011630 006302 ASL  R2
1876 011632    IF #BIT15 SET IN @LPCSR(R2) THEN
1876 011632 032772 100000 002356 BIT  #BIT15,@LPCSR(R2)
1876 011640 001410 BEQ  50117$
1877 011642    LET ERRTBL(R2) := ERRTBL(R2) + #1
1877 011642 005262 003114 INC  ERRTBL(R2)
1878 011646    ERRHRD 6, CSRERR
1878 011646 104456 TRAP  C$ERRHRD

```


CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 24-1
 READY LINE INTERLOCKS TEST 2

	011650	000006			.WORD	6
	011652	003406			.WORD	CSRERR
	011654	000000			.WORD	0
1879	011656					LET @LPCSR(R2) := #0
	011656	005072	002356		CLR	@LPCSR(R2)
1880	011662				ENDIF	
	011662			50117\$:		
1881	011662				ENDINC	
	011662	000753			BR	50115\$
	011664			50116\$:		
1882					:CHECK FOR READY IN EACH PRINTER UNDER TEST	
1883	011664				INCR LUNIT FROM #0 TO R1 BY #1	
	011664	005037	002314		CLR	LUNIT
	011670	000402			BR	50120\$
	011672			50121\$:		
	011672	005237	002314		INC	LUNIT
	011676			50120\$:		
	011676	023701	002314		CMP	LUNIT,R1
	C11702	003021			BGT	50122\$
1884	011704				LET R2 := LUNIT SHIFT 1	
	011704	013702	002314		MOV	LUNIT,R2
	011710	006302			ASL	R2
1885	011712				LET L\$LUN := LUNIT	
	011712	013737	002314	002074	MOV	LUNIT,L\$LUN
1886	011720				IF #BIT07 NOTSET IN @LPCSR(R2) THEN	
	011720	032772	000200	002356	BIT	#BIT07,@LPCSR(R2)
	011726	001006			BNE	50123\$
1887	011730				LET ERRABL(R2) := ERRABL(R2) + #1	
	011730	005262	003114		INC	ERRABL(R2)
1888	011734				ERRHRD 7, RDYERR	
	011734	104456			TRAP	C\$ERRHRD
	011736	000007			.WORD	7
	011740	003424			.WORD	RDYERR
	011742	000000			.WORD	0
1889	011744				ENDIF	
	011744			50123\$:		
1890	011744				ENDINC	
	011744	000752			BR	50121\$
	011746			50122\$:		
1891					:	
1892					:	PRINT TEST NAME
1893					:	
1894	011746				:	OUTPUT #INTLK,#29.
1895					:	:VERIFY OPERATION OF PAPER LOW INTERLOCK SWITCH
1896					:	:HARD CODED INCREMENT LOOP
1897					:	
1898	012010				:	
	012010	005037	002340		LET ERRFLG := #0	
	012014	005037	002314		CLR	ERRFLG
1899	012014				CLR	LUNIT
1900	012020	000405			BR	1\$
1901	012022			2\$:		
	012022	005237	002314		INC	LUNIT
1902	012022				LET R2 := LUNIT SHIFT 1	
1903	012026				MOV	LUNIT,R2
	012026	013702	002314		ASL	R2
	012032	006302				
1904	012034			1\$:		
1905	012034	023701	002314		CMP	LUNIT,R1

CZLPLD0 LP25, LP26, LP07 TEST
READY LINE INTERLOCKS TEST 2

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1906	012040	003402	
1907	012042	000137	012402
1908	012046		
1909	012046		
	012046	005037	002274
1910	012052		
	012052	013746	002314
	012056	012746	013416
	012062	012746	000002
	012066	010600	
	012070	104417	
	012072	062706	000006
1911	012076		
	012076	012746	013466
	012102	012746	000001
	012106	010600	
	012110	104417	
	012112	062706	000004
1912	012116		
	012116	104443	
	012120	000404	
	012122	002274	
	012124	000130	
	012126	007603	
	012130	100000	
	012132		
1913	012132		
	012132	012737	000310 002276
1914	012140		
	012140	005037	002340
1915	012144		
	012144		
1916	012144		
1917	012206		
	012206	005337	002276
1918	012212		
	012212	005737	002276
	012216	001403	
	012220	005737	002340
	012224	001747	
	012226		
1919	012226		
	012226	005737	002340
	012232	001011	
1920	012234		
	012234	104456	
	012236	000010	
	012240	003446	
	012242	000000	
1921	012244		
	012244	005262	003114
1922	012250		
	012250	000137	012262
1923	012254		
	012254	000402	
	012256		
1924	012256		

```

BLE 3$
JMP 4$
3$:
LET FLAG := #0
CLR FLAG
PRINTF #PAPRSW,LUNIT
MOV LUNIT,-(SP)
MOV #PAPRSW,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #6,SP
PRINTF #PAPSW1
MOV #PAPSW1,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #4,SP
GMANIL READY, FLAG, 100000, YES
TRAP C$GMAN
BR 10000$
.WORD FLAG
.WORD T$CODE
.WORD READY
.WORD 100000
10000$:
LET LINCNT := #200. ; ALLOW FOR ABOUT 3 PAGES OF PAPER
MOV #200.,LINCNT
LET ERRFLG := #0
CLR ERRFLG
REPEAT
50124$:
OUTPUT #PAPTST,#15.,#5$,LUNIT
LET LINCNT := LINCNT - #1
DEC LINCNT
UNTIL LINCNT EQ #0 OR ERRFLG NE #0
TST LINCNT
BEQ 50125$
TST ERRFLG
BEQ 50124$
50125$:
IF ERRFLG EQ #0 THEN
TST ERRFLG
BNE 50126$
ERRHRD 8,PAPSWI
TRAP C$ERHRD
.WORD 8
.WORD PAPSWI
.WORD 0
LET ERRTBL(R2) := ERRTBL(R2) + #1
INC ERRTBL(R2)
INLINE <JMP 11002$>
JMP 11002$
ELSE
BR 50127$
50126$:
LET ERRFLG := #0
    
```

CZLPLDO LP25, LP26, LP07 TEST
READY LINE INTERLOCKS TEST 2

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1925	012256	005037	002340
	012262		
	012262		
1926	012262		
	012262	013746	002314
	012266	012746	013535
	012272	012746	000002
	012276	010600	
	012300	104417	
	012302	062706	000006
1927	012306		
	012306	005037	002274
1928	012312		
	012312	104443	
	012314	000404	
	012316	002274	
	012320	000130	
	012322	007603	
	012324	100000	
	012326		
1929	012326		
	012326	013702	002314
	012332	006302	
1930	012334		
	012334	005072	002356
1931	012340	000137	012022
1932			
1933			
1934			
1935	012344		
	012344	012737	000001 002340
1936	012352		
	012352	005037	002336
1937	012356		
	012356	042762	120000 002512
1938	012364		
	012364	005062	002752
1939	012370		
	012370	005062	002552
1940	012374		
	012374	005062	002652
1941	012400	000207	
1942			
1943	012402		
	012402	005037	002314
	012406	000402	
	012410		
	012410	005237	002314
	012414		
	012414	023701	002314
	012420	003137	
1944	012422		
	012422	013702	002314
	012426	006302	
1945	012430		
	012430	013737	002314 002074
1946	012436		

```

CLR ERRFLG
ENDIF
50127$:
11002$: PRINTF #PAPRDY,LUNIT
MOV LUNIT,-(SP)
MOV #PAPRDY,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #6,SP
LET FLAG := #0
CLR FLAG
GMANIL READY,FLAG,100000,YES
TRAP C$GMAN
BR 10001$
.WORD FLAG
.WORD T$CODE
.WORD READY
.WORD 100000
10001$:
LET R2 := LUNIT SHIFT 1
MOV LUNIT,R2
ASL R2
LET @LPCSR(R2) := #0 ; RESET THE LP CSR
CLR @LPCSR(R2)
JMP 2$
;EXPECTED ERROR HANDLER.
;JUST SET EXPECTED ERROR INDICATOR.
5$:
LET ERRFLG := #1
MOV #1,ERRFLG
LET ERRCOD := #0
CLR ERRCOD
LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR!ACTIVE
BIC #ERROR!ACTIVE,STATUS(R2)
LET CURCNT(R2) := #0 ; CLEAN UP THE DRIVER PARAMETERS
CLR CURCNT(R2)
LET CURADD(R2) := #0
CLR CURADD(R2)
LET REPCNT(R2) := #0
CLR REPCNT(R2)
RTS PC ;AND RETURN
;VERIFY OPERATION OF HAMMER BANK INTERLOCK SWITCH ON LP25,26 -OR- VERIFY BAND GATE LATCH ON
4$: INCR LUNIT FROM #0 TO R1 BY #1
CLR LUNIT
BR 50130$
50131$:
INC LUNIT
50130$:
CMP LUNIT,R1
BGT 50132$
LET R2 := LUNIT SHIFT 1
MOV LUNIT,R2
ASL R2
LET L$LUN := LUNIT
MOV LUNIT,L$LUN
LET FLAG := #0

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 24-4
READY LINE INTERLOCKS TEST 2

1947	012436	005037	002274		CLR	FLAG
	012442				IF	#FLAG07 SETIN STATUS(R2) AND #FLAG26 NOTSETIN STATUS(R2) THEN
	012442	032762	002000	002512	BIT	#FLAG07,STATUS(R2)
	012450	001417			BEQ	50133\$
	012452	032762	001000	002512	BIT	#FLAG26,STATUS(R2)
	012460	001013			BNE	50133\$
1948	012462					PRINTF #BGTLCH,LUNIT
	012462	013746	002314		MOV	LUNIT,-(SP)
	012466	012746	014255		MOV	#BGTLCH,-(SP)
	012472	012746	000002		MOV	#2,-(SP)
	012476	010600			MOV	SP,R0
	012500	104417			TRAP	C\$PNTF
	012502	062706	000006		ADD	#6,SP
1949	012506				ELSE	
	012506	000422			BR	50134\$
	012510					50133\$:
1950	012510					PRINTF #HAMRSW,LUNIT
	012510	013746	002314		MOV	LUNIT,-(SP)
	012514	012746	013644		MOV	#HAMRSW,-(SP)
	012520	012746	000002		MOV	#2,-(SP)
	012524	010600			MOV	SP,R0
	012526	104417			TRAP	C\$PNTF
	012530	062706	000006		ADD	#6,SP
1951	012534					PRINTF #HAMSW1
	012534	012746	013721		MOV	#HAMSW1,-(SP)
	012540	012746	000001		MOV	#1,-(SP)
	012544	010600			MOV	SP,R0
	012546	104417			TRAP	C\$PNTF
	012550	062706	000004		ADD	#4,SP
1952	012554				ENDIF	
	012554					50134\$:
1953	012554					GMANIL READY, FLAG, 100000, YES
	012554	104443			TRAP	C\$GMAN
	012556	000404			BR	10002\$
	012560	002274			.WORD	FLAG
	012562	000130			.WORD	T\$CODE
	012564	007603			.WORD	READY
	012566	100000			.WORD	100000
	012570					10002\$:
1954	012570					IF #BIT15 SETIN @LPCSR(R2) THEN
	012570	032772	100000	002356	BIT	#BIT15,@LPCSR(R2)
	012576	001421			BEQ	50135\$
1955	012600					PRINTF #HAMRDY,LUNIT
	012600	013746	002314		MOV	LUNIT,-(SP)
	012604	012746	013762		MOV	#HAMRDY,-(SP)
	012610	012746	000002		MOV	#2,-(SP)
	012614	010600			MOV	SP,R0
	012616	104417			TRAP	C\$PNTF
	012620	062706	000006		ADD	#6,SP
1956	012624					GMANIL READY, FLAG, 100000, YES
	012624	104443			TRAP	C\$GMAN
	012626	000404			BR	10003\$
	012630	002274			.WORD	FLAG
	012632	000130			.WORD	T\$CODE
	012634	007603			.WORD	READY
	012636	100000			.WORD	100000
	012640					10003\$:

CZLPLD0 LP25, LP26, LP07 TEST
READY LINE INTERLOCKS TEST 2

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```

1957 012640          ELSE
      012640 000426          BR          50136$
      012642          50135$:
1958 012642          LET ERRTBL(R2) := ERRTBL(R2) + #1
      012642 005262 003114          INC          ERRTBL(R2)
1959 012646          LET L$LUN := LUNIT
      012646 013737 002314 002074          MOV          LUNIT,L$LUN
1960
1961 012654          IF #FLAG07 SETIN STATUS(R2) AND #FLAG26 NOTSETIN STATUS(R2) THEN
      012654 032762 002000 002512          BIT          #FLAG07,STATUS(R2)
      012662 001411          BEQ          50137$
      012664 032762 001000 002512          BIT          #FLAG26,STATUS(R2)
      012672 001005          BNE          50137$
1962 012674          ERRHRD 17,BGTSWI
      012674 104456          TRAP          C$ERHRD
      012676 000021          .WORD          17
      012700 004215          .WORD          BGTSWI
      012702 000000          .WORD          0
1963 012704          ELSE
      012704 000404          BR          50140$
      012706          50137$:
1964 012706          ERRHRD 9,BNKSWI
      012706 104456          TRAP          C$ERHRD
      012710 000011          .WORD          9
      012712 003511          .WORD          BNKSWI
      012714 000000          .WORD          0
1965 012716          ENDIF
      012716          50140$:
1966 012716          ENDIF
      012716          50136$:
1967 012716          ENDINC
      012716 000634          BR          50131$
      012720          50132$:
1968          ;VERIFY OPERATION OF CHARACTER BAND INTERLOCK SWITCH ON LP25,26 - OR - VFU INTERLOCK ON LP07
1969 012720          INCR LUNIT FROM #0 TO R1 BY #1
      012720 005037 002314          CLR          LUNIT
      012724 000402          BR          50141$
      012726          50142$:
      012726 005237 002314          INC          LUNIT
      012732          50141$:
      012732 023701 002314          CMP          LUNIT,R1
      012736 003162          BGT          50143$
1970 012740          LET R2 := LUNIT SHIFT 1
      012740 013702 002314          MOV          LUNIT,R2
      012744 006302          ASL          R2
1971 012746          LET FLAG := #0
      012746 005037 002274          CLR          FLAG
1972 012752          IF #FLAG07 SETIN STATUS(R2) AND #FLAG26 NOTSETIN STATUS(R2) THEN
      012752 032762 002000 002512          BIT          #FLAG07,STATUS(R2)
      012760 001417          BEQ          50144$
      012762 032762 001000 002512          BIT          #FLAG26,STATUS(R2)
      012770 001013          BNE          50144$
1973 012772          PRINTF #VFUINT,LUNIT
      012772 013746 002314          MOV          LUNIT,-(SP)
      012776 012746 014355          MOV          #VFUINT,-(SP)
      013002 012746 000002          MOV          #2,-(SP)
      013006 010600          MOV          SP,R0

```

CZLPLD0 LP25, LP26, LP07 TEST
READY LINE INTERLOCKS TEST 2

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1974	013010	104417			TRAP	C\$PNTF
	013012	062706	000006		ADD	#6,SP
	013016				ELSE	
	013016	000422			BR	50145\$
	013020			50144\$:		
1975	013020				PRINTF	#BANDSW,LUNIT
	013020	013746	002314		MOV	LUNIT,-(SP)
	013024	012746	014046		MOV	#BANDSW,-(SP)
	013030	012746	000002		MOV	#2,-(SP)
	013034	010600			MOV	SP,R0
	013036	104417			TRAP	C\$PNTF
	013040	062706	000006		ADD	#6,SP
1976	013044				PRINTF	#BND SW1
	013044	012746	014134		MOV	#BND SW1,-(SP)
	013050	012746	000001		MOV	#1,-(SP)
	013054	010600			MOV	SP,R0
	013056	104417			TRAP	C\$PNTF
	013060	062706	000004		ADD	#4,SP
1977	013064				ENDIF	
	013064			50145\$:		
1978	013064				GMANIL	READY, FLAG, 100000, YES
	013064	104443			TRAP	C\$GMAN
	013066	000404			BR	10004\$
	013070	002274			.WORD	FLAG
	013072	000130			.WORD	T\$CODE
	013074	007603			.WORD	READY
	013076	100000			.WORD	100000
	013100			10004\$:		
1979	013100				IF	#BIT15 SETIN @LPCSR(R2) THEN
	013100	032772	100000	002356	BIT	#BIT15,@LPCSR(R2)
	013106	001444			BEQ	50146\$
1980	013110				IF	#FLAG07 SETIN STATUS(R2) AND #FLAG26 NOTSETIN STATUS(R2) THEN
	013110	032762	002000	002512	BIT	#FLAG07,STATUS(R2)
	013116	001417			BEQ	50147\$
	013120	032762	001000	002512	BIT	#FLAG26,STATUS(R2)
	013126	001013			BNE	50147\$
1981	013130				PRINTF	#VFURDY,LUNIT
	013130	013746	002314		MOV	LUNIT,-(SP)
	013134	012746	014447		MOV	#VFURDY,-(SP)
	013140	012746	000002		MOV	#2,-(SP)
	013144	010600			MOV	SP,R0
	013146	104417			TRAP	C\$PNTF
	013150	062706	000006		ADD	#6,SP
1982	013154				ELSE	
	013154	000412			BR	50150\$
	013156			50147\$:		
1983	013156				PRINTF	#BNDRDY,LUNIT
	013156	013746	002314		MOV	LUNIT,-(SP)
	013162	012746	014164		MOV	#BNDRDY,-(SP)
	013166	012746	000002		MOV	#2,-(SP)
	013172	010600			MOV	SP,R0
	013174	104417			TRAP	C\$PNTF
	013176	062706	000006		ADD	#6,SP
1984	013202				ENDIF	
	013202			50150\$:		
1985	013202				GMANIL	READY, FLAG, 100000, YES
	013202	104443			TRAP	C\$GMAN

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 24-7
READY LINE INTERLOCKS TEST 2

