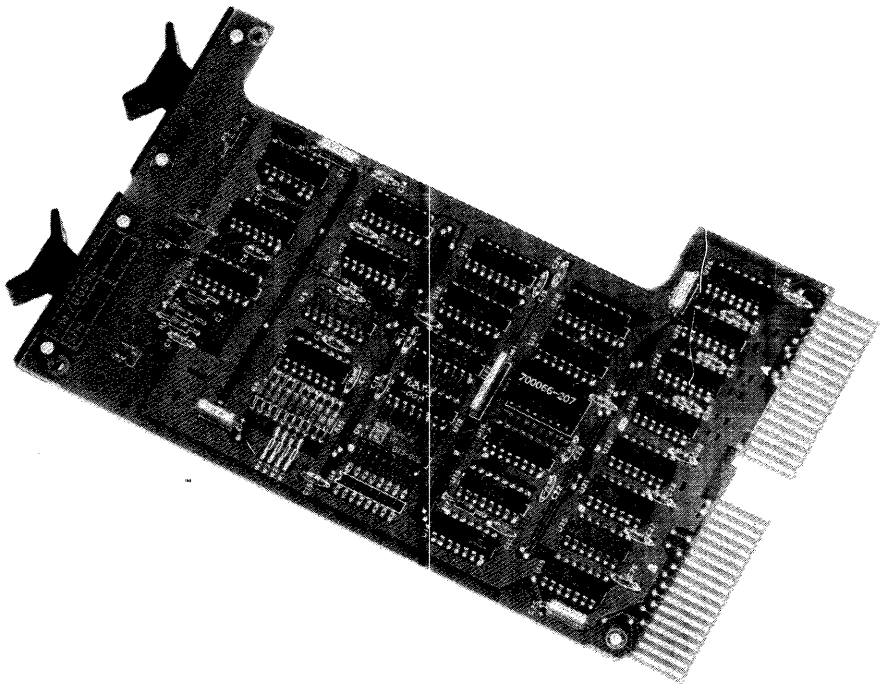
PM-RL11 and PM-RL11B
BOOTSTRAP LOADER
for the PDP-11



Plessey
Peripheral
Systems

PM-RL11 and PM-RL11B Bootstrap Loader for the PDP-11

GENERAL DESCRIPTION

The PM-RL11 and PM-RL11B are bootstrap loaders that permit fast loading of bootstrap programs or restarting the DEC PDP-11 programs for such devices as paper tape readers, discs, magnetic tape, DECtape.* The general purpose loaders are designed for use in the PDP-11 system with at least 4K of memory and one or more bulk storage devices. It may be placed in any slot that is wired to the UNIBUS, e.g., slots A and B of a memory location or UNIBUS slots A3 and B3 of the Plessey PM-DC11 disc controller. The bootstrap programs are contained in a read-only memory (ROM).

The PM-RL11 works with a switch register and contains bootstraps for the following devices:

- DEC TC11 DECtape Magnetic Tape System
- DEC RF11 Moving Head Disc System
- DEC RC11 Moving Head Disc System
- DEC RK11 or Plessey PM-DS11 Moving Head Disc System
- DEC RP11 or Plessey PM-DS11/14 Moving Head Disc System

The PM-RL11B works with a console and bootstraps all the devices listed above for the PM-RL11 plus the DEC TM11 or Plessey PM-TS11 Magnetic Tape System and the DEC RX11 or Plessey PM-XS11 Floppy Disc Systems.

FEATURES

- General purpose bootstrap loader for all PDP-11 systems
- Contains bootstrap loaders for the most frequently used PDP-11 devices

*DEC, PDP, UNIBUS and DECtape are registered trademarks of Digital Equipment Corporation.

LOADING PROGRAMS

The PM-RL11 and PM-RL11B bootstrap loaders are shipped with jumper wires connected for starting address 773000. Its ROM locations are pre-programmed for a bulk storage (disc or DECtape) bootstrap loader programs and a paper tape bootstrap loader program.

The switch register operation of the PM-RL11 utilizes device addresses, and the console operation of the PM-RL11B uses device codes as follows:

DEC	PLESSEY	DEVICE CSR ADDRESS	STARTING ADDRESS RL11	STARTING ADDRESS RL11B	RL11B CONSOLE MNEUMONICS
TM11	PM-TS11	772520	N/A	773000	MT
TS11	N/A	777344	773100		DT
RF11	N/A	777462	773100		RF
RC11	N/A	777450	773100		RC
RK11	PM-DS11	777406	773100		RK
RP11	PM-DS11/80	776716	773100		RP
RX11	PM-XS11	777170	N/A		RX
PC11	PM-PR11	777550	773000†	773000†	PR

†Tries high speed reader first. If none, low speed reader is selected.

PROGRAM LISTING

The program listing for the bulk storage bootstrap loader program and the paper tape bootstrap are contained the PM-RL11 and PM-RL11B manuals (MA 700596-100 and MA 700596-201 respectively) which are shipped with the equipment.

RELIABILITY AND QUALITY ASSURANCE

Plessey materials, fabrication, and workmanship conform to the best commercial practices. Selected components are preconditioned prior to assembly to enhance system reliability. Assembled systems are subjected to dynamic burn-in testing at elevated temperatures and are fully computer tested for proper operation using worst case diagnostics. The following standards are met:

- Printed circuit boards are gold plated on the connector fingers.
- Silicon integrated circuits are dual in-line packages unless their application is prohibited by voltage swing, power dissipation or function availability.
- All assemblies having the same part number are interchangeable.
- The circuits are designed to minimize the risk of catastrophic failure propagation.
- All hardware items of the products are resistant to corrosion.
- All components are suitably derated for maximum MTBF (means time between failures).

Workmanship is consistent with the best commercial computer practices and products are designed for high reliability and maintainability as well as low cost and state of the art electrical performance.

SPECIFICATIONS

Installation

The PM-RL11 and PM-RL11B can be installed in any standard or modified Unibus slot of a PDP-11 system with at least 4K of memory and one or more bulk storage devices.

Electrical Specifications

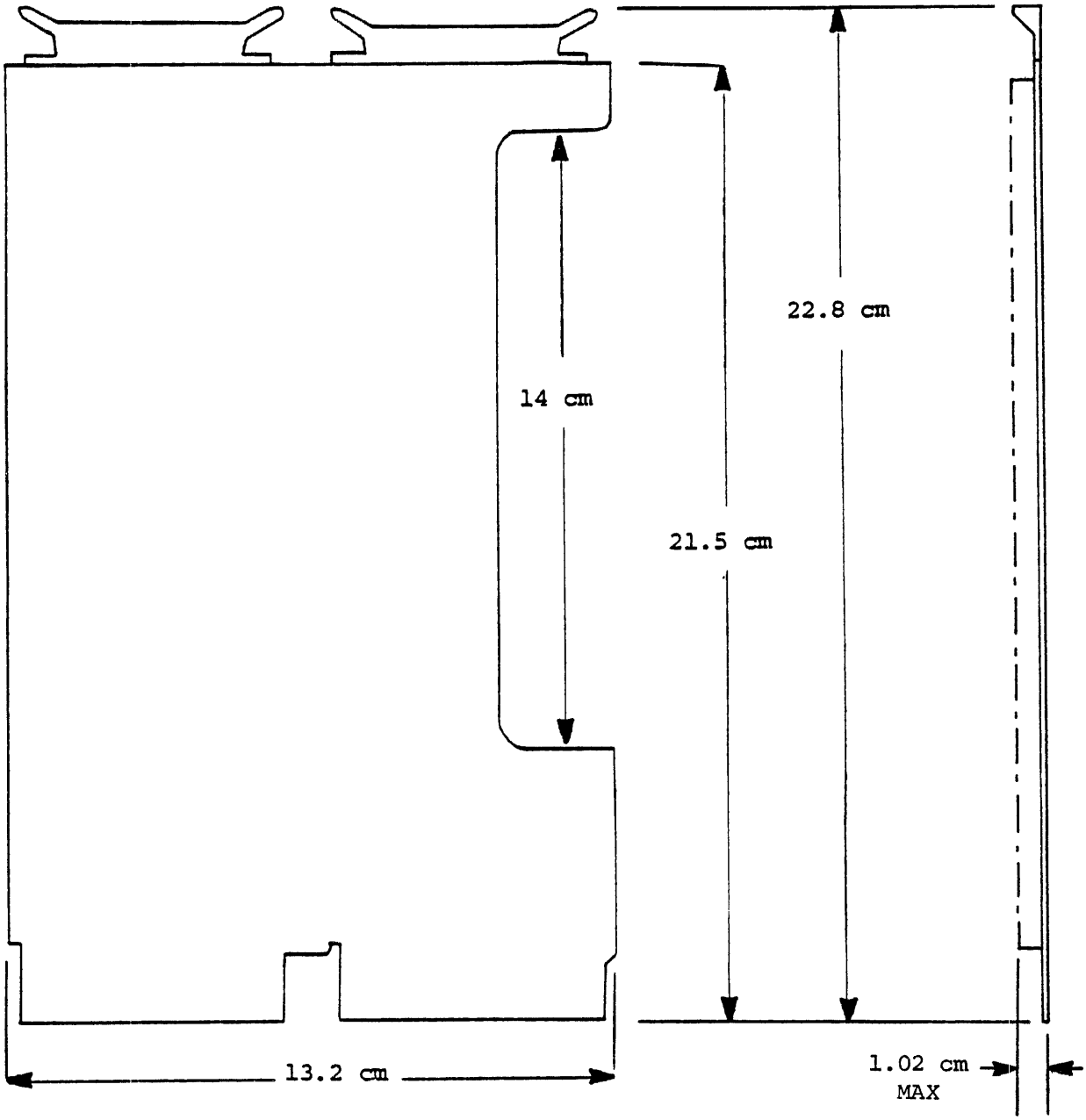
Power Requirements:	+5VDC 1A
ROM Cycle Time:	500ns
Starting Address:	RL11 - 773000 or 773100 RL11B - 773000
Unibus Loading:	1 bus load
Operation:	RL11 Switch register RL11B Console