```

013204 000404 BR 10005$
013206 002274 .WORD FLAG
013210 000130 .WORD T$CODE
013212 007603 .WORD READY
013214 100000 .WORD 100000
10005$:
1986 013216 ELSE
013216 000426 BR 50151$
013220 50146$:
1987 013220 LET ERRTBL(R2) := ERRTBL(R2) + #1
013220 005262 003114 INC ERRTBL(R2)
1988 013224 LET L$LUN := LUNIT
013224 013737 002314 002074 MOV LUNIT,L$LUN
1989 013232 IF #FLAG07 SETIN STATUS(R2) AND #FLAG26 NOTSETIN STATUS(R2) THEN
013232 032762 002000 002512 BIT #FLAG07,STATUS(R2)
013240 001411 BEQ 50152$
013242 032762 001000 002512 BIT #FLAG26,STATUS(R2)
013250 001005 BNE 50152$
1990 013252 ERRHRD 16,VFUINF
013252 104456 TRAP C$ERHRD
013254 000020 .WORD 16
013256 004257 .WORD VFUINF
013260 000000 .WORD 0
1991 013262 ELSE
013262 000404 BR 50153$
50152$:
1992 013264 ERRHRD 10, BNSWI
013264 104456 TRAP C$ERHRD
013266 000012 .WORD 10
013270 003556 .WORD BNSWI
013272 000000 .WORD 0
1993 013274 ENDIF
013274 50153$:
1994 013274 ENDIF
013274 50151$:
1995 013274 LET @LPCSR(R2) := #00
013274 012772 000000 002356 MOV #00,@LPCSR(R2)
1996 013302 ENDINC
013302 000611 BR 50142$
50143$:
1997 013304 LET OUTBUF := #14
013304 012737 000014 003160 MOV #14,OUTBUF
1998 013312 OUTPUT #OUTBUF,#1
1999 013354 EXIT TST
013354 104432 TRAP C$EXIT
013356 001162 .WORD L10011-.
2000
2001 .NLIST BEX
2002
2003 013360 122 105 101 INTLK: .ASCIZ /READY LINE INTERLOCK TEST 2/<12><12>
2004 013416 045 116 045 PAPRSW: .ASCIZ /%N%ATEAR OFF PAPER JUST BELOW LUNIT %D2/
2005 013466 045 101 040 PAPSW1: .ASCIZ /%A TO CHECK PAPER LOW %N%AINTERLOCK.%N/
2006 013535 045 116 045 PAPRDY: .ASCIZ /%N%ARESTORE PAPER, CLEAR, PLACE LUNIT %D2%A ON LINE.%N/
2007 013624 120 101 120 PAPTST: .ASCIZ /PAPER LOW TEST/<12>
2008 013644 045 116 045 HAMRSW: .ASCIZ /%N%ADISENGAGE HAMMER BANK LATCH ON LUNIT %D2/
2009 013721 045 116 045 HAMSW1: .ASCIZ /%N%ATO CHECK INTERLOCK SWITCH.%N/
2010 013762 045 116 045 HAMRDY: .ASCIZ /%N%AEENGAGE LATCH,CLEAR,PLACE LUNIT %D2%A ON LINE.%N/

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 24-8
READY LINE INTERLOCKS TEST 2

2011	014046	045	116	045	BANDSW: .ASCIZ /%N%AOPEN CHARACTER BAND COVER ON LUNIT %D2%A TO CHECK/
2012	014134	045	116	045	BNSW1: .ASCIZ /%N%AINTERLOCK SWITCH.%N/
2013	014164	045	116	045	BNDRDY: .ASCIZ/%N%ACLOSE BAND COVER ON LUNIT %D2%A,CLEAR,PLACE ON LINE./
2014	014255	045	116	045	BGTLCH: .ASCIZ /%N%AOPEN BAND GATE LATCH ON LUNIT %D2%A TO CHECK MICROSWITCH.%N/
2015	014355	045	116	045	VFUJNT: .ASCIZ /%N%ALIFT VFU COVER ON LUNIT %D2%A TO CHECK MICROSWITCH.%N/
2016	014447	045	116	045	VFURDY: .ASCIZ /%N%ACLOSE VFU COVER ON LUNIT %D2%A,CLEAR,PLACE ONLINE.%N/
2017					.EVEN
2018					
2019					.LIST BEX
2020	014540				ENDTST
	014540				L10011:
	014540	104401			TRAP C\$ETST
2021					
2022	014542				ENDMOD
2023					

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 25
FORMS LENGTH SELECTION

```

2025          .SBTTL FORMS LENGTH SELECTION
2026 014542   BGNMOD
2027          :++
2028          :THIS TEST CHECKS ALL POSITIONS OF THE FORM LENGTH SELECT SWITCH. THE
2029          :PROGRAM INDICATES THE SPECIFIED SETTING OF THE FORM LENGTH SELECT SWITCH
2030          :AND WAITS FOR THE OPERATOR TO SET THE SWITCH ON THE PRINTER. THE PAPER
2031          :IS THEN ADVANCED UNDER PROGRAM CONTROL. THE PRINTER OUTPUT IS VISUALLY
2032          :INSPECTED AFTER ALL SWITCH SETTINGS HAVE BEEN RUN THROUGH BY THE OPERATOR
2033          :TO VERIFY THAT THE PROPER PAPER MOVEMENT HAS OCCURRED FOR EACH SWITCH
2034          :SETTING. ALL LP07'S WILL BE TESTED ON ALL TCVFU CHANNELS AND LINE COUNTS.
2035          :--
2036 014542   BGNST 3
           014542   T3::
2037          :DETERMINE IF MANUAL INTERVENTION IS ALLOWED
2038 014542   MANUAL
           014542   104450   TRAP C$MANI
2039 014544   BCOMPLETE 1$
           014544   103402   BCS 1$
2040 014546   EXIT TST
           014546   104432   TRAP C$EXIT
           014550   003076   .WORD L10012-
2041          :EXIT TEST IF MANUAL INTERVENTION TESTS ARE NOT SPECIFIED
2042 014552   005737   002262 1$: TST INHINT
2043 014556   001002   BNE 2$
2044 014560   EXIT TST
           014560   104432   TRAP C$EXIT
           014562   003064   .WORD L10012-
2045 014564   2$: LET R1 := L$UNIT - #1
           014564   013701   002012  MOV L$UNIT,R1
           014570   005301   DEC R1
2046          $BRJMP=1
2047 014572   INCR LUNIT FROM #0 TO R1 BY #1
           014572   005037   002314  CLR LUNIT
           014576   000402   BR 50155$
           014600   50154$: INC LUNIT
           014600   005237   002314  50155$: CMP LUNIT,R1
           014604   014604   023701   002314  BLE 50156$
           014610   003402   JMP 50157$
           014612   000137   016366  50156$: LET R2 := LUNIT SHIFT 1
           014616   014616   013702   002314  MOV LUNIT,R2
           014622   006302   ASL R2
2049 014624   IF #FLAG07 NOTSET IN STATUS(R2) THEN
           014624   032762   002000   002512  BIT #FLAG07,STATUS(R2)
           014632   001402   BEQ +6
           014634   000137   015304   JMP 50160$
2050 014640   PRINTF #LINSWI,LUNIT
           014640   013746   002314  MOV LUNIT,-(SP)
           014644   012746   016434  MOV #LINSWI,-(SP)
           014650   012746   000002  MOV #2,-(SP)
           014654   010600   MOV SP,R0
           014656   104417   TRAP C$PNTF
           014660   062706   000006  ADD #6,SP
2051 014664   PRINTF #LINSW1
           014664   012746   016520  MOV #LINSW1,-(SP)

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 25-1
FORMS LENGTH SELECTION

	014670	012746	000001		MOV	#1,-(SP)	
	014674	010600			MOV	SP,R0	
	014676	104417			TRAP	C\$PNTF	
	014700	062706	000004		ADD	#4,SP	
2052	014704						PRINTF #FLSSEL,LUNIT
	014704	013746	002314		MOV	LUNIT,-(SP)	
	014710	012746	016600		MOV	#FLSSEL,-(SP)	
	014714	012746	000002		MOV	#2,-(SP)	
	014720	010600			MOV	SP,R0	
	014722	104417			TRAP	C\$PNTF	
	014724	062706	000006		ADD	#6,SP	
2053	014730						PRINTF #FLS1,LUNIT
	014730	013746	002314		MOV	LUNIT,-(SP)	
	014734	012746	016677		MOV	#FLS1,-(SP)	
	014740	012746	000002		MOV	#2,-(SP)	
	014744	010600			MOV	SP,R0	
	014746	104417			TRAP	C\$PNTF	
	014750	062706	000006		ADD	#6,SP	
2054	014754						PRINTF #FLSMS1,LUNIT
	014754	013746	002314		MOV	LUNIT,-(SP)	
	014760	012746	017373		MOV	#FLSMS1,-(SP)	
	014764	012746	000002		MOV	#2,-(SP)	
	014770	010600			MOV	SP,R0	
	014772	104417			TRAP	C\$PNTF	
	014774	062706	000006		ADD	#6,SP	
2055	015000						INCR R3 FROM #0 TO #50 BY #4
	015000	005003			CLR	R3	
	015002	000402			BR	50162\$	
	015004			50161\$:			
	015004	062703	000004		ADD	#4,R3	
	015010			50162\$:			
	015010	020327	000050		CMP	R3,#50	
	015014	003402			BLE	50163\$	
	015016	000137	015300		JMP	50164\$	
	015022			50163\$:			
2056	015022						LET T3SET := #FFSET + R3
	015022	012737	017225	016372	MOV	#FFSET,T3SET	
	015030	060337	016372		ADD	R3,T3SET	
2057	015034						PRINTF #FLSMMSG,LUNIT,T3SET
	015034	013746	016372		MOV	T3SET,-(SP)	
	015040	013746	002314		MOV	LUNIT,-(SP)	
	015044	012746	017301		MOV	#FLSMMSG,-(SP)	
	015050	012746	000003		MOV	#3,-(SP)	
	015054	010600			MOV	SP,R0	
	015056	104417			TRAP	C\$PNTF	
	015060	062706	000010		ADD	#10,SP	
2058	015064						PRINTF #FLSMS1
	015064	012746	017373		MOV	#FLSMS1,-(SP)	
	015070	012746	000001		MOV	#1,-(SP)	
	015074	010600			MOV	SP,R0	
	015076	104417			TRAP	C\$PNTF	
	015100	062706	000004		ADD	#4,SP	
2059	015104						LET FLAG := #0
	015104	005037	002274		CLR	FLAG	
2060	015110						GMANIL READY,FLAG,100000,YES
	015110	104443			TRAP	C\$GMAN	
	015112	000404			BR	10000\$	

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 25-2
FORMS LENGTH SELECTION

	015114	002274			.WORD	FLAG	
	015116	000130			.WORD	T\$CODE	
	015120	007603			.WORD	READY	
	015122	100000			.WORD	100000	
	015124		100000\$:				
2061	015124					OUTPUTI #REFLIN,#62,,,LUNIT	;TEST ID + REF. LINE
2062	015166					OUTPUTI T3SET,#3,,,LUNIT	
2063	015230					OUTPUTI #MOVMSG,#62,,,LUNIT	
2064	015272	004737	005544			JSR PC,QUIET	
2065	015276					ENDINC	
	015276	000642			BR	50161\$	
	015300		50164\$:				
2066	015300					ELSE	
	015300	000137	016072		JMP	50165\$	
	015304		50160\$:				
2067	015304					OUTPUTI #REFLIN,#30,,,LUNIT	;TEST ID
2068	015346	004737	005544			JSR PC,QUIET	
2069	015352					OUTPUTI #CHNSECT,#13,,,LUNIT	;SECTION ID
2070	015414					LET WORK1 := #52	;CODE FOR ASTERISK
	015414	012737	000052	003156	MOV	#52,WORK1	
2071	015422					LET OUTBUF := #200	;CHANNEL CODE
	015422	012737	000200	003160	MOV	#200,OUTBUF	
2072	015430					INCR WORK FROM #1 TO #12. BY #1	;REPEAT FOR ALL 12 CHANNELS
	015430	012737	000001	003154	MOV	#1,WORK	
	015436	000402			BR	50167\$	
	015440		50166\$:				
	015440	005237	003154		INC	WORK	
	015444		50167\$:				
	015444	023727	003154	000014	CMP	WORK,#12.	
	015452	003402			BLE	50170\$	
	015454	000137	015572		JMP	50171\$	
	015460		50170\$:				
2073	015460					OUTPUTI #OUTBUF,#1,,,LUNIT	
2074	015522					OUTPUTI #WORK1,#1,,,LUNIT,WORK	
2075	015564					LET OUTBUF := OUTBUF + #1	;NEXT CHANNEL
	015564	005237	003160		INC	OUTBUF	
2076	015570					ENDINC	
	015570	000723			BR	50166\$	
	015572		50171\$:				
2077	015572					LET OUTBUF := #14	
	015572	012737	000014	003160	MOV	#14,OUTBUF	
2078	015600					OUTPUTI #OUTBUF,#1,,,LUNIT	
2079	015642					OUTPUTI #INSEC,#15,,,LUNIT	;SECTION ID
2080	015704					LET WORK1 := #52	;CODE FOR ASTERISK
	015704	012737	000052	003156	MOV	#52,WORK1	
2081	015712					LET OUTBUF := #220	;CODE FOR VFU
	015712	012737	000220	003160	MOV	#220,OUTBUF	
2082	015720					INCR WORK FROM #0 TO #15. BY #1	
	015720	005037	003154		CLR	WORK	
	015724	000402			BR	50173\$	
	015726		50172\$:				
	015726	005237	003154		INC	WORK	
	015732		50173\$:				
	015732	023727	003154	000017	CMP	WORK,#15.	
	015740	003402			BLE	50174\$	
	015742	000137	016072		JMP	50175\$	
	015746		50174\$:				

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 25-3
FORMS LENGTH SELECTION

```

2083 015746                                OUTPUT #OUTBUF,#1,,LUNIT
2084 016010                                IF WORK.GT #0 THEN
    016010 005737 003154                    TST     WORK
    016014 003002                            BGT     +6
    016016 000137 016064                    JMP     50176$
2085 016022                                OUTPUT #WORK1,#1,,LUNIT,WORK ;PRINT ASTERISK
2086 016064                                ENDIF
    016064                                50176$:
2087 016064                                LET OUTBUF := OUTBUF + #1
    016064 005237 003160                    INC     OUTBUF
2088 016070                                ENDINCR
    016070 000716                            BR      50172$
2089 016072                                50175$:
    016072                                ENDIF
2090 016072                                50165$:
2091 016072                                ;SET FORMS LENGTH SELECT SWITCH TO ITS 'REGULAR' SETTING
    016072 032762 002000 002512            BIT     IF #FLAG07 NOTSET IN STATUS(R2) THEN
    016100 001402                            BEQ     #FLAG07,STATUS(R2)
    016102 000137 016252                    JMP     +6
2092 016106                                PRINTF #NMLFLS,LUNIT
    016106 013746 002314                    MOV     LUNIT,-(SP)
    016112 012746 017133                    MOV     #NMLFLS,-(SP)
    016116 012746 000002                    MOV     #2,-(SP)
    016122 010600                            MOV     SP,R0
    016124 104417                            TRAP   C$PNTF
    016126 062706 000006                    ADD     #6,SP
2093 016132                                PRINTF #FLSMS1,LUNIT
    016132 013746 002314                    MOV     LUNIT,-(SP)
    016136 012746 017373                    MOV     #FLSMS1,-(SP)
    016142 012746 000002                    MOV     #2,-(SP)
    016146 010600                            MOV     SP,R0
    016150 104417                            TRAP   C$PNTF
    016152 062706 000006                    ADD     #6,SP
2094 016156                                LET OUTBUF := #14
    016156 012737 000014 003160            MOV     #14,OUTBUF
2095 016164                                LET FLAG := #0 ;CLEAR <CR> FLAG
    016164 005037 002274                    CLR     FLAG
2096 016170                                GMANIL READY,FLAG,100000,YES ;AND WAIT FOR RESPONSE
    016170 104443                            TRAP   C$GMAN
    016172 000404                            BR      10001$
    016174 002274                            .WORD  FLAG
    016176 000130                            .WORD  T$CODE
    016200 007603                            .WORD  READY
    016202 100000                            .WORD  100000
2097 016204                                10001$:
2098 016246                                OUTPUT #OUTBUF,#1,,LUNIT
    016246 000137 016322                    JMP     ELSE
    016252                                50177$:
2099 016252                                LET OUTBUF := #14
    016252 012737 000014 003160            MOV     #14,OUTBUF
2100 016260                                OUTPUT #OUTBUF,#1,,LUNIT
2101 016322                                ENDIF
    016322                                50200$:
2102 016322                                PRINTF #PAPCHK ;MAKE SURE MOVEMENT WAS RIGHT
    016322 012746 016772                    MOV     #PAPCHK,-(SP)

```

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FORMS LENGTH SELECTION

```

016326 012746 000001      MOV      #1,-(SP)
016332 010600      MOV      SP,R0
016334 104417      TRAP    C$PNTF
016336 062706 000004      ADD     #4,SP
2103 016342      LET FLAG := #0
016342 005037 002274      CLR     FLAG
2104 016346      GMANIL  READY,FLAG,100000,YES      ;WAIT FOR RESPONSE
016346 104443      TRAP    C$GMAN
016350 000404      BR     10002$
016352 002274      .WORD  FLAG
016354 000130      .WORD  T$CODE
016356 007603      .WORD  READY
016360 100000      .WORD  100000
016362      10002$:
2105 016362      ENDINC
016362 000137 014600      JMP     50154$
016366      50157$:
2106 016366 177777      $BRJMP=-1
2107 C16366      EXIT TST
016366 104432      TRAP    C$EXIT
016370 001256      .WORD  L10012-.
2108 016372 000000      T3SET:  .WORD  0
2109 016374 000000      T3MOV:  .WORD  0
2110      .NLIST BEX
2111 016376      103      110      101  CHNSEC: .ASCIZ /CHANNEL 1-12/<12>
2112 016414      114      111      116  LINSEC: .ASCIZ /LINE COUNT 0-15/
2113 016434      045      116      045  LINSWI: .ASCIZ /%N%ASET LINES SWITCH ON UNIT %D2%A TO '6' TO SELECT/
2114 016520      045      116      045  LINSW1: .ASCIZ /%N%A6 LINES PER INCH VERTICAL PRINTING DENSITY./
2115 016600      045      116      062  FLSEL:  .ASCIZ /%N2%ASET VFU-FLS SWITCH ON UNIT %D2%A TO THE 'FLS' POSITION.%N/
2116 016677      045      116      045  FLS1:   .ASCIZ /%N%ASET FORMS LENGTH SELECT SWITCH ON UNIT %D2%A TO '8'.%N/
2117 016772      045      116      045  PAPCHK: .ASCIZ /%N%AVERIFY PRGPER PAPER MOVEMENT./
2118 017034      106      117      122  REFLIN: .ASCIZ /FORMS LENGTH SELECTION TEST #3---REFERENCE LINE...../<14>
2119 017133      045      116      045  NMLFLS: .ASCIZ /%N%ASET FORMS LENGTH SELECT SWITCH ON UNIT %D2%A TO 11.%N/
2120      ;SWITCH SETTINGS FOR FORMS LENGTH MESSAGES
2121 017225      063      040      040  FFSET:  .ASCIZ /3 /
2122 017231      063      056      065      .ASCIZ /3.5/
2123 017235      064      040      040      .ASCIZ /4 /
2124 017241      065      056      065      .ASCIZ /5.5/
2125 017245      066      040      040      .ASCIZ /6 /
2126 017251      067      040      040      .ASCIZ /7 /
2127 017255      070      040      040      .ASCIZ /8 /
2128 017261      070      056      065      .ASCIZ /8.5/
2129 017265      061      061      040      .ASCIZ /11 /
2130 017271      061      062      040      .ASCIZ /12 /
2131 017275      061      064      040      .ASCIZ /14 /
2132 017301      045      116      045  FLSMSG: .ASCIZ /%N%ASET FORMS LENGTH SELECT SWITCH ON UNIT %D2%A TO %T%A,/
2133 017373      045      116      045  FLSMS1: .ASCIZ /%N%ADEPRESS 'CLEAR','TOF', AND PLACE ON LINE.%N/
2134 017453      045      116      045  FLSMS2: .ASCIZ /%N%ADEPRESS 'CLEAR','TOF',AND PLACE ON LINE,ON LUNIT %D2%N/
2135 017546      040      111      116  MOVMSG: .ASCIZ / INCHES SHOULD OCCUR BETWEEN THIS AND THE REFERENCE LINE...../<12>
2136      .EVEN
2137      .EVEN
2138      .LIST BEX
2139 017646      ENDTST
017646      L10C12:
017646 104401      TRAP    C$ETST
2140 017650      ENDMOD
2141

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26
 PRINTING SPEED MEASUREMENT

```

2143          .SBTTL PRINTING SPEED MEASUREMENT
2144 017650    BGNMOD
2145          :++
2146          : THE PRINT SPEED TEST WILL REPORT TO THE OPERATOR THE TOTAL NUMBER OF
2147          : LINES PRINTED WITHIN A SPECIFIED TIME PERIOD.  THE DATA PATTERN USED
2148          : IS DESIGNED TO CAUSE PRINTING SPEED TO BE MINIMAL AND IS DEPENDENT
2149          : ON PRINTER TYPE AND THE CHARACTER SET (BAND TYPE ) ON EACH PRINTER.
2150          : THE TIME PERIOD CAN BE CONTROLLED THRU MANUAL OPERATION, OR IF THE
2151          : SYSTEM HAS A CLOCK VIA SUPPLYING A COUNT OF SECONDS.  ANY TIME INTERVAL OF
2152          : 4 TO 60 SECONDS MAY BE SELECTED.  THIS IS ONE OF THE "SW" QUESTIONS .
2153          :--
2154 017650    BGNST 4
2155          T4::
2156 017650    LET R1 := L$UNIT - #1                ;NUMBER OF UNITS TO TEST
2157          MCV     L$UNIT,R1
2158          DEC     R1
2159          IF MANS PD NE #0 THEN                ; DETERMIN IF MANUAL TESTING SELECTED
2160          TST     MANS PD
2161          BEQ     50201$
2162          MANUAL                                     ;DETERMINE IF MANUAL INTERVENTION ALLOWED
2163          TRAP    C$MANI
2164          BCOMPLETE 1$
2165          BCS     1$
2166          EXIT TST
2167          TRAP    C$EXIT
2168          .WORD   L10013-
2169          1$:   IF INHINT EQ #0 THEN            ; EXIT IF INTERVENTION INHIBITED
2170          TST     INHINT
2171          BNE     50202$
2172          EXIT TST
2173          TRAP    C$EXIT
2174          .WORD   L10013-
2175          ELSE
2176          BR      50203$
2177          50202$:
2178          LET WORK := PERIOD
2179          MOV     PERIOD,WORK
2180          ENDIF
2181          50203$:
2182          ELSE
2183          BR      50204$
2184          50201$:
2185          LET WORK := PERIOD                ; CLOCK TEST TIME
2186          MOV     PERIOD,WORK
2187          ENDIF
2188          50204$:
2189          OUTPUT  #PRISPD,#36.                ;PRINT TEST ID
2190          SELECT CLKTYP OF 4 VERIFY           ;SET UP THE RIGHT CLOCK
2191          MOV     CLKTYP,-(SP)
2192          BLT     50213$
2193          CMP     CLKTYP,#4
2194          BGT     50213$
2195          ASL     (SP)
2196          ADD     #50205$,(SP)
2197          MOV     @ (SP)+,PC
2198          50205$:

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-1
 PRINTING SPEED MEASUREMENT

```

020016 020200 .WORD 50212$
020020 020030 .WORD 50211$
020022 020036 .WORD 50210$
020024 020110 .WORD 50207$
020026 020176 .WORD 50206$

2171
2172 020030 CASE 1
020030 50211$:
2173 020030 000137 021554 JMP END4 ;JUST EXIT TEST NO CLOCK AVAILBLE
2174
2175 020034 CASE 2 ;KW11-L LINE CLOCK SELECTED
020034 000461 BR 50213$
020036 50210$:
2176 020036 LET CLKENA := #100 ;INTERRUPT ENABLE/ CLR MONITOR
020036 012737 000100 002334 MOV #100,CLKENA
; SET PRI7 WHILE CHANGING VECTOR ADDRESS
2177
2178 020044 SETPRI #PRI07
020044 012700 000340 MOV #PRI07,R0
020050 104441 TRAP C$SPRI
2179 020052 SETVEC CLKVEC,#CLKTCK,#PRI06 ;SET UP INTERRUPT VECTOR
020052 012746 000300 MOV #PRI06,-(SP)
020056 012746 036620 MOV #CLKTCK,-(SP)
020062 013746 002332 MOV CLKVEC,-(SP)
020066 012746 000003 MOV #3,-(SP)
020072 104437 TRAP C$SVEC
020074 062706 000010 ADD #10,SP
2180 020100 SETPRI #PRI00
020100 012700 000000 MOV #PRI00,R0
020104 104441 TRAP C$SPRI

2181
2182 020106 CASE 3 ;KW11-P REAL TIME CLOCK
020106 000434 BR 50213$
020110 50207$:
2183 020110 LET CLKSET := CLKCSR + #2
020110 013737 002326 002330 MOV CLKCSR,CLKSET
020116 062737 000002 002330 ADD #2,CLKSET
2184 020124 LET CLKENA := #111 ;SET UP ENABLE BITS
020124 012737 000111 002334 MOV #111,CLKENA
; RUN, RATE = 10KHZ, REPEAT INTR, DOWN,INT ENABLE
2185
2186 020132 SETPRI #PRI07
020132 012700 000340 MOV #PRI07,R0
020136 104441 TRAP C$SPRI
2187 020140 SETVEC CLKVEC,#CLKTCK,#PRI06 ;INTERRUPT VECTOR
020140 012746 000300 MOV #PRI06,-(SP)
020144 012746 036620 MOV #CLKTCK,-(SP)
020150 013746 002332 MOV CLKVEC,-(SP)
020154 012746 000003 MOV #3,-(SP)
020160 104437 TRAP C$SVEC
020162 062706 000010 ADD #10,SP
2188 020166 SETPRI #PRI00
020166 012700 000000 MOV #PRI00,R0
020172 104441 TRAP C$SPRI

2189
2190 020174 CASE 4
020174 000401 BR 50213$
020176 50206$:
2191 020176 000240 NOP ;THIS IS JUST A DUMMY
    
```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-2
 PRINTING SPEED MEASUREMENT

```

2192 020200          ENDSELECT
      020200          50212$:
      020200          50213$:
2193 020200          LET OUTBUF :B= #LF
      020200          MOVB #LF,OUTBUF
      112737 000012 003160 LET LUNIT := R1
2194 020206          MOV R1,LUNIT
      020206          010137 002314 11$:
2195 020212          LET ERRFLG := #0
2196 020212          CLR ERRFLG
      020212          005037 002340 LET R2 := LUNIT SHIFT 1
2197 020216          MOV LUNIT,R2
      020216          013702 002314 ASL R2
      020222          006302
2198
2199
2200
2201          000001
2202 020224          ; DETERMINE WHICH BAND, AND SEND APPROPRIATE PATTERN
      020224          $BRJMP=1
      020224          032762 010000 002512 IF #FLAG96 NOTSETIN STATUS(R2) THEN ; 64 CHAR BAND
      020232          BIT #FLAG96,STATUS(R2)
      020232          001402 BEQ .+6
      020234          000137 020772 JMP 50214$
2203 020240          IF #FLAG07 NOTSETIN STATUS(R2) THEN
      020240          032762 002000 002512 BIT #FLAG07,STATUS(R2)
      020246          001402 BEQ .+6
      020250          000137 020266 JMP 50215$
2204 020254          LET BNDPAT := #TAB64
      020254          012737 024224 023040 MOV #TAB64,BNDPAT
2205 020262          ELSE
      020262          000137 020274 JMP 50216$
      020266          50215$:
2206 020266          LET BNDPAT := #TB0764
      020266          012737 024640 023040 MOV #TB0764,BNDPAT
2207 020274          ENDIF
      020274          50216$:
2208 020274          LET WORK := #133.
      020274          012737 000205 003154 MOV #133.,WORK
2209 020302          IF #FLAG26 NOTSETIN STATUS(R2) AND #FLAG07 NOTSETIN STATUS(R2) THEN
      020302          032762 001000 002512 BIT #FLAG26,STATUS(R2)
      020310          001402 BEQ .+6
      020312          000137 020462 JMP 50217$
      020316          032762 002000 002512 BIT #FLAG07,STATUS(R2)
      020324          001402 BEQ .+6
      020326          000137 020462 JMP 50217$
2210 020332          PRINTF #LPM64 ;SEND SPEED MESSAGE TO CONSOLE
      020332          012746 023503 MOV #LPM64,-(SP)
      020336          012746 000001 MOV #1,-(SP)
      020342          010600 MOV SP,R0
      020344          104417 TRAP C$PNTF
      020346          062706 000004 ADD #4,SP
2211 020352          OUTPUT #LPM64+4,#42.,LUNIT ;SEND SPEED MESSAGE TO PRINTER
2212 020414          OUTPUT #OUTBUF,#1.,LUNIT ;LINEFEED
2213 020456          ELSE
      020456          000137 020766 JMP 50220$
      020462          50217$:
2214 020462          IF #FLAG26 SETIN STATUS(R2) AND #FLAG07 NOTSETIN STATUS(R2) THEN
      020462          032762 001000 002512 BIT #FLAG26,STATUS(R2)
      020470          001002 BNE .+6

```


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 PRINTING SPEED MEASUREMENT

```

020472 000137 020642          JMP      50221$
020476 032762 002000 002512  BIT      #FLAG07,STATUS(R2)
020504 001402          BEQ      .+6
020506 000137 020642          JMP      50221$
2215 020512          PRINTF #L26M64
020512 012746 023645          MOV      #L26M64,-(SP)
020516 012746 000001          MOV      #1,-(SP)
020522 010600          MOV      SP,R0
020524 104417          TRAP    C$PNTF
020526 062706 000004          ADD     #4,SP
2216 020532          OUTPUTI #L26M64+4,#42,..LUNIT
2217 020574          OUTPUTI #OUTBUF,#1,..LUNIT
2218 020636          ELSE
020636 000137 020766          JMP      50222$
020642          50221$:
2219 020642          PRINTF #L07M64
020642 012746 024007          MOV      #L07M64,-(SP)
020646 012746 000001          MOV      #1,-(SP)
020652 010600          MOV      SP,R0
020654 104417          TRAP    C$PNTF
020656 062706 000004          ADD     #4,SP
2220 020662          OUTPUTI #L07M64+4,#42,..LUNIT
2221 020724          OUTPUTI #OUTBUF,#1,..LUNIT
2222 020766          ENDIF
020766          50222$:
2223 020766          ENDIF
020766          50220$:
2224 020766          ELSE
020766 000137 021520          JMP      50223$
020772          50214$:
2225 020772          IF #FLAG07 NOTSETIN STATUS(R2) THEN
020772 032762 002000 002512  BIT      #FLAG07,STATUS(R2)
021000 001402          BEQ      .+6
021002 000137 021020          JMP      50224$
2226 021006          LET BNDPAT := #TABA96
021006 012737 024432 023040  MOV      #TABA96,BNDPAT
2227 021014          ELSE
021014 000137 021026          JMP      50225$
021020          50224$:
2228 021020          LET BNDPAT := #TB0796
021020 012737 025046 023040  MOV      #TB0796,BNDPAT
2229 021026          ENDIF
021026          50225$:
2230 021026          LET WORK := #133.
021026 012737 000205 003154  MOV      #133,WORK
2231 021034          IF #FLAG26 NOTSETIN STATUS(R2) AND #FLAG07 NOTSETIN STATUS(R2) THEN
021034 032762 001000 002512  BIT      #FLAG26,STATUS(R2)
021042 001402          BEQ      .+6
021044 000137 021214          JMP      50226$
021050 032762 002000 002512  BIT      #FLAG07,STATUS(R2)
021056 001402          BEQ      .+6
021060 000137 021214          JMP      50226$
2232 021064          PRINTF #LPM96
021064 012746 023564          MOV      #LPM96,-(SP)
021070 012746 000001          MOV      #1,-(SP)
021074 010600          MOV      SP,R0
021076 104417          TRAP    C$PNTF

```

CZLPLD0 LP25, LP26, LP07 TEST
PRINTING SPEED MEASUREMENT

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```

2233 021100 062706 000004      ADD      #4,SP
2234 021104                      OUTPUTI #LPM96+4,#42,,LUNIT
2235 021146                      OUTPUTI #OUTBUF,#1,,LUNIT
2235 021210                      ELSE
021210 000137 021520          JMP      50227$
021214                      50226$:
2236 021214                      IF #FLAG26 SETIN STATUS(R2) AND #FLAG07 NOTSETIN STATUS(R2) THEN
021214 032762 001000 002512    BIT      #FLAG26,STATUS(R2)
021222 001002                      BNE     .+5
021224 000137 021374          JMP      50230$
021230 032762 002000 002512    BIT      #FLAG07,STATUS(R2)
021236 001402                      BEQ     .+6
021240 000137 021374          JMP      50230$
2237 021244                      PRINTF #L26M96
021244 012746 023726          MOV      #L26M96,-(SP)
021250 012746 000001          MOV      #1,-(SP)
021254 010600          MOV      SP,R0
021256 104417          TRAP    C$PNTF
021260 062706 000004          ADD      #4,SP
2238 021264                      OUTPUTI #L26M96+4,#42,,LUNIT
2239 021326                      OUTPUTI #OUTBUF,#1,,LUNIT
2240 021370                      ELSE
021370 000137 021520          JMP      50231$
021374                      50230$:
2241 021374                      PRINTF #L07M96
021374 012746 024070          MOV      #L07M96,-(SP)
021400 012746 000001          MOV      #1,-(SP)
021404 010600          MOV      SP,R0
021406 104417          TRAP    C$PNTF
021410 062706 000004          ADD      #4,SP
2242 021414                      OUTPUTI #L07M96+4,#42,,LUNIT
2243 021456                      OUTPUTI #OUTBUF,#1,,LUNIT
2244 021520                      ENDIF
021520                      50231$:
2245 021520                      ENDIF
021520                      50227$:
2246 021520                      ENDIF
021520                      50223$:
2247 021520          LET @LPCSR(R2) := #0          ;DISABLE INTERRUPTS IN CASE OF MANUAL TEST CASE
021520          CLR      @LPCSR(R2)
2248 021520          $BRJMP=-1
2249 021524          LET LINCNT := #0          ;CLEAR LINE COUNTER
021524          CLR      LINCNT
2250 021530          LET TICK := #60.          ;SET UP INITIAL CLOCK VALUE
021530          MOV      #60.,TICK
2251 021536 012737 000074 036674    JSR PC,REPLUP          ;DO THE OUTPUT
2252 021542          LET LUNIT := LUNIT - #1
021542          DEC      LUNIT
2253 021546          IF COND GE THEN
021546          BLT      50232$
2254 021550 000137 020212          JMP 11$
2255 021554          ENDIF
021554          50232$:
2256
2257
2258 021554          END4: IF CLK TYP EQ #3 THEN
021554 023727 002322 000003    CMP      CLK TYP,#3

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-5
PRINTING SPEED MEASUREMENT

2259 021562 001011
 021564 012700 000340
 021570 104441
 2260 021572
 021572 013700 002332
 021576 104436
 2261 021600
 021600 012777 000000 160520
 2262 021606
 021606
 2263 021606
 021606 023727 002322 000002
 021614 001021
 2264 021616
 021616 012700 000340
 021622 104441
 2265 021624
 021624 012746 000300
 021630 012746 010000
 021634 013746 002332
 021640 012746 000003
 021644 104437
 021646 062706 000010
 2266 021652
 021652 012777 000000 160446
 2267 021660
 021660
 2268 021660
 021660 012700 000000
 021664 104441
 2269 021666
 021666 112737 000014 003160
 2270 021674
 2271 021736
 021736 104432
 021740 003314
 2272
 2273
 2274
 2275
 2276
 2277 021742
 2278 021742
 021742 023727 002322 000004
 021750 001124
 2279 021752
 021752 012746 023146
 021756 012746 000001
 021762 010600
 021764 104417
 021766 062706 000004
 2280 021772
 021772 005037 002274
 2281 021776
 021776 104443
 022000 000404

```

BNE 50233$
SETPRI #PRI07
MOV #PRI07,R0
TRAP C$SPRI
CLRVEC CLKVEC
MOV CLKVEC,R0
TRAP C$CVEC
LET @CLKCSR := #00
MOV #00,@CLKCSR
ENDIF
50233$:
IF CLKTYP EQ #2 THEN
CMP CLKTYP,#2
BNE 50234$
SETPRI #PRI07
MOV #PRI07,R0
TRAP C$SPRI
SETVEC CLKVEC,#IGNORE,#PRI06
MOV #PRI06,-(SP)
MOV #IGNORE,-(SP)
MOV CLKVEC,-(SP)
MOV #3,-(SP)
TRAP C$SVEC
ADD #10,SP
LET @CLKCSR := #00
MOV #00,@CLKCSR
ENDIF
50234$:
SETPRI #PRI00
MOV #PRI00,R0
TRAP C$SPRI
LET OUTBUF :B= #14
MOVB #14,OUTBUF
OUTPUT #OUTBUF,#1
EXIT TST
TRAP C$EXIT
.WORD L10013-.
:
:THIS IS SUBROUTINED TO DECREASE THE SIZE OF THE INITIAL INCREMENT LOOP.
:
:REPLUP:
IF CLKTYP EQ #4 THEN
CMP CLKTYP,#4
BNE 50235$
PRINTF #OFFLIN
MOV #OFFLIN,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #4,SP
LET FLAG := #0
CLR FLAG
GMANIL READY,FLAG,100000,YES
TRAP C$GMAN
BR 10000$

```

:TELL OPERATOR TO PLACE PRINTERS OFFLINE

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-6
 PRINTING SPEED MEASUREMENT