Environmental Specifications

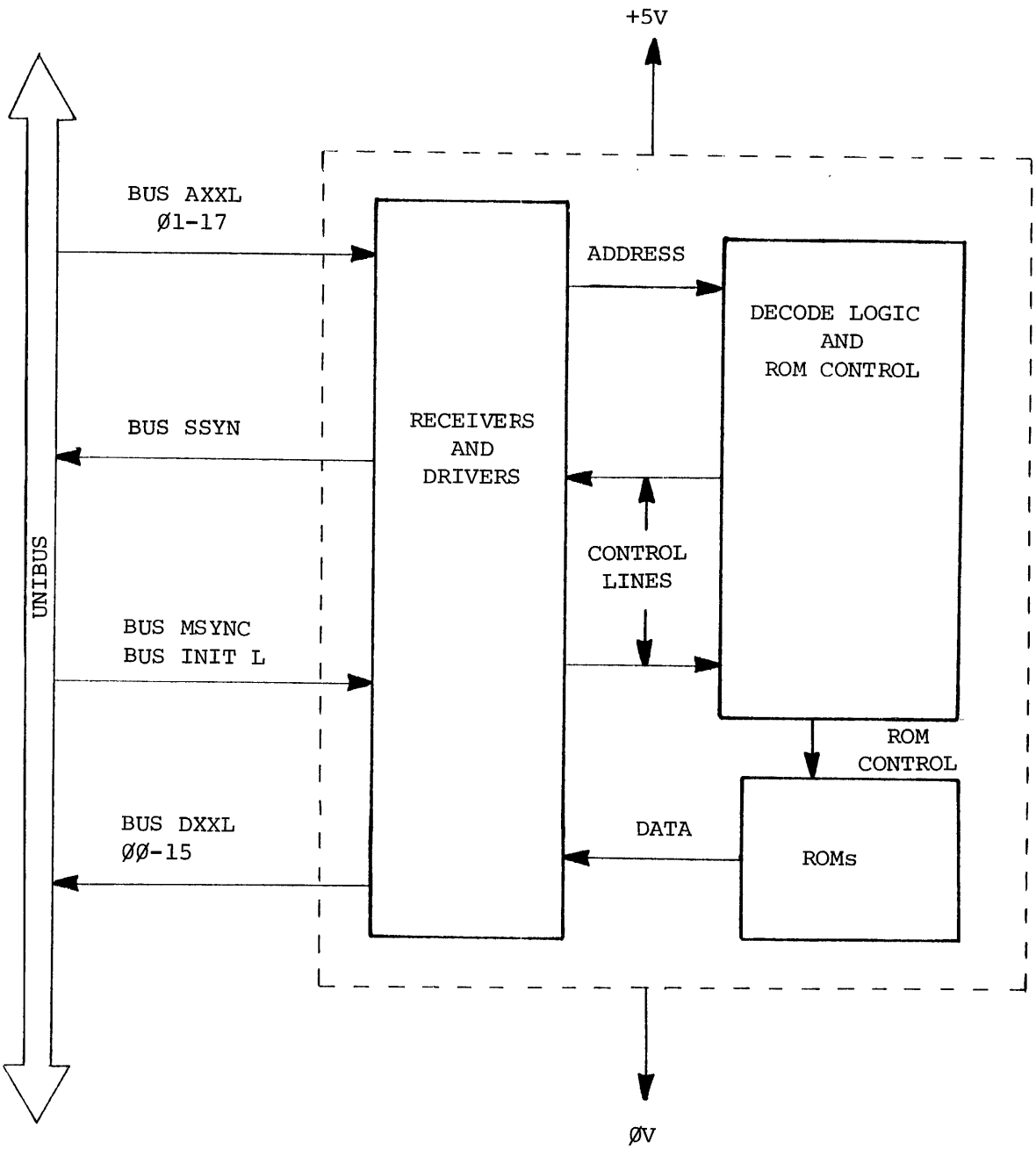
Temperature	
Operating:	$0^{o}C$ to $+50^{o}C$
Nonoperating:	$-10^{o}C$ to $+85^{o}C$
Relative Humidity:	10% to 90% without condensation

Physical Specifications

The PM-RL11 is contained on a single dual wide printed circuit board with dimensions as shown below. It is a two-layered etch board with power, ground and logic traces on both solder and component sides of the board.



PM-RL11 AND PM-RL11B DIMENSIONS



PM-RL11 AND PM-RL11B BLOCK DIAGRAM

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PM-RL11 and PM-RL11B Bootstrap Loaders Manual

Plessey
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PM-RL11 and PM-RL11B Bootstrap Loaders Manual

August 1978 - Revision A

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 0-0

Preface

This manual provides the information needed to install, operate, and program the PM-RL11 bootstrap loaders manufactured by Plessey Peripheral System, Irvine, California.

Contents

Figures

Tables

Section 1
General Information

1.1 INTRODUCTION

This manual provides the information needed to install, operate and program the PM-RL11B bootstrap loaders manufactured by Plessey Peripheral System, Irvine, CA.

The material is arranged into three sections as follows:

Section 1 - GENERAL INFORMATION. This section contains a general description of the PM-RL11 and PM-RL11B and the specifications for the bootstrap loaders.

Section 2 - INSTALLATION AND OPERATIONS. This section explains the equipment installation and operating procedures.

Section 3 - PROGRAMS. This section contains program listings for bulk storage and paper tape bootstrap programs for the PM-FL11 and PM-RL11B.

Appendix - DRAWINGS. The appendix contains the parts list, logic diagrams and assembly drawings necessary for a complete understanding of the units.

1.2 GENERAL DESCRIPTION

The PM-RL11 and PM-RL11B are bootstrap loaders that permit fast loading of bootstrap programs or restarting the DEC PDP-11 programs for such devices as paper tape readers, discs, magnetic tape, DECtape.* The general purpose loaders are designed for use in the PDP-11 system with at least 4K of memory and one or more bulk storage devices. It may be placed in any slot that is wired to the Unibus, e.g., slots A and B of a memory location or Unibus slots A3 and B3 of the Plessey PM-DC11 disc controller. The bootstrap programs are contained in a read-only memory (ROM). Figure 1-1 is a block diagram for the bootstrap loaders.

*DECtape, DEC and Unibus are registered trademarks of Digital Equipment Corporation.

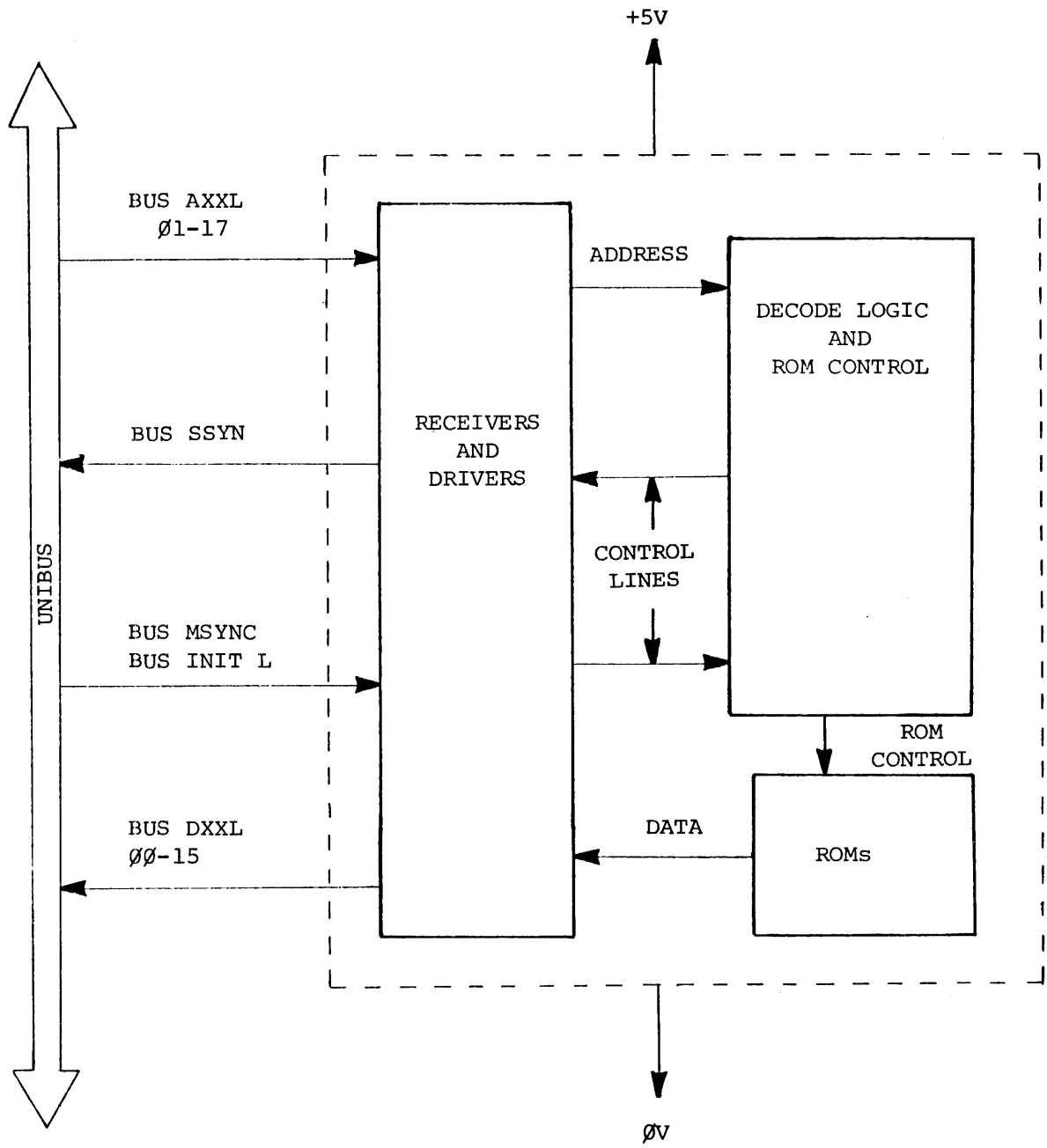


Figure 1-1: Bootstrap Loader Block Diagram

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 1-2

Note that the PM-RL11 and PM-RL11B can be identified by their part numbers. The PM-RL11 is labelled P/N 700596-100 and the PM-RL11B is labelled P/N 700596-201.