```

022002 002274          .WORD  FLAG
022004 000130          .WORD  T$CODE
022006 007603          .WORD  READY
022010 100000          .WORD  100000
2282 022012          10000$: PRINTF #ONLIN1,LUNIT      ;PUT LUNIT TO TEST ON LINE
022012 013746 002314  MOV    LUNIT,-(SP)
022016 012746 023206  MOV    #ONLIN1,-(SP)
022022 012746 000002  MOV    #2,-(SP)
022026 010600          MOV    SP,R0
022030 104417          TRAP  C$PNTF
022032 062706 000006  ADD    #6,SP
2283 022036          PRINTF #ONLIN2,LUNIT      ;END OF TEST.
022036 013746 002314  MOV    LUNIT,-(SP)
022042 012746 023307  MOV    #ONLIN2,-(SP)
022046 012746 000002  MOV    #2,-(SP)
022052 010600          MOV    SP,R0
022054 104417          TRAP  C$PNTF
022056 062706 000006  ADD    #6,SP
2284 022062          PRINTF #ONLIN3,LUNIT
022062 013746 002314  MOV    LUNIT,-(SP)
022066 012746 023405  MOV    #ONLIN3,-(SP)
022072 012746 000002  MOV    #2,-(SP)
022076 010600          MOV    SP,R0
022100 104417          TRAP  C$PNTF
022102 062706 000006  ADD    #6,SP
2285 022106          WHILE #BIT15 SETIN @LPCSR(R2) DO ; WAIT FOR LP SET ON-LINE
022106          50236$: BIT    #BIT15,@LPCSR(R2)
022106 032772 100000 002356  BEQ    50237$
2286 022114 001402          NOP
022116 000240          ENDDO
2287 022120          BR    50236$
022120 000772          50237$:
022122          LET LINCNT := #0
2288 022122 005037 002276  CLR    LINCNT
022122          WHILE #BIT15 NOTSETIN @LPCSR(R2) DO ; REPEAT UNTIL LP GOES OFF-LINE
2289 022126          50240$: BIT    #BIT15,@LPCSR(R2)
022126 032772 100000 002356  BNE    50241$
2290 022134 001031          LET R5 := BNDPAT
022136 013705 023040  MOV    BNDPAT,R5
2291 022142          LET R3 := WORK
022142 013703 003154  MOV    WORK,R3
2292 022146          WHILE R3 GT #0 DO ; PRINT R3 CHARACTERS
022146          50242$: TST    R3
022146 005703          BLE    50243$
2293 022150 003417          WHILE #BIT7 NOTSETIN @LPCSR(R2) DO ; WAIT FOR READY
022152          50244$: BIT    #BIT7,@LPCSR(R2)
022152 032772 000200 002356  BNE    50245$
2294 022160 001007          IF #BIT15 SETIN @LPCSR(R2) THEN
022162 032772 100000 002356  BIT    #BIT15,@LPCSR(R2)
022170 001402          BEQ    50246$
2295 022172 000137 022334          JMP 99$ ; EXIT LOOP IF OFF-LINE AGAIN
2296 022176          ENDIF

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-7
 PRINTING SPEED MEASUREMENT

2297	022176				50246\$:		
	022176	000765				ENDDO	
	022200				50245\$:	BR	50244\$
2298	022200	112572	002452			MOV	LET @LPBUF(R2) :B= (R5)+ ; PUT CHAR INTO LP BUFFER
2299	022204	005303				DEC	(R5)+, @LPBUF(R2)
	022204						LET R3 := R3 - #1 ; DECREMENT CHAR COUNTER
2300	022206	000757				ENDDO	
	022210				50243\$:	BR	50242\$
2301	022210	104422					BREAK ; ALLOW CTL-C ABORT
	022210					TRAP	C\$BRK
2302	022212	005237	002276			INC	LET LINCNT := LINCNT + #1
	022212						LINCNT
2303	022216	000743				ENDDO	
	022216				50241\$:	BR	50240\$
	022220					ELSE	
2304	022220	000445				BR	50247\$
	022222				50235\$:		
2305	022222	023727	002322	000003			IF CLKTYP EQ #3 THEN
	022230	001003				CMP	CLKTYP, #3
	022232					BNE	50250\$
2306	022232	012777	003202	160070		MOV	LET @CLKSET := #1666. ; 1/60 SEC.
	022240						#1666., @CLKSET
	022240					ENDIF	
2308	022240	013777	002334	160060	50250\$:		
	022240					MOV	LET @CLKCSR := CLKENA ; ENABLE THE CLOCK TO DO ITS THING
2309	022246	005037	036672			MOV	CLKENA, @CLKCSR
	022252					CLR	LET TIME := #0
2310	022252	005037	002276			CLR	LET LINCNT := #0
	022256					CLR	LINCNT
2311	022256	023737	036672	002266			WHILE TIME LT PERIOD DO ; REPEAT UNTIL TIME EXHAUSTED
	022264	002023			50251\$:	CMP	TIME, PERIOD
2312	022266	013705	023040			BGE	50252\$
	022272					MOV	LET R5 := BNDPAT
2313	022272	013703	003154			MOV	BNDPAT, R5
	022276					MOV	LET R3 := WORK
2314	022276	005703				MOV	WORK, R3
	022276	003412			50253\$:		WHILE R3 GT #0 DO ; SEND R3 CHARACTERS
	022300					TST	R3
2315	022302	032772	000200	002356		BLE	50254\$
	022310	001002					WHILE #BIT7 NOTSETIN @LPCSR(R2) DO ; WAIT FOR READY
2316	022312	000240			50255\$:	BIT	#BIT7, @LPCSR(R2)
	022314	000772				BNE	50256\$
	022316						NOP
2317	022316	112572	002452			ENDDO	
	022322				50256\$:	BR	50255\$
2318	022322					MOV	LET @LPBUF(R2) :B= (R5)+ ; PUT DATA INTO BUFFER
2319	022322						(R5)+, @LPBUF(R2)
							LET R3 := R3 - #1 ; DECREMENT CHAR COUNTER

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-8
 PRINTING SPEED MEASUREMENT

2320	022322	005303			DEC	R3	
	022324					ENDDO	
	022324	000764			BR	50253\$	
	022326				50254\$:		
2321	022326					LET LINCNT := LINCNT + #1	
	022326	005237	002276		INC	LINCNT	
2322	022332					ENDDO	
	022332	000751			BR	50251\$	
	022334				50252\$:		
2323	022334					ENDIF	
	022334				50247\$:		
2324	022334				99\$:		
2325					:		
2326					:	IF MANUAL PRINT SPEED TESTS HAVE BEEN PERFORMED INSURE PRINTERS ARE	
2327					:	BACK ON LINE WHEN DONE	
2328					:		
2329	022334				:	IF CLKTYP EQ #4 THEN	
	022334	023727	002322	000004	CMP	CLKTYP,#4	
	022342	001020			BNE	50257\$	
2330	022344				LET FLAG := #0		:CLEAR <CR> FLAG
	022344	005037	002274		CLR	FLAG	
2331	022350				PRINTF #RESTOR		
	022350	012746	024151		MOV	#RESTOR,-(SP)	
	022354	012746	000001		MOV	#1,-(SP)	
	022360	010600			MOV	SP,R0	
	022362	104417			TRAP	C\$PNTF	
	022364	062706	000004		ADD	#4,SP	
2332	022370				GMANIL READY,FLAG,100000,YES		:WAIT FOR OPERATOR
	022370	104443			TRAP	C\$GMAN	
	022372	000404			BR	10001\$	
	022374	002274			.WORD	FLAG	
	022376	000130			.WORD	T\$CODE	
	022400	007603			.WORD	READY	
	022402	100000			.WORD	100000	
	022404				10001\$:		
2333	022404				ENDIF		
	022404				50257\$:		
2334	022404	012777	000000	157714	MOV	#00,@CLKCSR	
2335					:		
2336					:	REPORT TOTAL NUMBER OF LINES PRINTED	
2337					:		
2338	022412				PRINTB	#LINPER,LINCNT,LUNIT	
	022412	013746	002314		MOV	LUNIT,-(SP)	
	022416	013746	002276		MOV	LINCNT,-(SP)	
	022422	012746	023101		MOV	#LINPER,-(SP)	
	022426	012746	000003		MOV	#3,-(SP)	
	022432	010600			MOV	SP,R0	
	022434	104414			TRAP	C\$PNTB	
	022436	062706	000010		ADD	#10,SP	
2339	022442				PUSH	LINCNT,#OUTBUF+1	: CONVERT LINE COUNT TO ASCII
	022442	013746	002276		MOV	LINCNT,-(SP)	
	022446	012746	003161		MOV	#OUTBUF+1,-(SP)	
2340	022452	004737	004550		JSR	PC,BIN2DA	
2341	022456				WHILE #BIT7 NOTSETIN @LPCSR(R2) DO		:WAIT FOR READY
	022456				50260\$:		
	022456	032772	000200	002356	BIT	#BIT7,@LPCSR(R2)	
	022464	001001			BNE	50261\$	

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-9
 PRINTING SPEED MEASUREMENT

2342	022466				ENDDO	
	022466	000773			BR	50260\$
	022470				50261\$:	
2343	022470				OUTPUT	#OUTBUF,#6,,LUNIT ; DISPLAY LINE COUNT ON LP
2344	022532	004737	005544		JSR PC,QUIET	
2345	022536	004737	005544		JSR PC,QUIET	
2346	022542				OUTPUT	#SPED1,#19,,LUNIT ; 'LINES PRINTED'
2347	022604	004737	005544		JSR PC,QUIET	
2348						; IF A CLOCK WAS USED DISPLAY THE TIME USED ALSO
2349	022610					IF CLK TYP EQ #2 OR CLK TYP EQ #3 THEN
	022610	023727	002322	000002	CMP	CLK TYP,#2
	022616	001404			BEQ	50262\$
	022620	023727	002322	000003	CMP	CLK TYP,#3
	022626	001077			BNE	50263\$
	022630				50262\$:	
2350	022630				OUTPUT	#SPED2,#4,,LUNIT ; " IN "
2351	022672	004737	005544		JSR PC,QUIET	
2352	022676				PUSH	PERIOD,#OUTBUF+1 ; CONVERT TIME TO ASCII
	022676	013746	002266		MOV	PERIOD,-(SP)
	022702	012746	003161		MOV	#OUTBUF+1,-(SP)
2353	022706	004737	004550		JSR PC,BIN2DA	
2354	022712				OUTPUT	#OUTBUF+3,#3,,LUNIT ; DISPLAY THE TIME IN SECONDS
2355	022754	004737	005544		JSR PC,QUIET	
2356	022760				OUTPUT	#SPED3,#8,,LUNIT ; 'SECONDS'
2357	023022	004737	005544		JSR PC,QUIET	
2358	023026				ENDIF	
	023026				50263\$:	
2359	023026	000207			RTS PC	;GO BACK AND DO IT AGAIN
2360						
2361						;EXPECTED ERROR HANDLER
2362						
2363	023030				LPERR2:	LET ERRFLG := #1 ;SET ERROR FOUND
	023030	012737	000001	002340	MOV	#1,ERRFLG
2364	023036	000207			RTS	PC ;AND EXIT
2365						
2366						
2367	023040	000000			BNDPAT:	.WORD 0 ; CONTAINS ADDRESS OF PRINT PATTERN
2368					.NLIST	BEX
2369						
2370						;ASSOCIATED MESSAGES
2371						
2372	023042	040	114	111	SPED1:	.ASCII / LINES WERE PRINTED/
2373	023065	040	111	116	SPED2:	.ASCII / IN /
2374	023071	040	123	105	SPED3:	.ASCII / SECONDS/
2375	023101	045	116	045	LINPER:	.ASCIZ /%N%D3%A LINES PRINTED ON LUNIT %D2%N/
2376	023146	045	116	045	OFFLIN:	.ASCIZ /%N%AINSURE PRINTER(S) OFF LINE./
2377	023206	045	116	045	ONLIN1:	.ASCIZ /%N%APLACE LUNIT %D2%A ON LINE TO INITIATE TIME PERIOD FOR MANUAL/
2378	023307	045	116	045	ONLIN2:	.ASCIZ /%N%APRINTING SPEED MEASUREMENT AND BACK OFF LINE TO TERMINATE/
2379	023405	045	116	045	ONLIN3:	.ASCIZ /%N%ATHE TIME INTERVAL.%N/
2380	023436	120	122	111	PRTSPD:	.ASCIZ /PRINTING SPEED MEASUREMENT TEST 4/<12><12><12>
2381	023503	045	116	045	LPM64:	.ASCIZ /%N%A64 CHARACTER BAND SHOULD PRINT AT 285 LPM.%N/
2382	023564	045	116	045	LPM96:	.ASCIZ /%N%A96 CHARACTER BAND SHOULD PRINT AT 204 LPM.%N/
2383	023645	045	116	045	L26M64:	.ASCIZ /%N%A64 CHARACTER BAND SHOULD PRINT AT 600 LPM.%N/
2384	023726	045	116	045	L26M96:	.ASCIZ /%N%A96 CHARACTER BAND SHOULD PRINT AT 450 LPM.%N/
2385	024007	045	116	045	L07M64:	.ASCIZ /%N%A64 CHARACTER BAND SHOULD PRINT AT 1220 LPM.%N/
2386	024070	045	116	045	L07M96:	.ASCIZ /%N%A96 CHARACTER BAND SHOULD PRINT AT 888 LPM.%N/
2387	024151	045	116	045	RESTOR:	.ASCIZ /%N%ACLEAR PRINTER(S) AND PLACE ON LINE.%N/

CZLPLD0 LP25, LP26, LP07 TEST PRINTING SPEED MEASUREMENT MACRO M1113 30-DEC-80 09:36 PAGE 26-10

2388
 2389
 2390
 2391
 2392
 2393
 2394 024224 105 061 104
 2395 024237 042 062 134
 2396 024252 041 105 061
 2397 024265 076 042 073
 2398 024300 135 054 105
 2399 024313 051 074 046
 2400 024326 057 070 054
 2401 024341 130 051 127
 2402 024354 137 123 137
 2403 024367 120 130 117
 2404 024402 125 062 065
 2405 024415 111 120 110
 2406
 2407
 2408
 2409
 2410 024432 061 055 144
 2411 024445 075 140 174
 2412 024460 176 134 173
 2413 024473 077 041 074
 2414 024506 041 053 054
 2415 024521 050 135 051
 2416 024534 122 067 064
 2417 024547 066 057 130
 2418 024562 046 124 046
 2419 024575 121 132 120
 2420 024610 127 115 126
 2421 024623 111 122 110
 2422
 2423
 2424
 2425 024640 137 136 135
 2426 024653 124 123 122
 2427 024666 111 110 107
 2428 024701 076 075 074
 2429 024714 063 062 061
 2430 024727 050 047 046
 2431 024742 134 133 132
 2432 024755 121 120 117
 2433 024770 106 105 104
 2434 025003 073 072 071
 2435 025016 060 057 056
 2436 025031 045 044 043
 2437
 2438
 2439
 2440 025046 177 176 175
 2441 025061 164 163 162
 2442 025074 151 150 147
 2443 025107 136 135 134
 2444 025122 123 122 121

.LIST BEX
 .EVEN
 :64 CHARACTER BAND PATTERN 285 LPM / 600 LPM.
 :
 .SBTTL PRINT SPEED TEST PATTERNS
 .NLIST BEX
 TABA64: .BYTE 105,061,104,075,064,041,103,136,102,060,163
 .BYTE 042,062,134,054,124,101,133,101,133,043,135
 .BYTE 041,105,061,100,075,077,041,056,136,074,060
 .BYTE 076,042,073,042,073,134,055,124,044,133,057
 .BYTE 135,054,105,072,100,050,077,052,056,051,056
 .BYTE 051,074,046,076,071,073,045,055,053,044,137
 .BYTE 057,070,054,132,072,131,072,131,050,067,052
 .BYTE 130,051,127,046,066,071,126,045,125,053,065
 .BYTE 137,123,137,123,070,122,132,121,131,064,067
 .BYTE 120,130,117,124,063,066,116,126,115,126,115
 .BYTE 125,062,065,114,123,113,122,061,121,112,064
 .BYTE 111,120,110,117,060,117,060,063,107,116,106,012,015

:96 CHARACTER BAND TABLE 204 LPM. / 450 LPM.
 :
 :MINIMUM PRINT SPEED PATTERN 96 CHARACTER BAND
 TABA96: .BYTE 061,055,144,047,143,043,142,041,060,052,100
 .BYTE 075,140,174,176,041,056,054,056,054,136,042
 .BYTE 176,134,173,133,175,135,055,164,047,100,043
 .BYTE 077,041,074,041,074,052,062,075,076,174,073
 .BYTE 041,053,054,071,042,057,134,072,133,050,133
 .BYTE 050,135,051,164,070,100,046,124,045,123,044
 .BYTE 122,067,064,137,073,132,073,132,053,131,071
 .BYTE 066,057,130,072,127,050,120,151,125,070,065
 .BYTE 046,124,046,124,045,123,044,122,067,064,137
 .BYTE 121,132,120,131,117,066,063,130,116,130,116
 .BYTE 127,115,126,114,125,113,065,062,124,112,123
 .BYTE 111,122,110,064,061,064,061,121,107,102,106,012,015

: 64 CHARACTER BAND PATTERN FOR LP07, 1220 LPM
 TB0764: .BYTE 137,136,135,134,133,132,131,130,127,126,125
 .BYTE 124,123,122,121,120,117,116,115,114,113,112
 .BYTE 111,110,107,106,105,104,103,102,101,100,077
 .BYTE 076,075,074,073,072,071,070,067,066,065,064
 .BYTE 063,062,061,060,057,056,055,054,053,052,051
 .BYTE 050,047,046,045,044,043,042,041,137,136,135
 .BYTE 134,133,132,131,130,127,126,125,124,123,122
 .BYTE 121,120,117,116,115,114,113,112,111,110,107
 .BYTE 106,105,104,103,102,101,100,077,076,075,074
 .BYTE 073,072,071,070,067,066,065,064,063,062,061
 .BYTE 060,057,056,055,054,053,052,051,050,047,046
 .BYTE 045,044,043,042,041,137,136,135,134,132,131,012,015

: 96 CHARACTER BAND PATTERN FOR LP07 888 LPM
 TB0796: .BYTE 177,176,175,174,173,172,171,170,167,166,165
 .BYTE 164,163,162,161,160,157,156,155,154,153,152
 .BYTE 151,150,147,146,145,144,143,142,141,140,137
 .BYTE 136,135,134,133,132,131,130,127,126,125,124
 .BYTE 123,122,121,120,117,116,115,114,113,112,111

CZLPLDO LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 26-11
PRINT SPEED TEST PATTERNS

2445	025135	110	107	106	.BYTE	110,107,106,105,104,103,102,101,100,077,076
2446	025150	075	074	073	.BYTE	075,074,073,072,071,070,067,066,065,064,063
2447	025163	062	061	060	.BYTE	062,061,060,057,056,055,054,053,052,051,050
2448	025176	047	046	045	.BYTE	047,046,045,044,043,042,041,177,176,175,174
2449	025211	173	172	171	.BYTE	173,172,171,170,167,166,165,164,163,162,161
2450	025224	160	157	156	.BYTE	160,157,156,155,154,153,152,151,150,147,146
2451	025237	145	144	143	.BYTE	145,144,143,142,141,140,137,136,135,134,133,012,015
2452					.EVEN	
2453					.LIST BEX	
2454	025254				ENDTST	
	025254				L10013:	
	025254	104401			TRAP	C\$ETST
2455	025256				ENDMOD	

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 30
DATA TRANSFER PATHS

```

2460          .SBTTL DATA TRANSFER PATHS
2461
2462 025256    BGNMOD
2463          :++
2464          :THIS TEST CHECKS THE DATA TRANSFER
2465          :PATHS FROM THE PROCESSOR INTERFACE
2466          :TO THE PRINTER OUTPUT. AN ALTERNATING
2467          :PATTERN OF ONES AND ZEROES CORRESPONDING
2468          :TO AN ALTERNATING STRING OF '*' AND
2469          :'U' CHAPACTERS ARE TRANSMITTED ON THE
2470          :FULL 132 COLUMNS. AFTER 16 LINES OF
2471          :THIS PATTERN, THE OUTPUT PATTERN IS
2472          :SWITCHED TO AN ALTERNATING PATTERN
2473          :OF '?' AND '@' CHARACTERS FOR ANOTHER
2474          :16 LINES.
2475          :--
2476
2477 025256    BGNST 5
           025256    T5::
2478          :PRINT TEST IDENTIFICATION
2479 025256    OUTPUT #DATPTH,#29.
2480          :PRINT ALTERNATING STRINGS OF CHARACTERS
2481 025320    INCR PATTERN FROM #1 TO #2 BY #1
           025320    012737 000001 025676    MOV #1,PATTERN
           025326    000402                BR 50264$
           025330    50265$:
           025330    005237 025676          INC PATTERN
           025334    50264$:
           025334    023727 025676 000002    CMP PATTERN,#2
           025342    003107                BGT 50266$
2482 025344    IF PATTERN EQ #1 THEN
           025344    023727 025676 000001    CMP PATTERN,#1
           025352    001004                BNE 50267$
2483 025354    LET CHAR :B= #'U
           025354    112737 000125 025636    MOVB #'U,CHAR
2484 025362    ELSE
           025362    000403                BR 50270$
           025364    50267$:
2485 025364    LET CHAR :B= #'?
           025364    112737 000077 025636    MOVB #'?,CHAR
2486 025372    ENDIF
           025372    50270$:
2487 025372    LET R4 := #OUTBUF
           025372    012704 003160          MOV #OUTBUF,R4
2488 025376    INCR CCNT FROM #1 TO #66. BY #1
           025376    012737 000001 002304    MOV #1,CCNT
           025404    000402                BR 50271$
           025406    50272$:
           025406    005237 002304          INC CCNT
           025412    50271$:
           025412    023727 002304 000102    CMP CCNT,#66.
           025420    003017                BGT 50273$
2489 025422    LET (R4)+ :B= CHAR
           025422    113724 025636          MOVB CHAR,(R4)+
2490 025426    COMB CHAR
           025426    105137 025636          COMB CHAR
2491 025432    LET CHAR :B= CHAR CLR.BY #200
           025432    142737 000200 025636    BICB #200,CHAR

```

CZLPLDO LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 30-1
DATA TRANSFER PATHS

```

2492 025440          LET (R4)+ :B= CHAR
      025440 113724 025636  MOVB CHAR,(R4)+
2493 025444 105137 025636  COMB CHAR
2494 025450          LET CHAR :B= CHAR CLR.BY #200
      025450 142737 000200 025636  BICB #200,CHAR
2495 025456          ENDINC
      025456 000753          BR 50272$
      025460          50273$:
2496 025460          LET (R4)+ :B= #15
      025460 112724 000015  MOVB #15,(R4)+
2497 025464          LET (R4) :B= #12
      025464 112714 000012  MOVB #12,(R4)
2498 025470          INCR LINCNT FROM #1 TO #16. BY #1
      025470 012737 000001 002276  MOV #1,LINCNT
      025476 000402          BR 50274$
      025500          50275$:
      025500 005237 002276          INC LINCNT
      025504          50274$:
      025504 023727 002276 000020  CMP LINCNT,#16.
      025512 003022          BGT 50276$
2499 025514          OUTPUT #OUTBUF, #134.
2500 025556          ENDINC
      025556 000750          BR 50275$
      025560          50276$:
2501 025560          ENDINC
      025560 000663          BR 50265$
      025562          50266$:
2502 025562          LET OUTBUF :B= #14
      025562 112737 000014 003160  MOVB #14,OUTBUF
2503 025570          OUTPUT #OUTBUF, #1
2504 025632          EXIT TST
      025632 104432          TRAP C$EXIT
      025634 000044          .WORD L10014-.
2505          .NLIST BEX
2506 025636 000000          CHAR: .WORD 0
2507 025640 104 101 124  DATPTH: .ASCIZ /DATA TRANSFER PATHS TEST 5/ <12><12><12>
2508
2509          .EVEN
2510 025676 000000          PATTERN: .WORD 0
2511          .EVEN
2512          .EVEN
2513          .LIST BEX
2514
2515 025700          ENDTST
      025700          L10014:
      025700 104401          TRAP C$ETST
2516
2517 025702          ENDMOD

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 31
 PRINTABLE CHARACTERS

2519					.SBTTL PRINTABLE CHARACTERS
2520	025702				BGNMOD
2521					::++
2522					:: THIS TEST WILL PRINT A FULL LINE OF EACH PRINTABLE CHARACTER.
2523					:: BAND TYPE IS CHECKED ON A UNIT BY UNIT BASIS.
2524					:: UNITS WITH 96 CHAR BAND WILL BE SENT THE CHARACTER CODES :
2525					:: 140(8) THRU 176(8).
2526					::--
2527					
2528	025702				BGNTST 6
	025702				T6::
2529	025702				OUTPUT #PRTCHR, #30. ; PRINT TEST ID
2530					::
2531					:: PRINT ALL UPPER CASE CHARACTERS ON ALL UNITS
2532					::
2533	025744				INCR WORK FROM #40 TO #137 BY #1
	025744	012737	000040	003154	MOV #40,WORK
	025752	000402			BR 50277\$
	025754				50300\$:
	025754	005237	003154		INC WORK
	025760				50277\$:
	025760	023727	003154	000137	CMP WORK,#137
	025766	003045			BGT 50301\$
2534	025770				LET R4 := #OUTBUF
	025770	012704	003160		MOV #OUTBUF,R4
2535	025774				INCR COUNT FROM #1 TO #132. BY #1
	025774	012737	000001	002302	MOV #1,COUNT
	026002	000402			BR 50302\$
	026004				50303\$:
	026004	005237	002302		INC COUNT
	026010				50302\$:
	026010	023727	002302	000204	CMP COUNT,#132.
	026016	003003			BGT 50304\$
2536	026020				LET (R4)+ :B= WORK
	026020	113724	003154		MOVB WORK,(R4)+
2537	026024				ENDINC
	026024	000767			BR 50303\$
	026026				50304\$:
2538	026026				LET (R4)+ :B= #LF
	026026	112724	000012		MOVB #LF,(R4)+
2539	026032				OUTPUT #OUTBUF,#133.
2540	026074	004737	005544		JSR PC,QUIET
2541	026100				ENDINC
	026100	000725			BR 50300\$
	026102				50301\$:
2542					::
2543					:: NOW DO ALL THE LOWER CASE CHARACTERS ON THOSE UNITS
2544					:: EQUIPPED WITH 96 CHARACTER BANDS.
2545					::
2546					::
2547					:: FIRST DETERMINE IF ANY UNITS HAVE 96 CHAR BANDS
2548					::
2549	026102				LET WORK := #0 ; COUNTER FOR 96 CHAR UNITS
	026102	005037	003154		CLR WORK
2550	026106				LET WORK1 := L\$UNIT - #1 ; GET UNIT COUNT
	026106	013737	002012	003156	MOV L\$UNIT,WORK1
	026114	005337	003156		DEC WORK1

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 31-1
 PRINTABLE CHARACTERS

```

2551 026120          INCR LUNIT FROM #0 TO WORK1 BY #1
      026120 005037 002314          CLR      LUNIT
      026124 000402          BR        50305$
      026126          50306$:      INC      LUNIT
      026126 005237 002314          50305$:      CMP      LUNIT,WORK1
      026132 023737 002314 003156      BGT      50307$
      026132 003012          LET R2 := LUNIT SHIFT 1
      026140 013702 002314          MOV      LUNIT,R2
      026142 006302          ASL      R2
2552 026142          IF #FLAG96 SETIN STATUS(R2) THEN ; IS THIS UNIT 96 CHAR ?
      026142 013702 002314          BIT      #FLAG96,STATUS(R2)
      026146 006302          BEQ      50310$
2553 026150          LET WORK := WORK + #1 ; YES ADD 1 TO COUNT
      026150 032762 010000 002512      INC      WORK
      026156 001402          ENDIF
2554 026160          50310$:
      026160 005237 003154          ENDINC
      026164          BR        50306$
2555 026164          50307$:
      026164 000760          IF WORK EQ #0 THEN ; ANY 96 CHAR UNITS ?
      026166 005737 003154          TST      WORK
      026172 001026          BNE      50311$
2556 026174          LET OUTBUF :B= #14
      026174 112737 000014 003160      MOV      #14,OUTBUF
2557 026174          OUTPUT #OUTBUF,#1
      026174 005737 003154          EXIT TST ; ALL UNITS 64 CHAR...EXIT
2558 026202          TRAP C$EXIT
      026202 104432          .WORD   L10015-.
2559 026244          000330
2560 026244          104432
      026246 000330
2561 026250          ENDF
      026250          50311$:
2562 026250          ; SETUP FOR LOWER CASE CHARACTERS DISPLAY
2563 026250          ;
2564 026250          INCR WORK FROM #140 TO #176 BY #1
      026250 012737 000140 003154      MOV      #140,WORK
      026256 000402          BR        50312$
      026260          50313$:
      026260 005237 003154          INC      WORK
      026264          50312$:
      026264 023727 003154 000176      CMP      WORK,#176
      026272 003073          BGT      50314$
2565 026274          LET R4 := #OUTBUF
      026274 012704 003160          MOV      #OUTBUF,R4
2566 026300          INCR COUNT FROM #1 TO #132. BY #1
      026300 012737 000001 002302      MOV      #1,COUNT
      026306 000402          BR        50315$
      026310          50316$:
      026310 005237 002302          INC      COUNT
      026314          50315$:
      026314 023727 002302 000204      CMP      COUNT,#132.
      026322 003003          BGT      50317$
2567 026324          LET (R4)+ :B= WORK
      026324 113724 003154          MOV      WORK,(R4)+
2568 026330          ENDF
      026330 000767          BR        50316$
      026332          50317$:

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 31-2
 PRINTABLE CHARACTERS

2569	026332					LET (R4)+ :B= #LF
	026332	112724	000012			MOV#B #LF,(R4)+
2570	026336					LET WORK1 := L\$UNIT - #1
	026336	013737	002012	003156		MOV L\$UNIT,WORK1
	026344	005337	003156			DEC WORK1
2571	026350					INCR LUNIT FROM #0 TO WORK1 BY #1
	026350	005037	002314			CLR LUNIT
	026354	000402				BR 50320\$
	026356				50321\$:	
	026356	005237	002314			INC LUNIT
	026362				50322\$:	
	026362	023737	002314	003156		CMP LUNIT,WORK1
	026370	003031				BGT 50322\$
2572	026372					LET R2 := LUNIT SHIFT 1
	026372	013702	002314			MOV LUNIT,R2
	026376	006302				ASL R2
2573	026400					IF #FLAG96 SET IN STATUS(R2) THEN
	026400	032762	010000	002512		#FLAG96,STATUS(R2)
	026406	001421				50323\$
2574	026410					OUTPUT #OUTBUF,#133,,LUNIT
2575	026452					ENDIF
	026452				50323\$:	
2576	026452					ENDINC
	026452	000741				BR 50321\$
	026454				50322\$:	
2577	026454	004737	005544			JSR PC,QUIET ; WAIT FOR ALL DONE
2578	026460					ENDINC
	026460	000677				BR 50313\$
	026462				50314\$:	
2579	026462					LET OUTBUF :B= #14
	026462	112737	000014	003160		MOV#B #14,OUTBUF
2580	026470					OUTPUT #OUTBUF,#1 ; EXECUTE TOF
2581	026532					EXIT TST
	026532	104432				TRAP C\$EXIT
	026534	000042				.WORD L10015-
2582						.NLIST BEX
2583	026536	120	122	111		PRCHR: .ASCIZ /PRINTABLE CHARACTERS TEST 6/ <12><12><12>
2584						.EVEN
2585						
2586	026576					ENDTST
	026576					L10015:
	026576	104401				TRAP C\$TST
2587						.LIST BEX
2588	026600					ENDMOD
2589						

CZLPLDO LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 32
NON-PRINTABLE CHARACTERS

```

2591          .SBTTL NON-PRINTABLE CHARACTERS
2592
2593 026600    BGNMOD
2594          :++
2595          :THIS TEST CHECKS FOR DETECTION OF ALL NON-PRINTABLE CHARACTERS.
2596          :EACH CHARACTER WILL APPEAR ON THE PRINTER OUTPUT IN THE FORM OF ITS OCTAL
2597          :CODE ACCOMPANIED WITH ITS MNEMONIC.
2598          :123 OF THE TESTED CODE ARE THEN SENT.
2599          :ALSO, ON PRINTERS WITH 64 CHARACTER BANDS, IT CHECKS TO
2600          :MAKE SURE THAT CODES 140 THRU 177 ARE CONVERTED TO CODES 100 THRU 137.
2601          :--
2602
2603 026600    BGNST 7
2604 026600    T7::
2605          :INDICATE TEST CURRENTLY BEING DONE
2606          :
2607 026600    OUTPUT #NONCHR,#71.
2608 026642    LET R4 := #NONBUF
2609 026642 012704 027721  MOV #NONBUF,R4
2610 026646    LET WORK1 := #27.
2611 026646 012737 000033 003156  MOV #27.,WORK1
2612          :
2613          : DO ONE LINE FOR EACH TABLE ENTRY
2614          :
2615          : INCR LINCNT FROM #0 TO WORK1 BY #1
2616 026654 005037 002276    CLR LINCNT
2617 026660 000402          BR 50324$
2618 026662 005237 002276    50325$: INC LINCNT
2619 026666 023737 002276 003156 50324$: CMP LINCNT,WORK1
2620 026674 003061          BGT 50326$
2621 026676 012703 003160    MOV LET R3 := #OUTBUF
2622          :
2623          : MOVE CODE AND MNEMONIC TO PRINT BUFFER
2624          :
2625          : INCR WORK FROM #1 TO #8. BY #1
2626 026702 012737 000001 003154  MOV #1,WORK
2627 026710 000402          BR 50327$
2628 026712 005237 003154    50330$: INC WORK
2629 026716 023727 003154 000010 50327$: CMP WORK,#8.
2630 026724 003002          BGT 50331$
2631 026726 112423          MOVB LET (R3)+ :B= (R4)+
2632 026730 000770          (R4)+,(R3)+
2633          :
2634          : ENDINC
2635 026732 000770          BR 50330$
2636          :
2637          : PUT 120 BYTES OF CODE INTO PRINT BUFFER
2638          :
2639          : INCR WORK FROM #1 TO #123. BY #1
2640 026732 012737 000001 003154  MOV #1,WORK
2641 026740 000402          BR 50332$

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 32-1
NON-PRINTABLE CHARACTERS

2625	026742	005237	003154	000173	50333\$:	INC	WORK	
2626	026746	023727	003154		50332\$:	CMP	WORK,#123.	
	026754	003002				BGT	50334\$	
	026756	111423				MOV	LET (R3)+ :B= (R4)	
	026760	000770				MOV	(R4),(R3)+	
	026762					BR	ENDINC	
2627					50334\$:		50333\$	
2628					:			
2629					:			
2630					:			
2631	026762				:			
	026762	112723	000015			MOV	LET (R3)+ :B= #15	
2632	026766	112723	000012			MOV	#15,(R3)+	
	026766					MOV	LET (R3)+ :B= #12	
2633						MOV	#12,(R3)+	
2634					:			
2635					:			
2636	026772				:			
2637	027034				:			
	027034	005204			:			
2638	027036	000711			:			
	027036				:			
	027040				:			
2639					:			
2640					:			
2641					:			
2642					:			
2643					:			
2644					:			
2645	027040				:			
	027040	012703	003160		:			
2646	027044	012704	000140		:			
	027050	000401			:			
	027052				:			
	027052	005204			:			
	027054				:			
	027054	020427	000177		:			
	027060	003002			:			
2647	027062	110423			:			
2648	027064	000772			:			
	027066				:			
2649	027066	112723	000012		:			
2650	027072	013737	002012	003154	:			
	027100	005337	003154		:			
2651	027104	005037	002314		:			
	027110	000402			:			
	027112				:			

```

50333$: INC WORK
50332$: CMP WORK,#123.
          BGT 50334$
          MOV LET (R3)+ :B= (R4)
          (R4),(R3)+
          ENDINC
          BR 50333$
50334$:
:
: FOLLOWED BY CRLF
:
          LET (R3)+ :B= #15
          MOV #15,(R3)+
          LET (R3)+ :B= #12
          MOV #12,(R3)+
:
: PRINT LINE OF OCTAL CODE, MNEMONIC, AND 120 BYTES(NONPRINTABLE CODE)
:
          OUTPUT #OUTBUF,#133.
          LET R4 := R4 + #1
          INC R4
          ENDINC
          BR 50325$
50326$:
:
: UNITS WITH 64 CHAR BAND SHOULD STRIP BIT 6 OF DATA
: AND PRINT THE DATA FOR CODES 140(8) THRU 177(8)
: AS IF CODES 100(8) THRU 137(8) WERE RECIEVED.
: **NOTE** DELETE IS PRINTED AS UNDERSCORE '_'
:
          LET R3 := #OUTBUF
          MOV #OUTBUF,R3
          INCR R4 FROM #140 TO #177 BY #1
          MOV #140,R4
          BR 50335$
50336$: INC R4
50335$: CMP R4,#177
          BGT 50337$
          LET (R3)+ :B= R4 ; FILL BUFFER WITH CODES & LF
          MOV R4,(R3)+
          ENDINCR
          BR 50336$
50337$: LET (R3)+ :B= #LF
          MOV #LF,(R3)+
          LET WORK := L$UNIT - #1 ; SEND MSG AND BUFFER TO ALL
          MOV L$UNIT,WORK
          DEC WORK
          INCR LUNIT FROM #0 TO WORK BY #1 ; UNITS WITH 64 CHAR BAND
          CLR LUNIT
          BR 50340$
50341$:

```


CZLPLD0 LP25, _P26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 32-2
NON-PRINTABLE CHARACTERS