The PM-RL11 works with a switch register and contains bootstraps for the following devices:

- DEC TC11 DECtape Magnetic Tape System
- DEC RF11 Moving Head Disc System
- DEC RC11 Moving Head Disc System
- DEC RK11 or Plessey PM-DS11 Moving Head Disc System
- DEC RP11 or Plessey PM-DS11/14 Moving Head Disc System

The PM-RL11B works with a console and bootstraps all the devices listed above for the PM-RL11 plus the DEC TM11 or Plessey PM-TS11 Magnetic Tape System and the DEC RX11 or Plessey PM-Xs11 Floppy Disc Systems.

1.3 LOADING PROGRAMS

The PM-RL11 and PM-RL11B bootstrap loaders are shipped with jumper wires connected for starting address 773000. Its ROM locations are pre-programmed for a bulk storage (disc or DECtape) bootstrap loader programs and a paper tape bootstrap loader program.

The switch register operation of the PM-RL11 utilizes device addresses, and the console operation of the PM-RL11B uses device codes as follows:

DEC	PLESSEY	DEVICE CSR ADDRESS	STARTING ADDRESS RL11	STARTING ADDRESS RL11B	RL11B CONSOLE MNEUMONICS
TM11	PM-TS11	772520	N/A	773000	MT
TS11	N/A	777344	773100	773000	DT
RF11	N/A	777462	773100	773000	RF
RC11	N/A	777450	773100	773000	RC
RK11	PM-DS11	777406	773100	773000	RK
RP11	PM-DS11/80	776716	773100	773000	RP
RX11	PM-XS11	777170	N/A	773000	RX
PC11	PM-PR11	777550	773000	773000†	PR

†Tries high speed reader first. If none, low speed reader is selected.

1.4 RELIABILITY AND QUALITY ASSURANCE

Plessey materials, fabrication, and workmanship conform to the best commercial practices. Selected components are preconditioned prior to assembly to enhance system reliability. Assembled systems are fully computer tested for proper operation using worst case diagnostics. The following standards are met:

- Printed circuit boards are gold plated on the connector fingers.
- Silicon integrated circuits are dual in-line packages unless their application is prohibited by voltage swing, power dissipation or function availability.
- All assemblies having the same part number are interchangeable.
- The circuits are designed to minimize the risk of catastrophic failure propagation.
- All hardware items of the products are resistant to corrosion.
- All components are suitably derated for maximum MTBF (means time between failures).

Workmanship is consistent with the best commercial computer practices and products are designed for high reliability and maintainability as well as low cost and state of the art electrical performance.

1.5 SPECIFICATIONS

1.5.1 Installation

The PM-RL11 and PM-RL11B can be installed in any standard or modified Unibus slot of a PDP-11 system with at least 4K of memory and one or more bulk storage devices.

1.5.2 Electrical Specifications

Power Requirements:	+5VDC 1A
ROM Cycle Time:	500ns
Starting Address:	RL11 - 773000 or 773100 RL11B - 773000
Unibus Loading:	1 bus load
Operation:	RL11 Switch register RL11B Console

1.5.3 Environmental Specifications

Temperature
- Operating: 0°C to +50°C
- Nonoperating: -10°C to +85°C

Relative Humidity: 10% to 90% without condensation

1.5.4 Physical Specifications

The PM-RL11 is contained on a single dual wide printed circuit board with dimensions as shown below. It is a two-layered etch board with power, ground and logic traces on both solder and component sides of the board. See Figure 1-2.

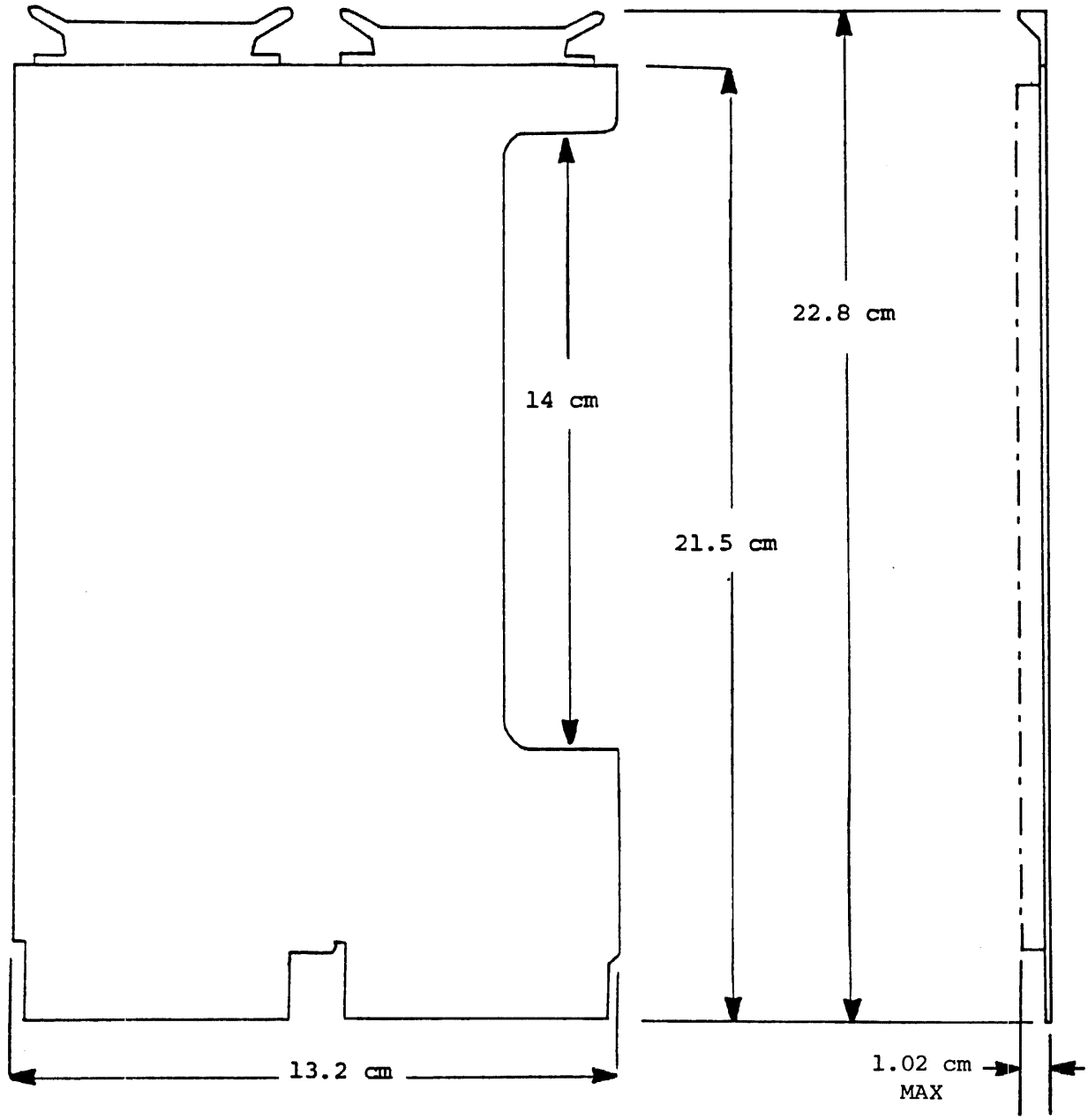


Figure 1-2: PM-RL11 and PM-RL11B Dimensions

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 1-6

Section 2

Installation and Operation

2.1 UNPACKING AND INSPECTION

The PM-RL11 and PM-RL11B are shipped in a special packing carton designed to keep the board from vibrating and to give them maximum protection during shipment. The packing carton should be retained in case the unit requires reshipment.

Remove any packing materials before removing the bootstrap loader from its carton. Visually inspect for any physical damage.

2.2 INSTALLATION

The PM-RL11 and PM-RL11B plug into any Unibus or modified Unibus (MUD) location in the A-B portion of expansion slots in the following backplanes:

- Plessey
  - PM-D11/SPC-1
  - PM-D11/SPC-2
  - PM-F11/SPC
  - PM-F11/SPC-1
  - PM-DC11 (J3 A-B)
- DEC
  - DD11-C
  - DD11-D
  - DD11-P
  - Any other DEC backplane containing expansion slots for Unibus or MUD.

2.3 OPERATION

2.3.1 Operating Procedure for PM-RL11

The PM-RL11 has separate operating procedures for bulk storage and paper tape bootstrap as follows:

- BULK STORAGE BOOTSTRAP PROCEDURE

1. Set the HALT/ENABLE switch to HALT, then ENABLE.

2. Set ROM address 773100 into the Switch Register.

3. Press the LOAD ADDRESS switch.

4. Enter into the Switch Register the device address of the disc or DECtape to be used according to Table 2-1.

DEC	DEVICE PLESSEY	DEVICE ADDRESS
TS11	N/A	777344
RF11	N/A	777462
RC11	N/A	777450
RK11	PM-DS11	777406
RP11	PM-DS11/80	776716
RX11	PM-XS11	777170

Table 2-1: Device Addresses for PM-RL11

5. Press the START switch. The disc or DECtape data should read into memory.

- PAPER TAPE BOOTSTRAP PROCEDURE

1. Set the HALT/ENABLE switch to HALT, then to ENABLE.

2. Place the absolute loader paper tape in the reader to be used, with the special tape leader placed over the read head.

3. If the high speed reader is to be used, set the switch to ON.

4. If the low speed reader is to be used, set the high speed reader switch to OFF and the low speed reader switch to START.

5. Set the starting address, 773000, into the SWITCH REGISTER.

6. Press the LOAD ADDR switch.

7. Press the START switch. After a short pause the paper tape should read in.

2.3.2 Operating Procedure for PM-RL11B

The PM-RL11B has a single operating procedure for both bulk storage and paper tape bootstrap as follows:

1. Set the HALT/ENABLE switch to HALT, then to ENABLE.

2. Load address 773000 into the CPU.

3. Start the CPU at this address.

4. According to Table 2-2 type in the 2 letter device code of the device to be booted. NOTE: Prior to typing the 2 letter code, make sure the device to be booted is ready, or, if paper tape is used, make sure the absolute loader tape is installed in the reader. Correct absolute loader is loaded into the tape reader.

DEVICE DEC	PLESSEY	DEVICE CODE
TM11	PM-TS11	MT
TS11	N/A	DT
RF11	N/A	RF
RC11	B/A	RC
RK11	PM-DS11	RK
RP11	PM-DS11/80	RP
RX11	PM-XS11	RX
PC11	PM-PR11	PR†

†Tries high speed reader first. If none, low speed reader is selected.