```

027112 005237 002314          INC      LUNIT
027116          023737 002314 003154 50340$: CMP      LUNIT,WORK
027124 003073          BGT      50342$
2652 027126          MOV      LET R2 := LUNIT SHIFT 1
027126 013702 002314          ASL      LUNIT,R2
027132 006302          BIT      IF #FLAG96 NOTSETIN STATUS(R2) THEN
2653 027134 032762 010000 002512  BNE      #FLAG96,STATUS(R2)
027142 001063          OUTPUT #AUTSEC,#77...LUNIT
2654 027144          OUTPUT #AUTCON,#61...LUNIT
2655 027206          OUTPUT #OUTBUF,#33...LUNIT
2656 027250          ENDIF
2657 027312          50343$: ENDINCR
027312          BR      50341$
2658 027312 000677          50342$: LET OUTBUF :B= #14
027314          MOV      #14,OUTBUF
2659 027314 112737 000014 003160  OUTPUT #OUTBUF,#1
2660 027322          EXIT      TST
2661 027364 104432          TRAP      C$EXIT
027366 000730          .WORD   L10016-.

```

:AND EXIT TEST

: CHARACTER BUFFER AND TEST HEADER MESSAGE

:.NLIST BEX

2666	027370	116	117	116	NONCHR: .ASCII /NON-PRINTABLE CHARACTERS TEST 07/<12>
2667	027431	101	040	106	.ASCIZ /A FULL LINE OF EACH CODE WILL BE SENT/<12>
2668	027500	124	110	111	AUTSEC: .ASCIZ /THIS SECTION CHECKS AUTOMATIC CONVERSION ON PRINTERS WITH 64 CHARACTER BAND
2669	027616	103	117	104	AUTCON: .ASCIZ /CODES 140(8) ..177(8) SHOULD BE CONVERTED TO 100(8)..137(8)/<12><12>
2670	027714	015	012	012	SKIP3: .ASCIZ <15><12><12><12>
2671					
2672	027721	040	060	060	NONBUF: .ASCII / 000 NUL/<0>
2673	027732	040	060	060	.ASCII / 001 SOH/<1>
2674	027743	040	060	060	.ASCII / 002 STX/<2>
2675	027754	040	060	060	.ASCII / 003 ETX/<3>
2676	027765	040	060	060	.ASCII / 004 EOT/<4>
2677	027776	040	060	060	.ASCII / 005 ENQ/<5>
2678	030007	040	060	060	.ASCII / 006 ACK/<6>
2679	030020	040	060	060	.ASCII / 007 BEL/<7>
2680	030031	040	060	061	.ASCII / 010 BS /<10>
2681	030042	040	060	061	.ASCII / 011 HT /<11>
2682	030053	040	060	061	.ASCII / 016 SO /<16>
2683	030064	040	060	061	.ASCII / 017 SI /<17>
2684	030075	040	060	062	.ASCII / 020 DLE/<20>
2685	030106	040	060	062	.ASCII / 021 XON/<21>
2686	030117	040	060	062	.ASCII / 022 DC2/<22>
2687	030130	040	060	062	.ASCII / 023 XOF/<23>
2688	030141	040	060	062	.ASCII / 024 DC4/<24>
2689	030152	040	060	062	.ASCII / 025 NAK/<25>
2690	030163	040	060	062	.ASCII / 026 SYN/<26>
2691	030174	040	060	062	.ASCII / 027 ETB/<27>
2692	030205	040	060	063	.ASCII / 030 CAN/<30>
2693	030216	040	060	063	.ASCII / 031 EM /<31>
2694	030227	040	060	063	.ASCII / 032 SUB/<32>

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 32-3
NON-PRINTABLE CHARACTERS

2695	030240	040	060	063	.ASCII / 033	ESC / <33>
2696	030251	040	060	063	.ASCII / 034	FS / <34>
2697	030262	040	060	063	.ASCII / 035	GS / <35>
2698	030273	040	060	063	.ASCII / 036	RS / <36>
2699	030304	040	060	063	.ASCII / 037	US / <37>

2700

2701

2702

2703

030316
030316
030316 104401

.LIST BEX
ENDTST
L10016: TRAP C\$ETST

2704

2705

2706

030320

ENDMOD

```

2708
2709 030320
2710
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2725
2726
2727
2728
2729
2730
2731
2732
2733 030320
      030320
2734      000014
2735
2736
2737
2738 030320
      030320 012746 031652
      030324 012746 000001
      030330 010600
      030332 104417
      030334 062706 000004
2739
2740
2741
2742 030340
      030340 005737 002270
      030344 001432
2743 030346
      030346 105037 032166
2744 030352
      030352 112737 000043 032172
2745 030360
      030360 105037 032304
2746 030364
      030364 113737 000043 032311
2747 030372
      030372 105037 032422
2748 030376
      030376 112737 000043 032426
2749 030404
      030404 105037 032544

```

```

.SBTTL BAND PATTERN
BGNMOD
:++
:BAND PATTERN TEST
:THIS TEST ONLY EXECUTES ON LP25 OR LP26. IT DOES NOTHING ON LP07.
:THIS TEST PRODUCES AN IMAGE OF THE ENTIRE BAND PATTERN. THE PRINT-OUT
:IS ORGANIZED TO LOCATE THE FOUR QUADRANTS OF THE BAND IN THE FOLLOWING
:FORMAT:
      QUADRANT NO.1          QUADRANT NO. 2
      QUADRANT NO.3          QUADRANT NO.4
      QUADRANT NO.1          ETC.
:THE REASON FOR THIS ARRANGEMENT IS TO FACILITATE VISUAL INSPECTION
:OF THE PRINTOUT AS WELL AS TO ACCOMODATE THE 208 CHARACTERS OF THE BAND
:IN 132 COLUMNS.
      STATUS(R2) FLAG96      =1 FOR 96 CHAR BAND
                              =0 FOR 64 CHAR BAND
      SOFTWARE SWITCH USA    =1 FOR AMERICAN PRINT SET
                              =0 FOR BRITISH PRINT SET
:--
BGNTST 8.
T8::
TOF = 014
:PRINT TEST IDENTIFICATION ON ALL UNITS
:PRINTF #N007
MOV #N007,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #4,SP
:SETUP PATTERNS FOR EUROPEAN OR AMERICAN PRINTERS
      IF USA NE #0 THEN      : AMERICAN, PRINT SHARP SIGN '#'
      TST USA
      BEQ 50344$
      LET BP64Q2+18. :B= #0
      CLRB BP64Q2+18.
      LET BP64Q2+22. :B= #43
      MOVB #43,BP64Q2+22.
      LET BP64Q3+35. :B= #0
      CLRB BP64Q3+35.
      LET BP64Q3+40. :B= 43
      MOVB 43,BP64Q3+40.
      LET BP64Q4+53. :B= #0
      CLRB BP64Q4+53.
      LET BP64Q4+57. :B= #43
      MOVB #43,BP64Q4+57.
      LET BP96Q2+13. :B= #0
      CLRB BP96Q2+13.

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 33-1
 BAND PATTERN

2750	030410				LET BP96Q2+18. :B= #43
	030410	112737	000043	032551	MOVB #43, BP96Q2+18.
2751	030416				LET BP96Q4+13. :B= #0
	030416	105037	032735		CLRB BP96Q4+13.
2752	030422				LET BP96Q4+18. :B= #43
	030422	112737	000043	032742	MOVB #43, BP96Q4+18.
2753	030430				ELSE ; EUROPEAN, PRINT POUND STERLING SIGN
	030430	000431			BR 50345\$
	030432			50344\$:	
2754	030432				LET BP64Q2+18. :B= #43
	030432	112737	000043	032166	MOVB #43, BP64Q2+18.
2755	030440				LET BP64Q2+22. :B= #0
	030440	105037	032172		CLRB BP64Q2+22.
2756	030444				LET BP64Q3+35. :B= #43
	030444	112737	000043	032304	MOVB #43, BP64Q3+35.
2757	030452				LET BP64Q3+40. :B= #0
	030452	105037	032311		CLRB BP64Q3+40.
2758	030456				LET BP64Q4+53. :B= #43
	030456	112737	000043	032422	MOVB #43, BP64Q4+53.
2759	030464				LET BP64Q4+57. :B= #0
	030464	105037	032426		CLRB BP64Q4+57.
2760	030470				LET BP96Q2+13. :B= #43
	030470	112737	000043	032544	MOVB #43, BP96Q2+13.
2761	030476				LET BP96Q2+18. :B= #0
	030476	105037	032551		CLRB BP96Q2+18.
2762	030502				LET BP96Q4+13. :B= #43
	030502	112737	000043	032735	MOVB #43, BP96Q4+13.
2763	030510				LET BP96Q4+18. :B= #0
	030510	105037	032742		CLRB BP96Q4+18.
2764	030514				ENDIF
	030514			50345\$:	
2765					...
2766					PRINT PROPER BAND IDENTIFICATION MSG. ON EACH PRINTER
2767					...
2768	030514				LET R1 := L\$UNIT - #1
	030514	013701	002012		MOV L\$UNIT, R1
	030520	005301			DEC R1
2769	030522				INCR LUNIT FROM #0 TO R1 BY #1
	030522	005037	002314		CLR LUNIT
	030526	000402			BR 50346\$
	030530			50347\$:	
	030530	005237	002314		INC LUNIT
	030534			50346\$:	
	030534	023701	002314		CMP LUNIT, R1
	030540	003162			BGT 50350\$
2770	030542				LET R2 := LUNIT SHIFT 1
	030542	013702	002314		MOV LUNIT, R2
	030546	006302			ASL R2
2771	030550				IF #FLAG07 NOTSET IN STATUS(R2) THEN
	030550	032762	002000	002512	BIT #FLAG07, STATUS(R2)
	030556	001152			BNE 50351\$
2772	030560				OUTPUT #BNDTST, #23, LUNIT
2773	030622				IF #FLAG26 NOTSET IN STATUS(R2) AND #FLAG07 NOTSET IN STATUS(R2) THEN
	030622	032762	001000	002512	BIT #FLAG26, STATUS(R2)
	030630	001025			BNE 50352\$
	030632	032762	002000	002512	BIT #FLAG07, STATUS(R2)
	030640	001021			BNE 50352\$

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 33-2
BAND PATTERN

```

2774 030642                                OUTPUTI #BPID25,#6,,LUNIT      ; PRINTER IS LP25
2775 030704                                ENDIF
      030704                                50352$:
2776 030704                                IF #FLAG26 SETIN STATUS(R2) AND #FLAG07 NOTSETIN STATUS(R2) THEN
      030704 032762 001000 002512          BIT #FLAG26,STATUS(R2)
      030712 001425                                50353$
      030714 032762 002000 002512          BIT #FLAG07,STATUS(R2)
      030722 001021                                50353$
2777 030724                                OUTPUTI #BPID26,#6,,LUNIT      ; PRINTER IS LP26
2778 030766                                ENDIF
      030766                                50353$:
2779 030766                                IF #FLAG96 SETIN STATUS(R2) THEN
      030766 032762 010000 002512          BIT #FLAG96,STATUS(R2)
      030774 001422                                50354$
2780 030776                                OUTPUTI #BP96ID,#22,,LUNIT    ; 96 CHAR BAND
2781 031040                                ELSE
      031040 000421                                BR 50355$
      031042                                50354$:
2782 031042                                OUTPUTI #BP64ID,#22,,LUNIT    ; 64 CHAR BAND
2783 031104                                ENDIF
      031104                                50355$:
2784 031104                                ENDIF
      031104                                50351$:
2785 031104                                ENDINC
      031104 000611                                BR 50347$
      031106                                50350$:
2786 :
2787 : NOW PRINT 2_LINE PATTERN 15. TIMES, WITH BLANK LINE BETWEEN PATTERNS
2788 :
2789 031106                                LET LINCNT := #14.
      031106 012737 000016 002276          MOV #14,,LINCNT
2790 031114                                2$:
2791 031114                                INCR LUNIT FROM #0 TO R1 BY #1 ; PRINT QUADRANTS 1 & 2
      031114 005037 002314          CLR LUNIT
      031120 000402                                BR 50356$
      031122                                50357$:
      031122 005237 002314          INC LUNIT
      031126                                50356$:
      031126 023701 002314          CMP LUNIT,R1
      031132 003105                                BGT 50360$
2792 031134                                LET R2 := LUNIT SHIFT 1      ; INDEX INTO STATUS TABLES
      031134 013702 002314          MOV LUNIT,R2
      031140 006302                                ASL R2
2793 031142                                IF #FLAG07 NOTSETIN STATUS(R2) THEN
      031142 032762 002000 002512          BIT #FLAG07,STATUS(R2)
      031150 001075                                BNE 50361$
2794 031152                                IF #FLAG96 NOTSETIN STATUS(R2) THEN
      031152 032762 010000 002512          BIT #FLAG96,STATUS(R2)
      031160 001022                                BNE 50362$
2795 031162                                OUTPUTI #BP64Q1,#121,,LUNIT  ; 64 CHAR PATTERN
2796 031224                                ELSE
      031224 000447                                BR 50363$
      031226                                50362$:
2797 031226                                IF #FLAG26!FLAG07 NOTSETIN STATUS(R2) THEN
      031226 032762 003000 002512          BIT #FLAG26!FLAG07,STATUS(R2)
      031234 001022                                BNE 50364$
2798 031236                                OUTPUTI #BP96Q3,#121,,LUNIT  ; LP25 96 CHAR PATTERN

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 33-3
BAND PATTERN

```

2799 031300
      031300 000421
      031302
2800 031302
2801 031344
      031344
2802 031344
      031344
2803 031344
      031344
2804 031344
      031344 000666
      031346
2805 031346
2806 031346 005037 002314
      031352 000402
      031354
      031354 005237 002314
      031360
      031360 023701 002314
      031364 003057
2807 031366
      031366 013702 002314
      031372 006302
2808 031374
      031374 032762 002000 002512
      031402 001047
2809 031404
      031404 032762 010000 002512
      031412 001022
2810 031414
2811 031456
      031456 000421
      031460
2812 031460
2813 031522
      031522
2814 031522
      031522
2815 031522
      031522 000714
      031524
2816 031524
      031524 005337 002276
2817 031530 001402
2818 031532 000137 031114
2819 031536
2820
2821
2822 031536
      031536 112727 000014 003160
2823 031544
      031544 005037 002314
      031550 000402
      031552
      031552 005237 002314

```

```

ELSE
50364$: BR 50365$
      OUTPUTI #BP96Q1,#121,,,LUNIT ; LP26 96 CHAR PATTERN
      ENDIF
50365$:
      ENDIF
50363$:
      ENDIF
50361$:
      ENDINC
50360$: BR 50357$
      ; NOW DO QUADRANTS 3 & 4
      INCR LUNIT FROM #0 TO R1 BY #1 ; REPEAT FOR ALL UNITS
      CLR LUNIT
      BR 50366$
50367$: INC LUNIT
50366$: CMP LUNIT,R1
      BGT 50370$
      LET R2 := LUNIT SHIFT 1 ; INDEX INTO STATUS TABLES
      MOV LUNIT,R2
      ASL R2
      IF #FLAG07 NOTSETIN STATUS(R2) THEN
      BIT #FLAG07,STATUS(R2)
      BNE 50371$
      IF #FLAG96 NOTSETIN STATUS(R2) THEN
      BIT #FLAG96,STATUS(R2)
      BNE 50372$
      OUTPUTI #BP64Q3,#122,,,LUNIT ; 64 CHAR PATTERN
      ELSE
50372$: BR 50373$
      OUTPUTI #BP96Q3,#122,,,LUNIT ; 96 CHAR PATTERN
      ENDIF
50373$:
      ENDIF
50371$:
      ENDINC
50370$: BR 50367$
      LET LINCNT := LINCNT - #1
      DEC LINCNT
      BEQ 3$
      JMP 2$
3$:
; DO TOP THEN EXIT ON ALL UNITS EXCEPT LP07'S
      LET #OUTBUF :B= #14
      MOVB #14,#OUTBUF
      INCR LUNIT FROM #0 TO R1 BY #1
      CLR LUNIT
      BR 50374$
50375$: INC LUNIT

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 33-4
BAND PATTERN

```

031556
031556 023701 002314
031562 003031
2824 031564
031564 013702 002314
031570 006302
2825 031572
031572 032762 002000 002512
031600 001021
2826 031602
2827 031644
031644
2828 031644
031644 000742
031646
2829
2830 031646
031646 104432
031650 001146
2831
2832 031652 045 116 045
2833 031731 102 101 116
2834 031760 114 120 062
2835 031766 114 120 062
2836 031774 066 064 040
2837 032022 071 066 040
2838
2839
2840
2841 032050 040 040 040
2842 032060 101 102 105
2843 032112 125 126 066
2844
2845 032144 040 040 040
2846 032154 077 100 105
2847 032206 110 111 066
2848
2849 032241 040 040 040
2850 032251 137 053 105
2851 032303 136 043 066
2852
2853 032335 040 040 040
2854 032345 116 117 105
2855 032377 072 057 066
2856
2857
2858
2859 032433 040 040 040
2860 032443 101 102 103
2861 032475 125 126 127
2862 032522 145
2863 032523 074 077 100
2864 032526 164
2865
2866 032527 040 040 040
2867 032537 135 133 134
2868 032545 174

```

```

50374$:
CMP LUNIT,R1
BGT 50376$
LET R2 := LUNIT SHIFT 1
MOV LUNIT,R2
ASL R2
IF #FLAG07 NOTSETIN STATUS(R2) THEN
BIT #FLAG07,STATUS(R2)
BNE 50377$
OUTPUT #OUIBUF,#1,,LUNIT
ENDIF
50377$:
ENDINC
BR 50375$
50376$:
EXIT TST
TRAP C$EXIT
WORD L10017-.
.NLIST BEX
NO07: .ASCII /%N%ABAND PATTERN TEST DOES NOTHING ON LP07*$%N/
BNDTST: .ASCII /BAND PATTERN TEST 08 /
BPID25: .ASCII /LP25 /
BPID26: .ASCII /LP26 /
BP64ID: .ASCII /64 CHAR BAND PATTERN/<12><12>
BP96ID: .ASCII /96 CHAR BAND PATTERN/<12><12>
: 64 CHAR BAND PATTERN LP25 & LP26
BP64Q1: .ASCII /
.ASCII /ABECDTFGOHIJ1KL2MN3OP4QRS5/
.ASCII /UV6WX7YZ8_+%9&)*(:./<57>/$-;><./
BP64Q2: .ASCII /
.ASCII /?@E][T\'0^#=1!#2%A3BC4DFG5/
.ASCII /HI6JK7LM8NOP9QR*SU,VW-XYZ./<12>
BP64Q3: .ASCII /
.ASCII /+E%&T)(0:/<57>/$1;>2<?3@]4[\'5/
.ASCII /%#6=!7#*8ABC9DF*GH,IJ-KLM./
BP64Q4: .ASCII /
.ASCII /NOEPQTRS0JUVW1XY2Z_3+%4&)(5/
.ASCII /_:/6$;7><8?@]9[\*'%,#=-!#'_<12><12>
: 96 CHAR BAND LP25 = Q3..Q4 LP26 = Q1..Q4
BP96Q1: .ASCII /
.ASCII /ABCD0EFG1HIJ2KLMN3OPQ4RST5/
.ASCII /UVWX6YZ_7$%&8)(:/<57>/9+;>/
.BYTE 145
.ASCII /<?@/
.BYTE 164
BP96Q2: .ASCII /
.ASCII /][\'.#/
.BYTE 174

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 33-5
BAND PATTERN

2869	032546	075	052	041	.ASCII	/=*!#'-/
2870	032554	175	173	176	.BYTE	175,173,176,136,56,177,140,141,60,142,143,144,61
2871	032571	146	147	150	.BYTE	146,147,150,151,62,152,153,154,63,155,156
2872	032604	157	064	160	.BYTE	157,64,160,161,162,163,65,165,166,167,66
2873	032617	170	171	172	.BYTE	170,171,172,67,12
2874						
2875	032624	040	040	040	BP96Q3:	.ASCII / /
2876	032634	101	102	103	.ASCII	/ABCD8EFG9HIJ/
2877	032650	145			.BYTE	145
2878	032651	113	114	115	.ASCII	/KLMN/
2879	032655	164			.BYTE	164
2880	032656	117	120	121	.ASCII	/OPQ,RST*/
2881	032666	125	126	127	.ASCII	/UVWX-YZ_.\$%&0)(: /<57>/1+,:>2<?@3/
2882						
2883	032720	040	040	040	BP96Q4:	.ASCII / /
2884	032730	135	133	134	.ASCII	/][\''4#/
2885	032736	174			.BYTE	174
2886	032737	075	065	041	.ASCII	/=5!#*6/
2887	032745	175	173	176	.BYTE	175,173,176,136,67,177,140,141,70,142,143,144,71
2888	032762	146	147	150	.BYTE	146,147,150,151,145,152,153,154,164,155,156,157
2889	032776	054	160	161	.BYTE	54,160,161,162,163,52,165,166,167,55,170
2890	033011	171	172	056	.BYTE	171,172,56,12,12
2891					.LIST	BEX
2892					.EVEN	
2893	033016				ENDTST	
	033016				L10017:	
	033016	104401			TRAP	C\$ETST
2894	033020				ENDMOD	

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 34-1
SPURIOUS HAMMER FIRING

```

033166
033166 023737 002304 003154 50405$: CMP CCNT,WORK
033174 002022 BGE 50406$
2932 033176 IF STRCNT EQ #0 THEN
033176 005737 002306 TST STRCNT
033202 001006 BNE 50407$

2933
2934 ;RESET GROUP POINTERS AND COUNTERS
2935
2936 033204 LET STRCNT := #33.
033204 012737 000041 002306 MOV #33.,STRCNT
2937 033212 LET CHRGEN := #77
033212 012737 000077 002310 MOV #77,CHRGEN
2938 033220 ENDIF
033220
2939 033220 50407$: LET (R4)+ :B= CHRGEN
033220 113724 002310 MOVB CHRGEN,(R4)+
2940 033224 LET CHRGEN := CHRGEN + #1
033224 005237 002310 INC CHRGEN
2941 033230 LET CCNT := CCNT + #1
033230 005237 002304 INC CCNT
2942 033234 LET STRCNT := STRCNT - #1 ;UPDATE POINTERS AND COUNTERS
033234 005337 002306 DEC STRCNT
2943 033240 ENDDO
033240 000752 BR 50405$
033242

2944
2945
2946
2947 033242 112724 000012 50406$: ;NOW SET UP LINE TERMINATOR AND OUTPUT THE LINE.
033242
2948 LET (R4)+ :B= #12
2949 MOVB #12,(R4)+
2950 ;OUTPUT THE LINE
033246 OUTPUT #OUTBUF,#132. ; SEND THE DATA, NO LF YET
2951 033310 OUTPUT #OUTBUF+132.,#1 ; THIS MAKES SURE OUTPUT IS SENT
2952 ; BEFORE CHANGING OUTBUF DATA !
2953
2954 033352 ENDINC
033352 000647 BR 50401$
033354
2955 033354 50402$: LET OUTBUF :B= #14
033354 112737 000014 003160 MOVB #14,OUTBUF
2956 033362 OUTPUT #OUTBUF,#1
2957 033424 EXIT TST
033424 104432 TRAP C$EXIT
033426 000046 .WORD L10020-.