Table 2-2: PM-RL11B Device Codes

Section 3
Programs

3.1 PROGRAMS FOR THE PM-RL11

The PM-RL11 program for the bulk storage bootstrap loader and for the paper tape bootstrap can be found in Program A.

3.2 PROGRAMS FOR THE PM-RL11B

Program B contains the listing for the bulk storage and paper tape bootstrap program for the PM-RL11B.

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 3-1

```
                        ;PAPER TAPE BOOTSTRAP PROGRAM

        000001 R1 = %1                                  ;ADDRESS POINTER
        000002 R2 = %2                                  ;TEMPORARY STORAGE
        000003 R3 = %3                                  ;TEMPORARY STORAGE
        000004 R4 = %4                                  ;DEVICE POINTER
        000006 SP = %6                                  ;STACK POINTER
        000007 PC = %7                                  ;PROGRAM COUNTER

        177550 HSR = 177550                             ;HIGH SPEED READER ADDRESS
        177560 LSR = 177560                             ;LOW SPEED READER ADDRESS

        173000 . = 173000

173000 012701 START:    MOV     #160000,R1              ;SET MEMORY CHECK LIMITS
       160000
173004 012702           MOV     #6,R2                   ;TRAP VECTOR IS LOCATION 4 & 6
       000006
173010 012703           MOV     #DEV+4,R3               ;POINTER TO DEVICE ADDRESSES
       173100
173014 005012           CLR     @R2                     ;CLEAR TRAP STAATUS AT LOC 6
173016 010742           MOV     PC,-(R2)                ;SET TRAP ADDRESS AT LOC 4
173020 110706           MOVB    PC,SP                   ;SET UP STACK OUT OF THE WAY
173022 014304 DEV1:     MOV     -(R3),R4                ;GET DEVICE ADDRESS
173024 005714           TST     @R4                     ;CHECK AVAILABILITY OF DEVICE
173026 100775           BMI     DEV1                    ;BR IF HSROUT OF TAPE (BIT 15)
173030 010712           MOV     PC,@R2                  ;RESET TRAP ADDRESS AT LOC 4
173032 012706           MOV     #24,SP                  ;SPECIAL ADDRESS USED AS MASK
       000024
173036 010441           MOV     R4,-(R1)                ;MEM CHK: RDR STAT ADDR MOVED
173040 040601           BIC     SP,R1                   ;SET R1=X7752,MASK IN SP =24
173042 010111           MOV     R1,@R1                  ;STORE OWN ADDRESS IN POINTER
173044 011102 LOOP:     MOV     @R1,R2                  ;GET BYTE POINTER
173046 005214           INC     @R4                     ;ENABLE READER
173050 105714           TSTB    @R4                     ;TEST DONE BIT (7)
173052 100376           BPL     .-2                     ;WAIT UNTIL READY
173054 116412           MOVB    2(R4),@R2               ;THEN PICK IT UP AND STORE IT
       000002
173060 005211           INC     @R1                     ;BUMP POINTER
173062 120227           CMPB    R2,#375                 ;STORED JUMP OFFSET?
       000375
173066 001366           BNE     LOOP                    ;NOT YET
173070 105222           INCB    (R2)+                   ;YES, ALL DONE
173072 000142           JMP     -(R2)                   ;GO EXECUTE AS BRANCH

                        ;DEVICE ADDRESSES FOLLOW - DO NOT CHANGE THE ORDER

173074 177560 DEV:      LSR                             ;LOW SPEED READER
173076 177550           HSR                             ;HIGH SPEED READER

        000001          .END
```

PROGRAM A

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 3-2

```
                ; BULK STORAGE BOOTSTRAP LOADER PROGRAM

                ;REGISTER ASSIGNMENTS
        000000  R0=%0
        000001  R1=%1
                ;

        173100  .  = 173100

173100  013701          MOV     @#177570,R1     ;READ SWITCH REGISTER FOR ...
        177570
173104  000005  BEGIN:  RESET                   ;FORCE CLEAR IF RETRY
173106  010100          MOV     R1,R0           ;... DEVICE WORD COUNT ADDR
173110  012710          MOV     #-256.,@R0      ;SET TO READ 256 WORDS
        177400
173114  020027          CMP     R0,#177344      ;IS IT DECTAPE?
        177344
173120  001007          BNE     START           ;NO, GO TO START
173122  012740          MOV     #4002,-(R0)     ;YES, MOVE TAPE TO FRONT
        004002
173126  005710          TST     @R0             ;WAIT FOR ERROR
173130  100376          BPL     .-2
173132  005740          TST     -(R0)           ;IS IT ENDZONE?
173134  100363          BPL     BEGIN           ;NO, TRY AGAIN
173136  022020          CMP     (R0)+,(R0)+     ;ADJUST POINTER

173140  012740  START:  MOV     #5,-(R0)        ;START ACTUAL READ
        000005
173144  105710          TSTB    @R0             ;WAIT FOR DONE
173146  100376          BPL     .-2
173150  005710          TST     @R0             ;ERROR?
173152  100754          BMI     BEGIN           ;IF SO, TRY AGAIN
173154  105010          CLRB    @R0             ;FOR DECTAPE, STOP MOTION
173156  000137          JMP     @#0             ;GO TO ROUTINE LOADED
        000000

        000001          .END
```

PROGRAM A

SIZE	CODE IDENT NO.	DWG NO.	
A	52648	MA 700596	
SCALE		REV A	SHEET 3-3

```
000000          R0=     %0
000001          R1=     %1
000002          R2=     %2
000003          R3=     %3
000004          R4=     %4
000005          R5=     %5
000006          R6=     %6
000007          R7=     %7
177560          TKS=    177560
177562          TKB=    177562
177564          TPS=    177564
177566          TPB=    177566

172524          BC =    172524

177550          HSR =   177550
177560          LSR =   177560




173000          .=      173000
```

PROGRAM B

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 3-4

```
173000 000005 START:  RESET                    ;RESET
173002 005000         CLR     R0               ;CLEAR R0
173004 005002         CLR     R2               ;CLEAR R2
173006 005003         CLR     R3               ;CLEAR R3
173010 005103         COM     R3               ;MAKE R3 = 1'S
173012 012701         MOV     #122,R1          ;PUT 122 IN R1
       000122
173016 060701         ADD     R7,R1            ;FORM ADDRESS OF PROMPT
173020 105737 1$:     TSTB    @#TPS            ;PRINTER BSY?
       177564
173024 100375         BPL     1$               ;YES, BRANCH BACK
173026 111137         MOVB    (R1),@#TPB       ;OUTPUT
       177566
173032 005201         INC     R1               ;INC R1 BY ONE
173034 120311         CMPB    R3,(R1)          ;ARE WE AT NULL YET?
173036 001370         BNE     1$               ;NO, BRANCH BACK
173040 105737 2$:     TSTB    @#TKS            ;YES! IS CHAR INPUT?
       177560
173044 100375         BPL     2$               ;NO, BRANCH BACK
173046 113700         MOVB    @#TKB,R0         ;YES, PUT CHAR IN R0
       177562
173052 105737 3$:     TSTB    @#TPS            ;PRINTER BUSY?
       177564
173056 100375         BPL     3$               ;YES, BRANCH BACK
173060 110037         MOVB    R0,@#TPB         ;NO, ECHO
       177566
173064 042700         BIC     #177600,R0       ;STRIP JUNK
       177600
173070 050002         BIS     R0,R2            ;PUT CHAR INTO R2
173072 000302         SWAB    R2               ;SWAP BYTES
173074 105702         TSTB    R2               ;BOTH CHAR YET?
173076 001760         BEQ     2$               ;NO, BRANCH BACK
173100 005303 4$:     DEC     R3               ;WAIT A WHILE
173102 001376         BNE     4$               ;DONE YET?
173104 062701         ADD     #1,R1            ;YES! MAKE R1 EVEN
       000001
173110 010103         MOV     R1,R3
173112 005711 5$:     TST     (R1)             ;CK FOR LAST IN TABLE
173114 001731         BEQ     START            ;YES NOT IN ROM, BR BACK
173116 020211         CMP     R2,(R1)          ;CHECK FOR MATCH
173120 001403         BEQ     6$               ;MATCHED, CONTINUE ON
173122 062701         ADD     #6,R1            ;NO MATCH, SET UP NEXT COMPARE
       000006
173126 000771         BR      5$               ;BRANCH BACK
173130 005721 6$:     TST     (R1)+            ;MOVE PNTR UP ONE ADDR
173132 011104         MOV     (R1),R4          ;MOVE CSR TO R4
173134 005721         TST     (R1)+            ;MOVE PNTR UP ONE ADDR
173136 061103         ADD     (R1),R3          ;ADDR OFFSET TO R3
173140 000113         JMP     (R3)             ;JUMP TO IT
173142 000000         HALT                     ;SOMETHING IS WRONG
                                               ;SHOULDN'T GET HERE EVER
```

PROGRAM B

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 3-5

```
173144 000000 TABLE:  .WORD   0                ;NULL
173146 000015         .WORD   15               ;CR
173150 000000         .WORD   0                ;NULL
173152 000000         .WORD   0                ;NULL
173154 000012         .WORD   12               ;LF
173156 000000         .WORD   0                ;NULL
173160 000000         .WORD   0                ;NULL
173162 177452         .WORD   177452           ;*
173164    122 TBL1:   .ASCII  /RC/             ;RC
173165    103
173166 177450         .WORD   177450           ;RC WCR
173170 000110         .WORD   MAIN-TBL1        ;RC OFFSET
173172    122         .ASCII  /RF/             ;RF
173173    106
173174 177462         .WORD   177462           ;RF WCR
173176 000110         .WORD   MAIN-TBL1        ;RF OFFSET
173200    122         .ASCII  /RK/             ;RK
173201    113
173202 177406         .WORD   177406           ;RK WCR
173204 000110         .WORD   MAIN-TBL1        ;RK OFFSET
173206    122         .ASCII  /RP/             ;RP
173207    120
173210 176716         .WORD   176714           ;RP WCR
173212 000110         .WORD   MAIN-TBL1        ;RP OFFSET
173214    104         .ASCII  /DT/             ;DT
173215    124
173216 177342         .WORD   177342           ;DT CSR
173220 000062         .WORD   DT-TBL1          ;DT OFFSET
173222    115         .ASCII  /MT/             ;MT
173223    124
173224 172522         .WORD   172522           ;MT CSR
173226 000154         .WORD   MT-TBL1          ;MT OFFSET
173230    122         .ASCII  /RX/             ;RX
173231    130
173232 177170         .WORD   177170           ;RX CSR
173234 000314         .WORD   314              ;RX OFFSET
173236    120         .ASCII  /PR/             ;PR
173237    122
173240 000000         .WORD   0
173242 000214         .WORD   214              ;PR OFFSET
173244 000000         .WORD   0                ;END OF TABLE
```