2958
2959 ;COUNTERS, POINTERS, TEXT BUFFER, AND HEADER FOR TEST PRINTOUT
2960
2961 033430 000000 SPCCNT: .WORD 0
2962
2963 ;TEST HEADER MESSAGE
2964 .NLIST BEX
2965 033432 123 120 125 HAMFIR: .ASCIZ /SPURIOUS HAMMER FIRING TEST 09/<12><12><12>
2966
2967
2968 ;.LIST BEX

```

CZLPLDO LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 34-2
SPURIOUS HAMMER FIRING

2969

2970

2971

2972

033474

033474

033474

104401

2973

2974

033476

.EVEN

ENDTST

L10020:

TRAP

CSETST

ENDMOD

2976
2977
2978 033476
2979
2980
2981
2982
2983
2984
2985
2986
2987
2988
2989
2990
2991
2992
2993 033476
033476
2994 033476 012746 034503
033502 012746 000001
033506 010600
033510 104417
033512 062706 000004
2995 033516 013701 002012
033516 005301
033522 000001
2996
2997 033524 005037 002314
033524 000402
033530 000402
033532
033532 005237 002314
033536
033536 023701 002314
033542 003402
033544 000137 034406
033550
2998 033550 013702 002314
033550 006302
033554
2999 033556 032762 002000 002512
033556 001402
033564 000137 034402
3000 033572
3001 033634 012737 000015 002302
033634
3002 033642
3003 033642 012705 034742
033642
3004 033646
033646
033646 005715
033650 001002
033652 000137 033720

```
.SBTTL PRINT CONTROL
BGNMOD
:++
:THIS TEST CHECKS THE PRINT CONTROL BY SENDING MORE THAN 132 CHARACTERS
:BEFORE SENDING A PRINT COMMAND. ALL CHARACTERS IN EXCESS OF 132 CHARACTERS
:SHOULD BE DISREGARDED. THIS TEST DOES NOTHING ON ALL LP07'S.
: THREE LINES ARE PRINTED PER ITERATION, THESE LINES WILL IDENTIFY THE
: COLUMN NUMBERS ACROSS THE PAGE. EXAMPLE :
:
:      0      0      0.....          1
:      1      2      3.....          3
:123456789012345678901234567890..... 012
:
: NOTICE THAT THE PRINTOUT SHOULD IDENTIFY 132 COLUMNS ACROSS THE PAGE.
:
: THIS OUTPUT IS REPEATED 13 TIMES.
:--
BGNST 10.
110::
PRINTF #NOLP07
      MOV      #NOLP07, -(SP)
      MOV      #1, -(SP)
      MOV      SP, R0
      TRAP     C$PNTF
      ADD      #4, SP
LET R1 := L$UNIT - #1
      MOV      L$UNIT, R1
      DEC      R1
$BRJMP=1
INCR LUNIT FROM #0 TO R1 BY #1
      CLR      LUNIT
      BR       50411$
50410$:
      INC      LUNIT
50411$:
      CMP      LUNIT, R1
      BLE     50412$
      JMP     50413$
50412$:
      LET R2 := LUNIT SHIFT 1
      MOV      LUNIT, R2
      ASL     R2
      IF #FLAG07 NOTSETIN STATUS(R2) THEN
      BIT      #FLAG07, STATUS(R2)
      BEQ     +6
      JMP     50414$
      OUTPUT #PRTCTL, #56..., LUNIT
      LET COUNT := #13.
      MOV      #13., COUNT
1$:
      LET R5 := #TABLE1
      MOV      #TABLE1, R5
      WHILE (R5) NE #0 DO
50415$:
      TST     (R5)
      BNE     +6
      JMP     50416$
```

CZLPLDO LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 35-1
 PRINT CONTROL

```

3005 033656          OUTPUTI (R5)+,#10,,LUNIT
3006 033716          ENDDO
      033716 000753          50416$: BR      50415$
      033720          LET OUTBUF :B= #12
3007 033720          #12,OUTBUF
      033720 112737 000012 003160      MOVB   OUTPUTI #OUTBUF,#1,,LUNIT
3008 033726
3009
3010 033770          LET R5 := #TABLE2
      033770 012705 034776          MOV    #TABLE2,R5
3011 033774          WHILE (R5) NE #0 DO
      033774          50417$:
      033774 005715          TST    (R5)
      033776 001002          BNE   .+6
      034000 000137 034046          JMP    50420$
3012 034004          OUTPUTI (R5)+,#10,,LUNIT
3013 034044          ENDDO
      034044 000753          50420$: BR      50417$
      034046          OUTPUTI #OUTBUF,#1,,LUNIT
3014 034046
3015
3016 034110          DECR LINCNT FROM #14. TO #1 BY #1
      034110 012737 000016 002276      MOV    #14,LINCNT
      034116 000402          BR      50422$
      034120          50421$:
      034120 005337 002276          DEC    LINCNT
      034124          50422$:
      034124 023727 002276 000001      CMP    LINCNT,#1
      034132 002002          BGE   50423$
      034134 000137 034204          JMP    50424$
      034140          50423$:
3017 034140          OUTPUTI #X11,#10,,LUNIT
3018 034202          ENDDO
      034202 000746          50424$: BR      50421$
      034204          OUTPUTI #OUTBUF,#1,,LUNIT
3019 034204          OUTPUTI #OUTBUF,#1,,LUNIT
3020 034246          LET COUNT := COUNT - #1
3021 034310          COUNT
      034310 005337 002302          DEC    IF COUNT GT #0 THEN
3022 034314          COUNT
      034314 005737 002302          TST   COUNT
      034320 003002          BGT   .+6
      034322 000137 034332          JMP   50425$
3023 034326 000137 033642          JMP 1$
3024 034332          ENDIF
      034332          50425$:
3025 034332          LET OUTBUF :B= #14
      034332 112737 000014 003160      MOVB   #14,OUTBUF
3026 034340          OUTPUTI #OUTBUF,#1,,LUNIT
3027 034402          ENDIF
      034402          50414$:
3028 034402          ENDINCR
      034402 000137 033532          JMP    50410$
      034406          50413$:
3029 034406 177777          $BRJMP=-1
3030 034406 104432          EXIT TST TRAP  C$EXIT

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 35-2
PRINT CONTROL

```

034410 000422 .WORD L10021-.
3031 .NLIST BEX
3032 034412 120 122 111 PRTCTL: .ASCII /PRINT CONTROL TEST 10/ <12>
3033 034440 123 110 117 .ASCIIZ /SHOULD SHOW 132 COLUMNS PRINTED/<12><12><15>
3034 034503 045 116 045 NOLP07: .ASCIIZ /%N%APRINT CONTROL TEST DOES NOTHING ON LP07'S.%N/
3035
3036 034564 040 040 040 X0: .ASCII / 0/
3037 034576 040 040 040 X1: .ASCII / 1/
3038 034610 040 040 040 X2: .ASCII / 2/
3039 034622 040 040 040 X3: .ASCII / 3/
3040 034634 040 040 040 X4: .ASCII / 4/
3041 034646 040 040 040 X5: .ASCII / 5/
3042 034660 040 040 040 X6: .ASCII / 6/
3043 034672 040 040 040 X7: .ASCII / 7/
3044 034704 040 040 040 X8: .ASCII / 8/
3045 034716 040 040 040 X9: .ASCII / 9/
3046
3047 034730 061 062 063 X11: .ASCII /1234567890/
3048
3049 .EVEN
3050 034742 034564 034564 034564 TABLE1: .WORD X0,X0,X0,X0,X0,X0,X0,X0,X0,X1,X1,X1,X1,0
3051 034776 034576 034610 034622 TABLE2: .WORD X1,X2,X3,X4,X5,X6,X7,X8,X9,X0,X1,X2,X3,0
3052 .EVEN
3053
3054 .LIST BEX
3055 035032 ENDTST
035032 L10021:
035032 104401 TRAP C$ETST
3056 035034 ENDMOD

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 37
 MULTIPLE LINE ADVANCE

```

3059          .SBTTL MULTIPLE LINE ADVANCE
3060
3061 035034    BGNMOD
3062          :++
3063          :THIS TEST CHECKS THE MULTIPLE LINE ADVANCE OF THE LINE PRINTER. A LINE OF
3064          :NUMBERS IS PRINTED AND THEN THE PAPER IS ADVANCED THAT NUMBER OF LINES.  THUS THE
3065          :NUMBER PRINTED WILL INDICATE THE NUMBER OF BLANK LINES FOLLOWING THAT
3066          :LINE.  THE NUMBER OF LINES IS VARIED BETWEEN 2 AND 7 AND A LINE OF
3067          :ALL 0'S WILL INDICATE THE END OF THE TEST SEQUENCE.
3068          :--
3069
3070
3071 035034    BGNTST 11.
3071 035034    T11::
3072
3073          :PRINT TEST IDENTIFICATION
3074
3075 035034    OUTPUT #MULINE,#86.
3076
3077 035076    LET STACHR := #TABSTR          ;OUTPUT CHARACTERS
3077 035076    MOV      #TABSTR,STACHR
3078
3079 035104    REPEAT
3079 035104    50426$:
3080 035104    LET LINCNT := @STACHR          ;GET A CHARACTER TO OUTPUT
3080 035104    MOV      @STACHR,LINCNT
3081 035112    LET LINCNT := LINCNT AND #7 ;MAKE THE ASCII TO OCTAL
3081 035112    MOV      LINCNT,-(SP)
3081 035112    BIC      #7,(SP)
3081 035112    BIC      (SP)+,LINCNT
3082 035126    LET R3 := #OUTBUF          ;SET UP OUTPUT BUFFER
3082 035126    MOV      #OUTBUF,R3
3083 035132    INCR CCNT FROM #1 TO #132. BY #1
3083 035132    MOV      #1,CCNT
3083 035132    BR      50427$
3083 035140    000402
3083 035142    50430$:
3083 035142    INC      CCNT
3083 035146    50427$:
3083 035146    CMP      CCNT,#132.
3083 035146    BGT      50431$
3084 035156    LET (R3)+ := @STACHR          ;PUT CHARACTER IN OUTPUT BUFFER
3084 035156    MOV      @STACHR,(R3)+
3085 035162    ENDINC
3085 035162    BR      50430$
3085 035164    50431$:
3086 035164    LET R4 := #0
3086 035164    CLR      R4
3087 035166    WHILE R4 NE LINCNT DO
3087 035166    50432$:
3087 035166    CMP      R4,LINCNT
3087 035166    BEQ      50433$
3088 035174    LET (R3)+ := #12          ;FILL WITH LINE FEEDS
3088 035174    MOV      #12,(R3)+
3089 035200    LET R4 := R4 + #1
3089 035200    INC      R4
3090 035202    ENDDO
3090 035202    BR      50432$
3090 035202    000771

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 37-1
MULTIPLE LINE ADVANCE

```

035204          50433$:
3091
3092          ;NOW OUTPUT THE ACTUAL LINE
3093
3094 035204          LET R4 := LINCNT + #132.          ;NUMBER OF CHARACTERS TO OUTPUT
      035204 013704 002276          MOV LINCNT,R4
      035210 062704 000204          ADD #132.,R4
3095 035214          LET STACHR := STACHR + #1          ; UPDATE CHARACTER COUNT
      035214 005237 035342          INC STACHR
3096 035220          OUTPUT #OUTBUF,R4          ;OUTPUT THE LINE
3097
3098 035260          UNTIL LINCNT EQ #0
      035260 005737 002276          TST LINCNT
      035264 001307          BNE 50426$
3099 035266          LET OUTBUF :B= #14
      035266 112737 000014 003160      MOVB #14,OUTBUF
3100 035274          OUTPUT #OUTBUF,#1
3101
3102 C35336          EXIT TST
      035336 104432          TRAP C$EXIT
      035340 000150          .WORD L10022-.
3103
3104
3105 035342 000000          STACHR: .WORD 0
3106          .NLIST BEX
3107 035344          062          067          062          TABSTR: .ASCIZ /272637463540/
3108 035361          115          125          114          MULINE: .ASCII /MULTIPLE LINE ADVANCE TEST 11/<12>
3109 035417          116          125          115          .ASCIZ /NUMBERS PRINTED REPRESENT # LINES TO NEXT LINE PRINTED/<12><12>
3110
3111
3112
3113          .EVEN
3114          .LIST BEX
3115
3116 035510          ENDTST
      035510          L10022:
      035510 104401          TRAP C$ETST
3117 035512          ENDMOD
3118

```


CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 38
 CHARACTER ALIGNMENT

```

3120          .SBTTL CHARACTER ALIGNMENT
3121 035512    BGNMOD
3122          :++
3123          :THIS TEST CHECKS CHARACTER ALIGNMENT BY OVERPRINTING LINES OF ALTERNATING
3124          :H'S AND SPACES WITH SPACES AND H'S.
3125          :--
3126 035512    BGNTST 12.
3127          T12::
3128 035512    ;PRINT TEST IDENTIFICATION
3129          OUTPUT #CHRALN,#30.          ; PRINT TEST NAME ON LP
3130 035554    ;PRINT 24 LINES OF ALTERNATING 'H''S AND 'SPACE''S
3131 035554    1$: LET LINCNT := #50.
3132 035554    012737 000062 002276    MOV #50.,LINCNT
3133 035562    005737 002276    2$: IF LINCNT LE #0 THEN
3134 035566    003002          TST LINCNT
3135 035570    BGT 50434$
3136 035570    000137 036076          BGT 50434$
3137 035574    3133          ; ENDIF
3138 035574    50434$:
3139 035574    ;LOAD BUFFER WITH ALTERNATING STRING OF 'H''S AND 'SPACE''S
3140 035574    LET R4 := #OUTBUF
3141 035574    012704 003160    MOV #OUTBUF,R4
3142 035600    3136          INCR WORK FROM #1 TO #66. BY #1 ; 132 CHARACTERS
3143 035600    012737 000001 003154    MOV #1,WORK
3144 035606    000402          BR 50435$
3145 035610    50436$:
3146 035610    005237 003154    INC WORK
3147 035614    50435$:
3148 035614    023727 003154 000102    CMP WORK,#66.
3149 035622    003005          BGT 50437$
3150 035624    3137          LET (R4)+ :B= #110 ; PUT PATTERN INTO BUFFER
3151 035624    112724 000110    MOVB #110,(R4)+
3152 035630    3138          LET (R4)+ :B= #40
3153 035630    112724 000040    MOVB #40,(R4)+
3154 035634    3139          ENDINCR
3155 035634    000765          BR 50436$
3156 035636    50437$:
3157 035636    112724 000015    LET (R4)+ :B= #CR ; FOLLOWED BY CR
3158 035636    MOVB #CR,(R4)+
3159 3141          :
3160 3142          : SEND BASIC PATTERN
3161 3143          :
3162 3144 035642    OUTPUT #OUTBUF,#132.
3163 3145 035704    OUTPUT #OUTBUF+132.,#1
3164 3146          :
3165 3147          : OVERPRINT WITH LINE OF ALTERNATING SPACE AND 'H'
3166 3148          :
3167 3149 035746    LET R4 := #OUTBUF+132. ; FILL BUFFER WITH REVERSE PATTERN
3168 3150 035746    012704 003364    MOV #OUTBUF+132.,R4
3169 3151 035752    LET (R4)+ :B= #110 ; H
3170 3152 035752    112724 000110    MOVB #110,(R4)+
3171 3153 035756    LET (R4)+ :B= #LF ; FOLLOWED BY A LINEFEED
3172 3154 035756    112724 000012    MOVB #LF,(R4)+
3173 3152          :
3174 3153 035762    OUTPUT #OUTBUF+1,#132. ; OVERPRINT
3175 3154 036024    OUTPUT #OUTBUF+133.,#1

```

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 CHARACTER ALIGNMENT

3155	036066				LET LINCNT := LINCNT - #1
	036066	005337	002276		DEC LINCNT
3156	036072				INLINE <JMP 2\$>
	036072	000137	035562		JMP 2\$
3157	036076				3\$:
3158	036076				LET OUTBUF :B= #14
	036076	112737	000014	003160	MOV B #14, OUTBUF
3159	036104				OUTPUT #OUTBUF, #1
3160	036146	004737	005544		JSR PC, QUIET
3161	036152				EXIT TST
	036152	104432			TRAP C\$EXIT
	036154	000042			.WORD L10023-
3162					.NLIST BEX
3163	036156	103	110	101	CHRALN: .ASCIZ /CHARACTER ALIGNMENT TEST 12/<12><12><12>
3164					.EVEN
3165					.LIST BEX
3166	036216				ENDTST
	036216				L10023:
	036216	104401			TRAP C\$ETST
3167	036220				ENDMOD

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 39
 INTERRUPT SERVICE ROUTINES