PROGRAM B

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 3-6

```
173246 000005 DT:     RESET                    ;RESET
173250 012714         MOV     #4003,(R4)       ;REWIND
       004003
173254 005714 7$:     TST     (R4)             ;IS DEC TAPE READY?
173256 100376         BPL     7$               ;NO, BRANCH BACK
173260 005744         TST     -(R4)            ;POINT R4 TO ERR REG
173262 005714         TST     (R4)             ;CK FOR END ZONE
173264 100402         BMI     8$               ;YES BRANCH
173266 005724         TST     (R4)+            ;NO, POINT R4 TO CSR
173270 000766         BR      DT               ;TRY AGAIN
173272 022424 8$:     CMP     (R4)+,(R4)+      ;POINT R4 TO WCR
173274 012705 MAIN:   MOV     #5,R5            ;PUT READ CMD IN R5
       000005
173300 000005 MAINA:  RESET                    ;RESET
173302 012714         MOV     #177400,(R4)     ;MOVE WORD CNT TO WCR
       177000
173306 005744         TST     -(R4)            ;SET UP R4 TO POINT TO CSR
173310 010514         MOV     R5,(R4)          ;START DEVICE
173312 105714 9$:     TSTB    (R4)             ;TEST FOR DONE
173314 100376         BPL     9$               ;NO JUMP BACK
173316 005714         TST     (R4)             ;YES TEST FOR ERROR
173320 100024         BPL     MT1              ;NO, JUMP TO PGM START
173322 005724         TST     (R4)+            ;YES, POINT R4 BACK TO WCR
173324 020427         CMP     R4,#177342       ;IS THIS DEC TAPE?
       177342
173330 001746         BEQ     DT               ;YES, BACK TO DT
173332 020427         CMP     R4,#172522       ;IS THIS MAG TAPE?
       172522
173336 001360         BNE     MAINA            ;NO, BACK TO MAINA
173340 000005 MT:     RESET                    ;RESET
173342 005137         COM     BC               ;PUT ALL 1'S IN BYTE COUNT
       172524
173346 012714         MOV     #60011,(R4)      ;SPACE FORWARD
       060011
173352 105714 10$:    TSTB    (R4)             ;IS IT DONE?
173354 100376         BPL     10$              ;NO, BRANCH BACK
173356 005714         TST     (R4)             ;CHECK FOR ERROR
173360 100767         BMI     MT               ;ERROR! BRANCH BACK
173362 005724         TST     (R4)+            ;MOVE PNTR TO NEXT ADDR
173364 012705         MOV     #60003,R5        ;PUT READ CMD IN R5
       060003
173370 000743         BR      MAINA            ;JMP TO MAINA
173372 000137 MT1:    JMP     0                ;GO TO PGM START
       000000
173376 000000         HALT
173400 062703         ADD     #100,R3
       000100
173404 012701         MOV     #160000,R1       ;SET MEMORY CHECK LIMIT
       160000
173410 012702         MOV     #6,R2            ;TRAP VECTOR 4 & 6
       000006
173414 005012         CLR     (R2)             ;CLR TRAP STATUS AT LOC 6
173416 010742         MOV     PC,-(R2)         ;SET TRAP ADDR AT LOC 4
173420 110706         MOVB    PC,SP            ;SET UP STACK OUT OF WAY
173422 014304 1$:     MOV     -(R3),R4         ;GET DEVICE ADDR
173424 005714         TST     (R4)             ;CHECK IF THERE
173426 100775         BMI     1$               ;BR IF HSR OUT OF TAPE
```

PROGRAM B

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 3-7

```
                                                    ;TAPE(ERR BIT 15)
173430 010712           MOV     PC,(R2)             ;RESET TRAP ADDR AT LOC 4
173432 012706           MOV     #24,R6              ;SPECIAL ADDR USED AS MASK
       000024
173436 010441           MOV     R4,-(R1)            ;MEM CHK:RDR STAT ADDR MOVED
173440 040601           BIC     SP,R1               ;SET R1=X7752, MASK IN SP=24
173442 010111           MOV     R1,(R1)             ;STORE OWN ADDR IN POINTER
173444 011102 2$:       MOV     (R1),R2             ;GET BYTE POINTER
173446 005214           INC     (R4)                ;ENABLE READER
173450 105714           TSTB    (R4)                ;TESTN DONE BIT 7
173452 100376           BPL     .-2                 ;WAIT UNTIL READY
173454 116412           MOVB    2(R4),(R2)          ;THEN PICK IT UP AND STORE IT
       000002
173460 005211           INC     (R1)                ;BUMP POINTER
173462 120227           CMPB    R2,#375             ;STORED JUMP OFFSET?
       000375
173466 001366           BNE     2$                  ;NOT YET
173470 105222           INCB    (R2)+               ;YES, ALL DONE
173472 000142           JMP     -(R2)               ;GO EXECUTE AS BRANCH
173474 177560 DEV:      LSR                         ;LOW SPEED RDR
173476 177550           HSR                         ;HIGH SPEED RDR
173500 000005 RX:       RESET                       ;RESET BUS
173502 005000           CLR     R0                  ;SET R0 TO 0
173504 105714 1$:       TSTB    (R4)                ;WAIT FOR TRANSFER REQ
173506 001776           BEQ     1$                  ;NO, BRANCH BACK
173510 012714           MOV     #3,(R4)             ;YES, EMPTY BUFF, GO
       000003
173514 005714 2$:       TST     (R4)                ;WAIT FOR SOMETHING
173516 001776           BEQ     2$                  ;NOTHING YET
173520 100767           BMI     RX                  ;ERR! START OVER
173522 105714           TSTB    (R4)                ;FINISHED TRANSFER?
173524 100004           BPL     3$                  ;YES, BRANCH
173526 116420           MOVB    2(R4),(R0)+         ;NO, PUT DATA INTO MEM
       000002
173532 000770           BR      2$                  ;GET NEXT CHAR
173534 000000           HALT                        ;EXTRA ROM LOCATION
173536 005000 3$:       CLR     R0                  ;PUT 0 IN R0
173540 000110           JMP     (R0)                ;START PGM @ 0
173542 000000           HALT                        ;EXTRA ROM LOCATIONS
173544 000000           .WORD   0                   ;       "
173546 000000           .WORD   0                   ;       "
173550 000000           .WORD   0                   ;       "
173552 000000           .WORD   0                   ;       "
173554 000000           .WORD   0                   ;       "
173556 000000           .WORD   0                   ;       "
173560 000000           .WORD   0                   ;       "
173562 000000           .WORD   0                   ;       "
173564 000000           .WORD   0                   ;       "
173566 000000           .WORD   0                   ;       "
173570 000000           .WORD   0                   ;       "
173572 000000           .WORD   0                   ;       "
173574 000000           .WORD   0                   ;       "
173576 000000           .WORD   0                   ;EXTRA ROM LOCATIONS

       000001           .END
```

PROGRAM B

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET 3-8

```
BOOTSTRAP-RL11  MACRO V06-04A 11-AUG-77 00:00 PAGE 6
SYMBOL TABLE

BC     = 172524          DEV     173474          DT      173246
HSR    = 177550          LSR   = 177560          MAIN    173274
MAINA   173300           MT      173340          MT1     173372
RX      173500           R6    =%000006          R7    =%000007
START   173000           TABLE   173144          TBL1    173164
TKB    = 177562          TKS   = 177560          TPB   = 177566
PS    = 177564
. ABS.  173600      000
        000000      001
ERRORS DETECTED:  0
FREE CORE:  12981.  WORDS
,LP:/NL:SEQ<PERRY1
```

PROGRAM B

SIZE	CODE IDENT NO.	DWG NO.	
A	52648	MA 700596	
SCALE		REV A	SHEET 3-9

Appendix A
Parts List

PL 700596-100 REV D
PL 700596-201 REV A

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET A-1

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	PREPARED BY: TOM COMEY 2-23-76	PARTS LIST NO. PL700596-100	REV LTR D
ASSY TITLE: BOARD ASSEMBLY, ROM LOADER PM-RL/11		CHECKED BY: D.W. Turk 3/1/76	CODE IDENT NO. 52648	No. 1234570 / No. B — SH 1 OF 6
		RESP ENGR: J. A. Vaughn 3/3/76	CONTRACT NO.	
		OTHER: [illegible] 3-26-76		

LTR	DESCRIPTION	DATE	APPROVED
—	REL TO PROD PER ERO500755	4-15-76	[illegible]
A	INCORP ED 1195	7-28-76	[illegible]
B	INCORP E.O. 1484	9-16-77	[illegible]
C	INCORP E.O. 1534	9-20-77	[illegible]
D	INCORP EO 2476	9-6-78	[illegible]

LTR	DESCRIPTION	DATE	APPROVED

PRODUCTION RELEASE

REV STATUS OF SHEETS										
REV LTR	D	D	C	D	A	—				
SHEET	1	2	3	4	5	6	7	8	9	10

INTERPRET SYMBOLS USED AS FOLLOWS:

- A = PURCHASED ITEM
- B = FABRICATED ITEM
- C = SPECIFICATION OR SOURCE CONTROL ITEM
- D = ALTERED ITEM
- E = SELECTED ITEM
- F = CUSTOMER FURNISHED ITEM
- G = BULK ITEM

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PARTS LIST NO. PL700596-100	SH 2	REV LTR D

CROSS INDEX OF REFERENCE DESIGNATIONS TO FIND NO.

REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.
TB1	5		22				
	6		23				
	7	R1,15,14	24				
U1	8	R2,4	25				
U2	9	R3,10,11,12,13,17	26				
U3,19,20,21,22	10	R5,16	27				
U4,23,24,25,26	11	R6,7,8,9	28				
U5	12		29				
U6,14	13	RM1	30				
U7	14		31				
	15	C1,4,5,9,10,11,13	32				
	16	C14,15,16,17,18,19,20 C21,22,23,24,26,27					
	17	C28,29,30,31,33,34					
U11	18	C2,3	33				
U12,13,17,18	19	C6	34				
U15	20	C7,8,25,32	35				
U16	21	C12	36				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET A-2

REV	NOTE	QTY REQD	U/M	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM	C/I CODE	INV ON HAND	PAR	UNIT COST
		1	EA	700594-001	P.W.B./ROM LOADER				1	B				
C		2	EA	701339-001	HANDLE, CARD PULL				2	A				
		4	EA	MS16535-154	RIVET, TUBULAR, OVAL HEAD .123 DIA. X .188 LONG, AL ALY				3	A				
									4					
B		1	EA	US-2-16-110-G-B	SOCKET, 16 PIN DIP	SCANBE	18677		5	A				
B		1	EA	700066-115	PLUG, ADDRESS STRAPPING				6	B				
									7					
		1	EA	SN74123	DUAL RETRIG MONO MULTI W/CLEAR	TEXAS INSTR	01295		8	A				
		1	EA	SN74H74	DUAL D-TYPE POS EDG-TRIG F/F W/PRESET/CLEAR	TEXAS INSTR	01295		9	A				
		5	EA	136021-380	QUAD 2-INPUT NOR/RECEIVER				10	C				
		5	EA	SN7438	QUAD 2-INPUT POS-NAND BUFFERS W/OC	TEXAS INSTR	01295		11	A				
		1	EA	SN74H76	DUAL J-K F/F/PRESET/CLEAR	TEXAS INSTR	01295		12	A				
		2	EA	SN74H40	DUAL 4-INPUT POS-NAND BUFFERS	TEXAS INSTR	01295		13	A				
		1	EA	SN7442	4-LINE-TO-10 LINE DECODERS	TEXAS INSTR	01295		14	A				
D									15	C				
D									16	C				
D									17	C				
		1	EA	100052-001	1024-BIT READ-ONLY MEMORIES				18	C				
		4	EA	SN74175	HEX/QUAD D-TYPE F/F W/CLEAR	TEXAS INSTR	01295		19	A				
		1	EA	SN7485	4-BIT MAGNATUDE COMPARATORS	TEXAS INSTR	01295		20	A				
		1	EA	SN74145	BCD-TO-DEC DECODERS/DRIVERS	TEXAS INSTR	01295		21	A				
									22					
									23					
		3	EA	RC07GF331J	RESISTOR, 330Ω ±5%, 1/4W	MIL-R-11			24	A				
		2	EA	RC07GF562J	RESISTOR, 5.6K ±5%, 1/4W	MIL-R-11			25	A				
		6	EA	RC07GF102J	RESISTOR, 1.0K ±5%, 1/4W	MIL-R-11			26	A				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596

SCALE | REV A | SHEET A-3

NOTE	QTY REQD	U/M	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM	C/I USAGE C/I CODE	C/I USAGE INV ON HAND	C/I USAGE PAR	C/I USAGE UNIT COST
	2	EA	RC07GF 151J	RESISTOR, 150Ω ±5%, 1/4W	MIL-R-11			27	A				
	4	EA	RC07GF 681J	RESISTOR, 680Ω ±5%, 1/4W	MIL-R-11			28	A				
								29					
	1	EA	100013-004	RESISTOR, MODULE 330Ω				30	B				
								31					
	26	EA	C069B160 E103Z	CAPACITOR/.01 UF +80-20%, 16V	SPRAGUE	05571		32	A				
	2	EA	CD15CD 100J03	CAPACITOR/10 PF ±5%, 500V	CORNELL DUBILIER	93790		33	A				
	1	EA	CD15FD 101J03	CAPACITOR/100 PF ±5%, 500V	CORNELL DUBILIER	93790		34	A				
	4	EA	150D156X 0020B2	CAPACITOR/15 UF ±10%, 20V	SPRAGUE	05571		35	A				
	1	EA	CD15FD 221J03	CAPACITOR/220 PF ±5%, 500V	CORNELL DUBILIER	93790		36	A				
								37					
								38					
								39					
	3	IN	5951	WIRE/30AWG SOLID, KYNAR INSULATION, COLOR: OPTIONAL	ALPHA WIRE	23172		40	G				
	REF		SN63WRAP3	SOLDER	QQ-S-571			41	G				
								42					
								43					
	REF		SD700596	SCHEMATIC DIAGRAM ROM LOADER PM-RL/11				44	C				
	REF		TS700596	TEST SPECIFICATION ROM LOADER PM-RL/11				45	C				
	1							46					
								47					
								48					
								49					
								50					
								51					
								52					

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET A-4

PARTS LIST	Plessey Microsystems			
ASSY TITLE: BOARD ASSEMBLY, ROM LOADER, PM-RL/11-201	PREPARED BY: GORDON BAILEY 6-14-77	PARTS LIST NO. PL700596-201	REV LTR A
	ENGR APPR: L. Trunkis 7-6-77	CODE IDENT NO. 52648	P NO. 1234570	SH 1 OF 6
	QUAL APPR: W. Perry 9/9/77		CONTRACT NO.	
	OTHER: [illegible] 9-8-77			

LTR	DESCRIPTION	DATE	APPROVED	LTR	DESCRIPTION	DATE	APPROVED
A	REL TO PROD PER ERD 501360	7-6-77	[illegible]				

PRODUCTION RELEASE

REV STATUS OF SHEETS											
REV LTR		A	A	A	A	A	A				
SHEET		1	2	3	4	5	6	7	8	9	10

INTERPRET SYMBOLS USED AS FOLLOWS:

A = PURCHASED ITEM; B = FABRICATED ITEM; C = SPECIFICATION OR SOURCE CONTROL ITEM; D = ALTERED ITEM; E = SELECTED ITEM; F = CUSTOMER FURNISHED ITEM; G = BULK ITEM

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PARTS LIST NO. PL700596-201	SH 2	REV LTR A

CROSS INDEX OF REFERENCE DESIGNATIONS TO FIND NO.

REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.
TB1	5		22				
	6		23				
	7	R1,15,14	24				
U1	8	R2,4	25				
U2	9	R3,10,11,12,13,17	26				
U3,19,20,21,22	10	R5,16	27				
U4,23,24,25,26	11	R6,7,8,9	28				
U5	12		29				
U6,14	13	RM1	30				
U7	14		31				
	15	C1,4,5,9,10,11,13					
U9	16	C14,15,16,17,18,19,20 C21,22,23,24,26,27	32				
U10	17	C28,29,30,31,33,34					
U11	18	C2,3	33				
U12,13,17,18	19	C6	34				
U15	20	C7,8,25,32	35				
U16	21	C12	36				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET A-5

ITEM	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM.	C/I USAGE C/I CODE	C/I USAGE INV ON HAND	C/I USAGE PAR	C/I USAGE UNIT COST
		1	700594-001	P.W.B./ROM LOADER				1	B				
		2	701339 -001	HANDLE, CAED				2	A				
		4	MS16535 -154	RIVET, TUBULAR, OVAL HEAD .123 DIA. X .188 LONG, AL ALY				3	A				
								4					
		1	LIS-2-16 -110-G-B	SOCKET, 16 PIN DIP	SCANBE	18677		5	A				
		1	700066-207	PLUG, ADDRESS STRAPPING				6	B				
								7					
		1	SN74123	DUAL RETRIG MONO MULTI W/CLEAR	TEXAS INSTR	01295		8	A				
		1	SN74H74	DUAL D-TYPE POS EDG-TRIG F/F W/PRESET/CLEAR	TEXAS INSTR	01295		9	A				
		5	136021-380	QUAD 2-INPUT NOR/RECEIVER				10	C				
		5	SN7438	QUAD 2-INPUT POS-NAND BUFFERS W/OC	TEXAS INSTR	01295		11	A				
		1	SN74H76	DUAL J-K F/F/PRESET/CLEAR	TEXAS INSTR	01295		12	A				
		2	SN74H40	DUAL 4-INPUT POS-NAND BUFFERS	TEXAS INSTR	01295		13	A				
		1	SN7442	4-LINE-TO-10 LINE DECODERS	TEXAS INSTR	01295		14	A				
								15					
		1	100015-008	1024-BIT READ-ONLY MEMORIES				16	C				
		1	100015-007	1024-BIT READ-ONLY MEMORIES				17	C				
		1	100015-005	1024-BIT READ-ONLY MEMORIES				18	C				
		4	SN74175	HEX/QUAD D-TYPE F/F W/CLEAR	TEXAS INSTR	01295		19	A				
		1	SN7485	4-BIT MAGNATUDE COMPARATORS	TEXAS INSTR	01295		20	A				
		1	SN74145	BCD-TO-DEC DECODERS/DRIVERS	TEXAS INSTR	01295		21	A				
								22					
								23					
		3	RC07GF 331J	RESISTOR, 330Ω ±5%, 1/4W	MIL-R-11			24	A				
		2	RC07GF 562J	RESISTOR, 5.6K ±5%, 1/4W	MIL-R-11			25	A				
		6	RC07GF 102J	RESISTOR, 1.0K ±5%, 1/4W	MIL-R-11			26	A				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET A-6

NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM	C/I USAGE C/I CODE	C/I USAGE INV ON HAND	C/I USAGE PAR	C/I USAGE UNIT COST
	2	RC07GF 151J	RESISTOR, 150Ω ±5%, 1/4W	MIL-R-11			27	A				
	4	RC07GF 681J	RESISTOR, 680Ω ±5%, 1/4W	MIL-R-11			28	A				
							29					
	1	100013-004	RESISTOR, MODULE 330Ω				30	B				
							31					
	26	C069B160 E103 ≠	CAPACITOR/.01 UF +80-20%, 16V	SPRAGUE	05571		32	A				
	2	CD15CD 100J03	CAPACITOR/10 PF ±5%, 500V	CORNELL DUBILIER	93790		33	A				
	1	CD15FD 101J03	CAPACITOR/100 PF ±5%, 500V	CORNELL DUBILIER	93790		34	A				
	4	150D156X 0020B2	CAPACITOR/15 UF ±10%, 20V	SPRAGUE	05571		35	A				
	1	CD15FD 221J03	CAPACITOR/220 PF ±5%, 500V	CORNELL DUBILIER	93790		36	A				
							37					
							38					
							39					
	AR	5951	WIRE/30AWG SOLID, KYNAR INSULATION, COLOR: OPTIONAL	ALPHA WIRE	23172		40	G				
	AR	SN63WRAP3	SOLDER	QQ-S-571			41	G				
							42					
							43					
	REF	SD700596	SCHEMATIC DIAGRAM ROM LOADER PM-RL/11				44	C				
	REF	TS700596 -201	TEST SPECIFICATION ROM LOADER PM-RL/11				45	C				
							46					
							47					
							48					
							49					
							50					
							51					
							52					

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET A-7

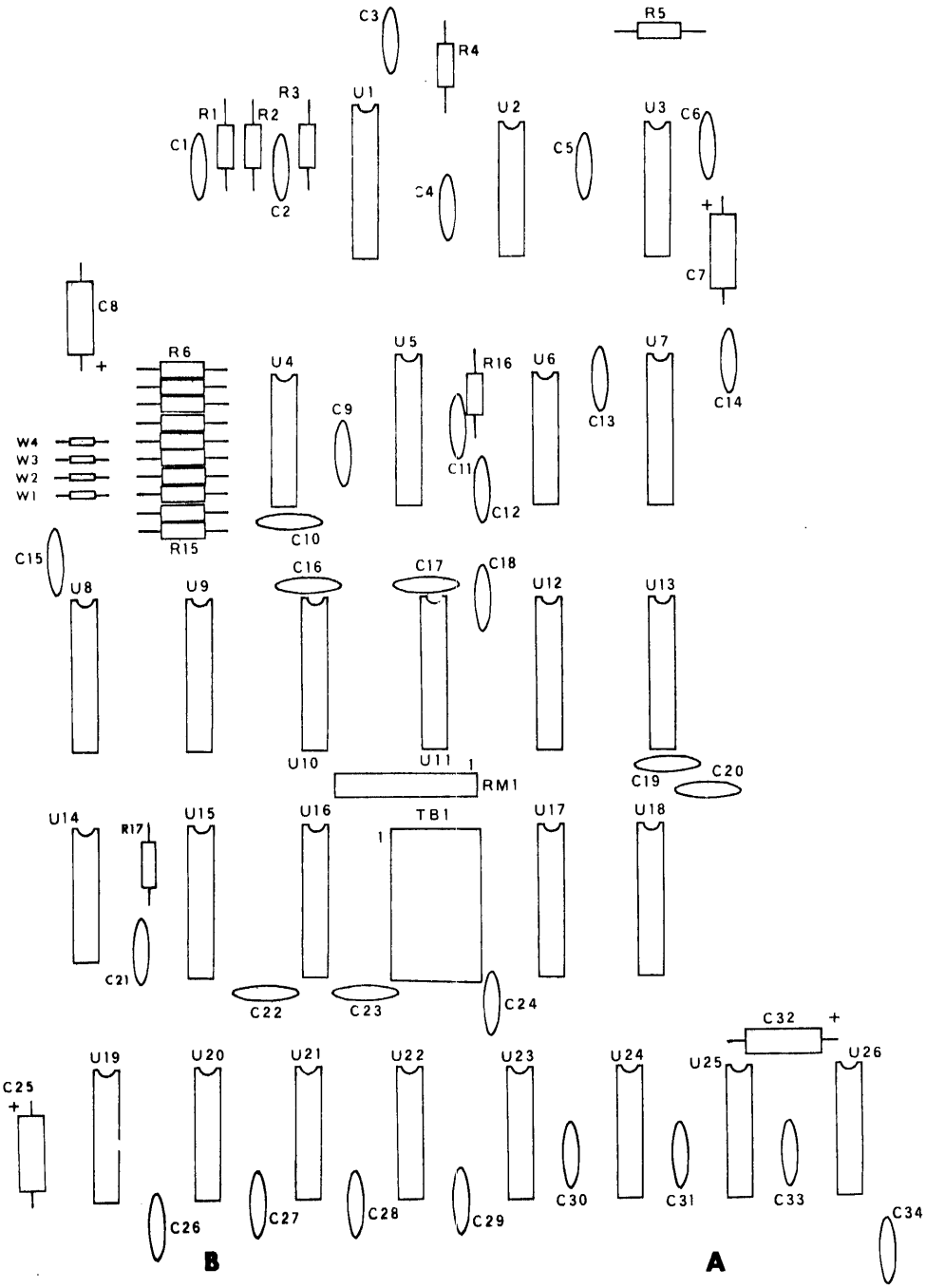
Appendix B
Assembly Drawing

700596 REV D

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET B-1

FORM 000021

JUMPER CHART (6)				
VERSION	W1	W2	W3	W4
-100		X		
-200		X		
-201		X		



SIZE	CODE IDENT NO.	DWG NO.
A	52648	700596
SCALE	REV A	SHEET B-2

FORM 000021

Appendix C
Schematic Diagrams

SD 700596 REV A

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700596
SCALE	REV A	SHEET C-1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	-	REL TO PROD PER E.R.O 500755	4-2-76	
	A	INCORP E.O. 1474 GB	7-5-77	

LAST DESIGNATION USED	
INTEGRATED CIRCUIT	U26
RESISTOR	R17
CAPACITOR	C34
RESISTOR MODULE	RM1

REFERENCE DESIGNATOR	GATES USED PER TOTAL	PART NO.
U3	3/4	8836
U4	2/4	7438

SOLDER SIDE			COMPONENT SIDE	CONNECTOR A
SIDE 2		SIDE 1		
+5V	A	BUS INIT L		
	B			
GND	C	BUS DØØ L		
BUS DØ1 L	D	BUS DØ2 L		
BUS DØ3 L	E	BUS DØ4 L		
BUS DØ5 L	F	BUS DØ6 L		
BUS DØ7 L	H	BUS DØ8 L		
BUS DØ9 L	J	BUS DIØ L		
BUS DI1 L	K	BUS DI2 L		
BUS DI3 L	L	BUS DI4 L		
BUS DI5 L	M			
	N			
	P			
	R			
	S			
	T	GND		
	U			
	V			

SOLDER SIDE			COMPONENT SIDE	CONNECTOR B
+5V	A			
	B			
GND	C			
	D			
	E			
	F			
	H	BUS AØ1 L		
BUS AØ2 L	J	BUS AØ3 L		
BUS AØ4 L	K	BUS AØ5 L		
BUS AØ6 L	L	BUS AØ7 L		
BUS AØ8 L	M	BUS AØ9 L		
BUS AIØ L	N	BUS AI1 L		
BUS AI2 L	P	BUS AI3 L		
BUS AI4 L	R	BUS AI5 L		
BUS AI6 L	S	BUS AI7 L		
	T			
	U	BUS SSYN L		
GND	V	BUS MSYNC L		

5. [AA1] SIGNALS SHOWN IN RECTANGLE INDICATES
   - BOARD SIDE
   - PIN DESIGNATION
   - CONNECTOR

4. (4/A2) SIGNALS SHOWN IN PARENTHESIS INDICATES WHERE SIGNAL ORIGINATES OR TERMINATES.
   - ZONE DESIGNATION
   - ZONE DESIGNATION
   - SHEET NUMBER

3. FOR ASSEMBLY DRAWING SEE 700596.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS.
1. ALL RESISTOR VALUES ARE IN OHMS, ±5%, 1/4 WATTS.

NOTES: UNLESS OTHERWISE SPECIFIED.

PRODUCTION RELEASE

PART/ASSY NO. & QTY PER ASSY	NOTE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION / MATERIAL (PARTS LIST)	SPEC/SOURCE	CODE IDENT NO.	FIND NO.
						5
						4
						3
						2
						1

PART/ASSY REV LTR

700596-100 PM-RL/11

PART NO. | NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

SCREW THREADS PER HANDBOOK H-28

COUNTERBORE AND SPOTFACE FILLET RADII TO BE .005 MAXIMUM

REMOVE ALL BURRS AND BREAK SHARP EDGES EQUIVALENT TO .0085

ROUGHNESS OF MACHINED SURFACES 125 PER USAS B46.1

STANDARD HOLE TOLERANCE PER ANSI 10387

TOLERANCES ON: XX = ± .03 XXX = ± .010 ANGLES = ± 0° 30'

INTERPRET DIMENSIONS AND TOLERANCES PER USAS Y14.5

DIMENSIONS ARE IN INCHES AND APPLY AFTER HEAT TREAT AND FINISH

UNLESS OTHERWISE SPECIFIED

CONTRACT NO.