3169			.SBTTL INTERRUPT SERVICE ROUTINES
3170	036220		BGNSRV
3171			:
3172			:++
3173			: INTERRUPT VECTORS ARE ESTABLISHED DURING INITIALIZATION
3174			: POINTING TO THE BASIC ROUTINES WHICH
3175			: SET UP THE UNIT NUMBER CAUSING THE INTERRUPTS.
3176			: LINE NUMBER IS RETURNED IN R2
3177			:
3178			:--
3179		000000	X=0
3180	036220	000020	INT00: .REPT 16.
3181			SETPRI #PRI04
3182			PUSH R2
3183			LET R2 := #X
3184			INLINE <JMP IODRV>
3185			
3186			X=X+2
			.ENDR
	036220	012700 000200	MOV #PRI04,R0
	036224	104441	TRAP C\$SPRI
	036226	010246	MOV R2,-(SP)
	036230	012702 000000	MOV #X,R2
	036234	000137 004762	JMP IODRV
	036240	012700 000200	MOV #PRI04,R0
	036244	104441	TRAP C\$SPRI
	036246	010246	MOV R2,-(SP)
	036250	012702 000002	MOV #X,R2
	036254	000137 004762	JMP IODRV
	036260	012700 000200	MOV #PRI04,R0
	036264	104441	TRAP C\$SPRI
	036266	010246	MOV R2,-(SP)
	036270	012702 000004	MOV #X,R2
	036274	000137 004762	JMP IODRV
	036300	012700 000200	MOV #PRI04,R0
	036304	104441	TRAP C\$SPRI
	036306	010246	MOV R2,-(SP)
	036310	012702 000006	MOV #X,R2
	036314	000137 004762	JMP IODRV
	036320	012700 000200	MOV #PRI04,R0
	036324	104441	TRAP C\$SPRI
	036326	010246	MOV R2,-(SP)
	036330	012702 000010	MOV #X,R2
	036334	000137 004762	JMP IODRV
	036340	012700 000200	MOV #PRI04,R0
	036344	104441	TRAP C\$SPRI
	036346	010246	MOV R2,-(SP)
	036350	012702 000012	MOV #X,R2
	036354	000137 004762	JMP IODRV
	036360	012700 000200	MOV #PRI04,R0
	036364	104441	TRAP C\$SPRI
	036366	010246	MOV R2,-(SP)
	036370	012702 000014	MOV #X,R2
	036374	000137 004762	JMP IODRV
	036400	012700 000200	MOV #PRI04,R0
	036404	104441	TRAP C\$SPRI
	036406	010246	MOV R2,-(SP)
	036410	012702 000016	MOV #X,R2

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 INTERRUPT SERVICE ROUTINES

036414	000137	004762	JMP	IODRV
036420	012700	000200	MOV	#PRI04,R0
036424	104441		TRAP	C\$SPRI
036426	010246		MOV	R2,-(SP)
036430	012702	000020	MOV	#X,R2
036434	000137	004762	JMP	IODRV
036440	012700	000200	MOV	#PRI04,R0
036444	104441		TRAP	C\$SPRI
036446	010246		MOV	R2,-(SP)
036450	012702	000022	MOV	#X,R2
036454	000137	004762	JMP	IODRV
036460	012700	000200	MOV	#PRI04,R0
036464	104441		TRAP	C\$SPRI
036466	010246		MOV	R2,-(SP)
036470	012702	000024	MOV	#X,R2
036474	000137	004762	JMP	IODRV
036500	012700	000200	MOV	#PRI04,R0
036504	104441		TRAP	C\$SPRI
036506	010246		MOV	R2,-(SP)
036510	012702	000026	MOV	#X,R2
036514	000137	004762	JMP	IODRV
036520	012700	000200	MOV	#PRI04,R0
036524	104441		TRAP	C\$SPRI
036526	010246		MOV	R2,-(SP)
036530	012702	000030	MOV	#X,R2
036534	000137	004762	JMP	IODRV
036540	012700	000200	MOV	#PRI04,R0
036544	104441		TRAP	C\$SPRI
036546	010246		MOV	R2,-(SP)
036550	012702	000032	MOV	#X,R2
036554	000137	004762	JMP	IODRV
036560	012700	000200	MOV	#PRI04,R0
036564	104441		TRAP	C\$SPRI
036566	010246		MOV	R2,-(SP)
036570	012702	000034	MOV	#X,R2
036574	000137	004762	JMP	IODRV
036600	012700	000200	MOV	#PRI04,R0
036604	104441		TRAP	C\$SPRI
036606	010246		MOV	R2,-(SP)
036610	012702	000036	MOV	#X,R2
036614	000137	004762	JMP	IODRV

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 CLOCK SERVICE ROUTINE

```

3189
3190
3191
3192
3193
3194
3195 036620
3196 036620 012700 000300
      036620 104441
3197 036626 005737 036674
      036626 001005
3198 036634 012737 000074 036674
      036634 005237 036672
3200 036646
      036646
3201 036646 005337 036674
      036646 023727 002322 000002
3202 036652 001003
      036652 012777 000100 143436
3203 036662
      036662 036670
3204 036670
      036670
3205
3206 036670
      036670 000002
3207
3208 036672 000000
3209 036674 000000

.SBTTL CLOCK SERVICE ROUTINE
:++
:UPDATES THE COUNTER AT A RATE OF 16.67 MILLISECONDS PER TICK
:AND UPDATES A SECOND COUNTER WHEN THE FIRST OVERFLOWS.
:--

BGNSRV
CLKTCK: SETPRI #PRI06
        MOV #PRI06,R0
        TRAP C$SPRI
        IF TICK EQ #0 THEN
        TST TICK
        BNE 50440$
          LET TICK := #60. ;60 TICKS PER SECOND
        MOV #60.,TICK
          LET TIME := TIME + #1
        INC TIME
        ENDIF
50440$: LET TICK := TICK - #1 ;BACK UP SECOND TIMER
        DEC TICK
        IF CLKTYP EQ #2 THEN
        CMP CLKTYP,#2
        BNE 50441$
          LET @CLKCSR := #100
        MOV #100,@CLKCSR
        ENDIF
50441$:
ENDSRV ;AND EXIT
L10025: RTI
:
TIME: .WORD 0
TICK: .WORD 0

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 41
 HARDWARE PARAMETER SECTION

```

3211          .SBTTL  HARDWARE PARAMETER SECTION
3212 036676   BGNMOD
3213
3214          :++
3215          :THIS SECTION INCLUDES THE QUESTIONS WHICH REQUEST THE OPERATOR TO
3216          :FURNISH THE HARDWARE INFORMATION NECESSARY TO BUILD THE HARDWARE
3217          :P-TABLES.
3218          :
3219          :--
3220 036676   BGNHRD
      036676   000020
      036700
3221
3222 036700   GPRMA  GETADR,0,0,160000,177516,YES
      036700   000031   .WORD  T$CODE
      036702   036740   .WORD  GETADR
      036704   160000   .WORD  T$LLOLIM
      036706   177516   .WORD  T$HILIM
3223 036710   GPRMA  GETVEC,2,0,110,770,YES
      036710   001031   .WORD  T$CODE
      036712   036755   .WORD  GETVEC
      036714   000110   .WORD  T$LLOLIM
      036716   000770   .WORD  T$HILIM
3224 036720   GPRMD  GETTYP,4,0,3,0,3,YES
      036720   002032   .WORD  T$CODE
      036722   036776   .WORD  GETTYP
      036724   000003   .WORD  3
      036726   000000   .WORD  T$LLOLIM
      036730   000003   .WORD  T$HILIM
3225 036732   GPRML  GETBND,6,1,YES
      036732   003130   .WORD  T$CODE
      036734   037045   .WORD  GETBND
      036736   000001   .WORD  1
3226 036740   ENDHRD
      036740   .EVEN
3227          L10026:
      036740   .NLIST BEX
3228 036740   114     120     061   GETADR: .ASCIZ  /LP11 ADDRESS/
3229 036755   111     116     124   GETVEC: .ASCIZ  /INTERRUPT VECTOR/
3230 036776   105     116     124   GETTYP: .ASCIZ  /ENTER 0 IF LP25, 1 IF LP26, 2 IF LP07 /
3231 037045   071     066     040   GETBND: .ASCIZ  /96 CHARACTER BAND/
3232          ; ENTER 3 IF LPYY   FOR FUTURE EXPANSION
3233          .LIST BEX
3234          .EVEN

```

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 42
SOFTWARE PARAMETER SECTION

```

3236      .SBTTL SOFTWARE PARAMETER SECTION
3237      :
3238      :++
3239      :THIS SECTION INCLUDES THE QUESTIONS WHICH REQUEST THE OPERATOR TO FURNISH
3240      :THE SOFTWARE INFORMATION NECESSARY TO BUILD THE SOFTWARE P-TABLES.
3241      :--
3242      :
3243      BGNSFT
          .WORD L10027-L$SOFT/2
          L$SOFT::
3244      GPRML  MGTINT,0,1,YES
          .WORD  T$CODE
          .WORD  MGTINT
          .WORD  1
3245      GPRML  GETMAN,2,1,YES
          .WORD  T$CODE
          .WORD  GETMAN
          .WORD  1
3246      GPRMD  GETTIM,4,D,377,4,60.,YES
          .WORD  T$CODE
          .WORD  GETTIM
          .WORD  377
          .WORD  T$LLOLIM
          .WORD  T$HILIM
3247      GPRML  GETPLA,6,1,YES
          .WORD  T$CODE
          .WORD  GETPLA
          .WORD  1
3248      GPRMD  GETMAX,10,D,377,1,255.,YES
          .WORD  T$CODE
          .WORD  GETMAX
          .WORD  377
          .WORD  T$LLOLIM
          .WORD  T$HILIM
3249      ENDSFT
          .EVEN
          L10027:
          .NLIST BEX
3250      MGTINT: .ASCIZ  /RUN MANUAL INTERVENTION TESTS/
3251      GETMAN: .ASCIZ  /PERFORM MANUAL PRINTING SPEED MEASUREMENT/
3252      GETTIM: .ASCIZ  /DESIRED TIME INTERVAL FOR PRINTING SPEED CALCULATION/
3253      GETPLA: .ASCIZ  /TESTING IN U.S.A./
3254      GETMAX: .ASCIZ  /AUTODROP ERROR COUNT/
3255      .LIST BEX
3256      .EVEN
3257      ;
3258      ;
3259      ;
3260      PATCH: .BLKW  20
3261      LASTAD
          .EVEN
          .WORD  0
          .WORD  0
          L$LAST::
3262      ENDMOD
3263      .END

```


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SYMBOL TABLE

L\$CCP	002106	G	L10C12	017646	PATTER	025676	TIMEOUT=	000002	UNIT	002312
L\$CLEA	010064	G	L10013	025254	PERIOD	002266	TOF =	000014	USA	002270
L\$CO	002032	G	L10014	025700	PLOC	007774	TXERR	003661	UUT	002342
L\$DEPO	002011	G	L10015	026576	PNT =	001000	TXNOIN	003733	UUTEQO	003764
L\$DESC	002162	G	L10016	030316	PRI =	002000	T\$ARGC=	000001	VFUCMD	002346
L\$DESP	002076	G	L10017	033016	PRINTR	002320	T\$CODE=	004052	VFUINF	004257
L\$DEVP	002060	G	L10020	033474	PRI00 =	000000	T\$ERRN=	000012	VFUINT	014355
L\$DISP	002132	G	L10021	035032	PRI01 =	000040	T\$EXCP=	000000	VFURDY	014447
L\$DLY	002116	G	L10022	035510	PRI02 =	000100	T\$FLAG=	000040	VFUSEL	004033
L\$DTP	002040	G	L10023	036216	PRI03 =	000140	T\$GMAN=	000000	VFUSE1	004121
L\$DTYP	002034	G	L10025	036670	PRI04 =	000200	T\$HILI=	000377	WORK	003154
L\$DUT	002072	G	L10026	036740	PRI05 =	000240	T\$LAST=	000001	WORK1	003156
L\$DVTY	002222	G	L10027	037140	PRI06 =	000300	T\$LLOLI=	000001	X	= 000040
L\$EF	002052	G	L26M64	023645	PRI07 =	000340	T\$L\$SYM=	010000	X\$ALWA=	000000
L\$ENVI	002044	G	L26M96	023726	PRTCHR	026536	T\$LTNO=	000014	X\$FALS=	000040
L\$ETP	002102	G	MANSPD	002264	PRTCTL	034412	T\$NEST=	000000	X\$OFFS=	000400
L\$EXP1	002046	G	MAXERR	002272	PRTSPD	023436	T\$NSO =	000010	X\$TRUE=	000020
L\$EXP4	002064	G	MGTINT	037140	PTABAD	002316	T\$NS1 =	000000	X0	034564
L\$EXP5	002066	G	MCVMSG	017546	QUIET	005544	T\$NS2 =	000005	X1	034576
L\$HARD	036700	G	MRESET	007275	RDYERR	003424	T\$PTNU=	000000	X11	034730
L\$HIME	002120	G	MSGADR	002712	READY	007603	T\$SAVL=	177777	X2	034610
L\$HPCP	002016	G	MSGCNT	002612	REFLIN	017034	T\$SEGL=	177777	X3	034622
L\$HPTP	002022	G	MULINE	035361	REPCNT	002652	T\$SUBN=	000000	X4	034634
L\$HW	002244	G	NMLFLS	017133	REPLUP	021742	T\$TAGL=	177777	X5	034646
L\$ICP	002104	G	NOCLCK	007640	RESET1	007374	T\$TAGN=	010030	X6	034660
L\$INIT	005754	G	NOCLK	004147	RESET2	007467	T\$TEMP=	000000	X7	034672
L\$LADP	002026	G	NOINTR=	000003	RESTOR	024151	T\$TEST=	000014	X8	034704
L\$LAST	037450	G	NOLP07	034503	RESVEC	010002	T\$TSTM=	177777	X9	034716
L\$LOAD	002100	G	NONBUF	027721	SFPTBL	002262	T\$TSTS=	000001	\$BGNLE=	177777
L\$LUN	002074	G	NONCHR	027370	SKIP3	027714	T\$\$AUT=	010002	\$BRJMP=	177777
L\$MREV	002050	G	NOTIM	007702	SPCCNT	033430	T\$\$CLE=	010005	\$ERFLG=	000400
L\$NAME	002000	G	NOO7	031652	SPED1	023042	T\$\$FAR=	010026	\$F\$AND=	000310
L\$PRIO	002042	G	NRGT16	007156	SPED2	023065	T\$\$HW =	010001	\$F\$BAD=	000401
L\$PROT	002122	G	NRGT17	007241	SPED3	023071	T\$\$INI=	010004	\$F\$BLA=	000170
L\$PRT	002112	G	OFFLIN	023146	STACHR	035342	T\$\$PRO=	010000	\$F\$CAS=	000150
L\$REPP	002062	G	ONEFIL=	000001	STATER=	000001	T\$\$SOF=	010027	\$F\$DEC=	000220
L\$REV	002010	G	ONLIN1	023206	STATUS	002512	T\$\$SRV=	010025	\$F\$DO =	000340
L\$SOFT	037072	G	ONLIN2	023307	STRCNT	002306	T\$\$SW =	010003	\$F\$FAL=	000405
L\$SPC	002056	G	ONLIN3	023405	SVCGBL=	000000	T\$\$TES=	010023	\$F\$GOO=	000400
L\$SPCP	002020	G	OUTBUF	003160	SVCINS=	000000	T1	010260	\$F\$IF =	000110
L\$SPTP	002024	G	OUTTIM	003706	SVCSUB=	000000	T1A	010274	\$F\$INC=	000210
L\$STA	002030	G	OSAPTS=	000000	SVCTAG=	000000	T1B	011052	\$F\$L00=	000200
L\$SW	002262	G	OSAU =	000000	SVCTST=	000000	T1C	010300	\$F\$NAM=	000160
L\$TEST	002114	G	OSBGNR=	000000	SYM =	177701	T10	033476	\$F\$NO =	000403
L\$TIML	002014	G	OSBGNS=	000001	SYMD =	000007	T11	035034	\$F\$OR =	000320
L\$UNIT	002012	G	OSDU =	000000	SYMS =	000007	T12	035512	\$F\$RTI=	000350
L07M64	024007		OSERRT=	000000	S\$LSYM=	010000	T2	011550	\$F\$RTN=	000300
L07M96	024070		OSGNSW=	000001	TABA64	024224	T3	014542	\$F\$SEL=	000140
L10001	002254		OSPOIN=	000001	TABA96	024432	T3MOV	016374	\$F\$THE=	000330
L10002	002256		OSSETU=	000000	TABLDA	004742	T3SET	016372	\$F\$TRU=	000404
L10003	002274		PAPCHK	016772	TABLE1	034742	T4	017650	\$F\$UNT=	000130
L10004	007776		PAPRDY	013535	TABLE2	034776	T5	025256	\$F\$WHI=	000120
L10005	010256		PAPRSW	013416	TABSTR	035344	T6	025702	\$F\$YES=	000402
L10006	011546		PAPSWI	003446	TB0764	024640	T7	026600	\$IFLEV=	177777
L10007	011242		PAPSW1	013466	TB0796	025046	T8	030320	\$ISK0 =	000001
L10010	011250		PAPTST	013624	TICK	036674	T9	033020	\$ISK1 =	000001
L10011	014540		PATCH	037404	TIME	036672	UAM =	000200	\$ISK2 =	000001

CZLPLD0 LP25, LP26, LP07 TEST MACRO M1113 30-DEC-80 09:36 PAGE 42-3

SYMBOL TABLE

\$ISK3 = 000001	\$NSK3 = 000110	\$TSK0 = 050441	\$\$BYTE= 000403	\$\$REG = 177777
\$ISK4 = 000001	\$NSK4 = 000110	\$TSK1 = 050436	\$\$CASE= 000404	\$\$RETU= 000000
\$LO = 000000	\$NSK5 = 000110	\$TSK2 = 050433	\$\$DST = 000037	\$\$RTN1= 000000
\$LOCTA= 177777	\$SAVE = 000001	\$TSK3 = 050425	\$\$ELOC= 000402	\$\$RTN2= 000000
\$LSKO = 000000	\$SAVLE= 177777	\$TSK4 = 050424	\$\$ERFL= 000000	\$\$SRC = 000027
\$LSTIN= 000000	\$SELLE= 177777	\$TSK5 = 050255	\$\$FLAG= 000001	\$\$TGSV= 050213
\$LSTTA= 000000	\$SSKO = 050436	\$TSK6 = 050256	\$\$FROM= 000000	\$\$TGS1= 000001
\$NESTL= 177777	\$SSK1 = 000402	\$TSK7 = 050246	\$\$INH = 000403	\$\$TGS2= 000000
\$NSKO = 000110	\$TAGLE= 177777	\$U = 000403	\$\$LOC = 036660	\$\$TO = 000000
\$NSK1 = 000120	\$TAGNU= 050442	\$\$ARGC= 000000	\$\$LOCN= 000000	\$\$TAG = 050000
\$NSK2 = 000110	\$TEMP = 050441			

. ABS. 037450 000
000000 001
ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 58808 WORDS (230 PAGES)
DYNAMIC MEMORY: 21870 WORDS (84 PAGES)
ELAPSED TIME: 02:09:22
CZLPLD,CZLPLD/-SP=LB1:[1,1]SVC/ML,DB1:[205,121]SPMACJ/ML,DB1:[205,10]CZLPLD.P11