DRAWN	GATES	4-2-76
CHECK	[illegible]	4-2-76
ENGR	[illegible]	4/22/76
PROJ. ENGR		
PROD. DESIGN	[illegible]	5-13-76
OTHER APPROVALS		

Plessey Memories Incorporated
Santa Ana, California

DWG TITLE SCHEMATIC DIAGRAM
ROM LOADER
PM-RL/11

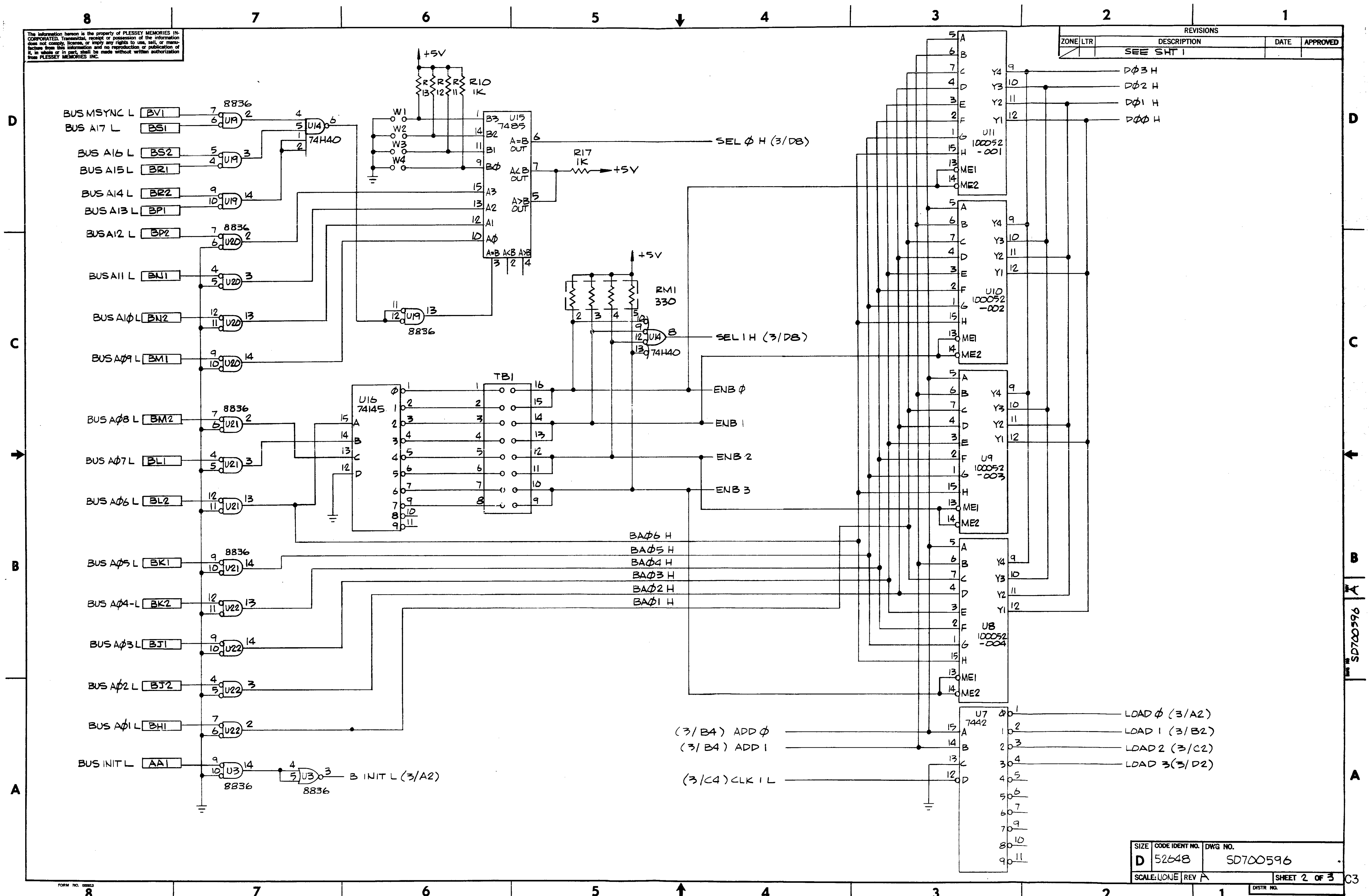
SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700596

SCALE: NONE | SHEET 1 OF 3 | DISTR NO.

REV A

SD700596

FORM NO. 000823



BUS MSYNC L
BV1
BUS A17 L
BS1
BUS A16 L
BS2
BUS A15 L
BR1
BUS A14 L
BR2
BUS A13 L
BP1
BUS A12 L
BP2
BUS A11 L
BN1
BUS A1Ø L
BN2
BUS AØ9 L
BM1
BUS AØ8 L
BM2
BUS AØ7 L
BL1
BUS AØ6 L
BL2
BUS AØ5 L
BK1
BUS AØ4 L
BK2
BUS AØ3 L
BJ1
BUS AØ2 L
BJ2
BUS AØ1 L
BH1
BUS INIT L
AA1
8836
U19
U20
U21
U22
U3
U14
74H40
+5V
R13
R12
R11
R10
1K
W1
W2
W3
W4
U15
7485
A=B OUT
A<B OUT
A>B OUT
R17
1K
SEL Ø H (3/D8)
SEL 1 H (3/D8)
RM1
330
U16
74145
TB1
ENB Ø
ENB 1
ENB 2
ENB 3
BAØ6 H
BAØ5 H
BAØ4 H
BAØ3 H
BAØ2 H
BAØ1 H
B INIT L (3/A2)
U11
100052-001
U10
100052-002
U9
100052-003
U8
100052-004
ME1
ME2
DØ3 H
DØ2 H
DØ1 H
DØØ H
U7
7442
(3/B4) ADD Ø
(3/B4) ADD 1
(3/C4) CLK 1 L
LOAD Ø (3/A2)
LOAD 1 (3/B2)
LOAD 2 (3/C2)
LOAD 3 (3/D2)

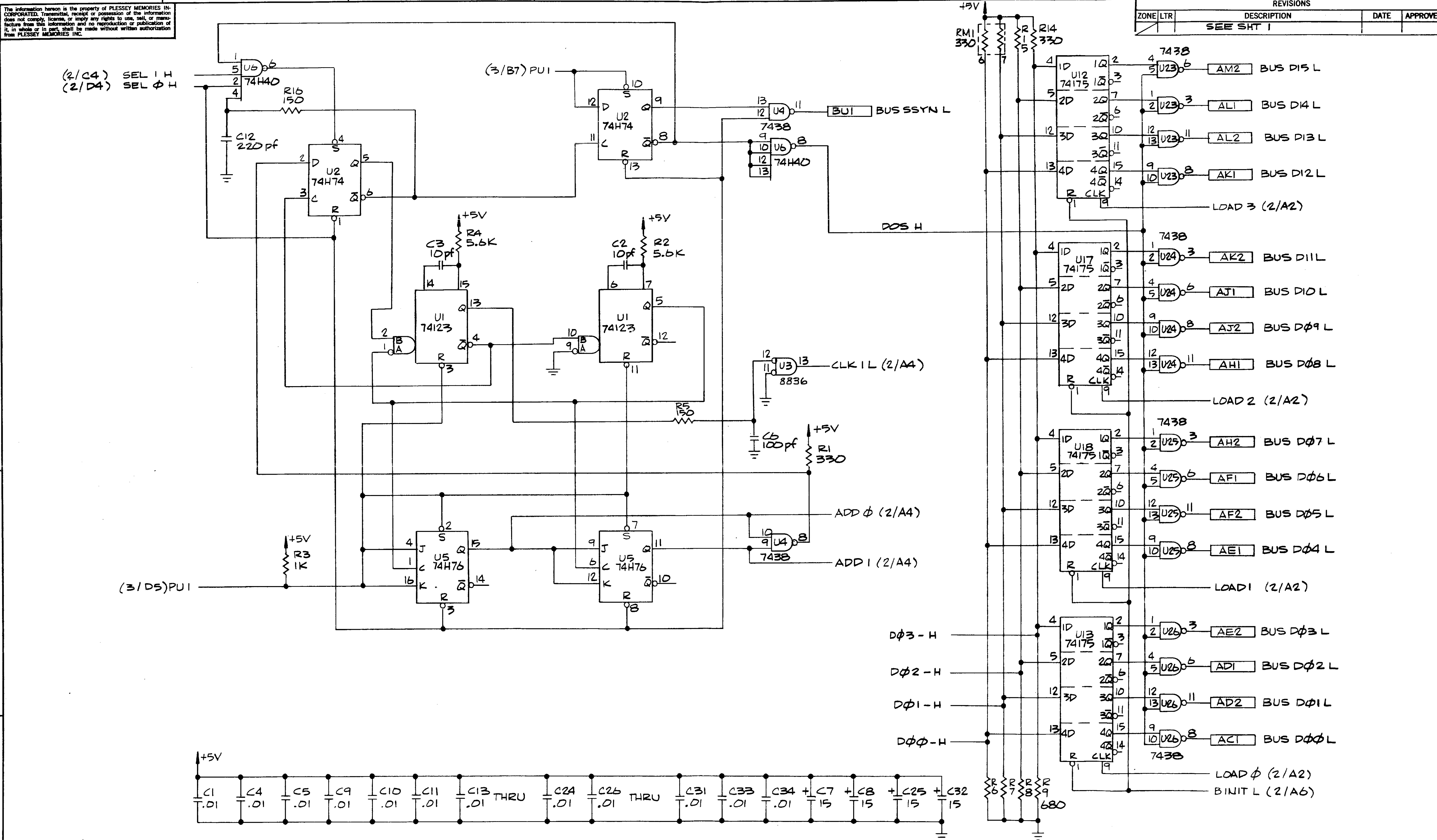
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHT 1		

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700596
SCALE: NONE	REV A	SHEET 2 OF 3

C3

SD700596

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHT 1		



(2/C4) SEL 1 H
(2/D4) SEL Φ H
U6 74H40
R16 150
C12 220 pf
U2 74H74
(3/B7) PU1
U4 7438
BU1 BUS SSYN L
U6 74H40
DOS H
C3 10pf
R4 5.6K
C2 10pf
R2 5.6K
U1 74123
U3 8836
CLK1 L (2/A4)
R5 150
C6 100pf
R1 330
ADD Φ (2/A4)
ADD 1 (2/A4)
R3 1K
(3/D5) PU1
U5 74H76
RM1 330
R14 330
U12 74175
U17 74175
U18 74175
U13 74175
AM2 BUS D15 L
AL1 BUS D14 L
AL2 BUS D13 L
AK1 BUS D12 L
LOAD 3 (2/A2)
AK2 BUS D11 L
AJ1 BUS D10 L
AJ2 BUS DΦ9 L
AH1 BUS DΦ8 L
LOAD 2 (2/A2)
AH2 BUS DΦ7 L
AF1 BUS DΦ6 L
AF2 BUS DΦ5 L
AE1 BUS DΦ4 L
LOAD1 (2/A2)
DΦ3 - H
DΦ2 - H
DΦ1 - H
DΦΦ - H
AE2 BUS DΦ3 L
AD1 BUS DΦ2 L
AD2 BUS DΦ1 L
AC1 BUS DΦΦ L
LOAD Φ (2/A2)
BINIT L (2/A6)
R6 R7 R8 R9 680
C1 .01
C4 .01
C5 .01
C9 .01
C10 .01
C11 .01
C13 .01 THRU
C24 .01
C26 .01 THRU
C31 .01
C33 .01
C34 .01
C7 15
C8 15
C25 15
C32 15

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700596
SCALE: NONE	REV A	SHEET 3 OF 3

SD700596

C4

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