PM-DC/8
Disc Controller Manual

Plessey Microsystems

FUNCTIONAL DESCRIPTION

PM DC/8 DISC DRIVE CONTROLLER

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET

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SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
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SECTION I

FUNCTIONAL DESCRIPTION

PM DC/8 DISC CARTRIDGE

DRIVE CONTROLLER

SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655'
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The interface between the DC/8 Disc Drive Control and the PDP-8* computer are via the single cycle data break feature.

Refer to the Digital Equipment* small computer handbook for a full description of the data break interface.

*Trademarks of Digital Equipment Corporation

SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
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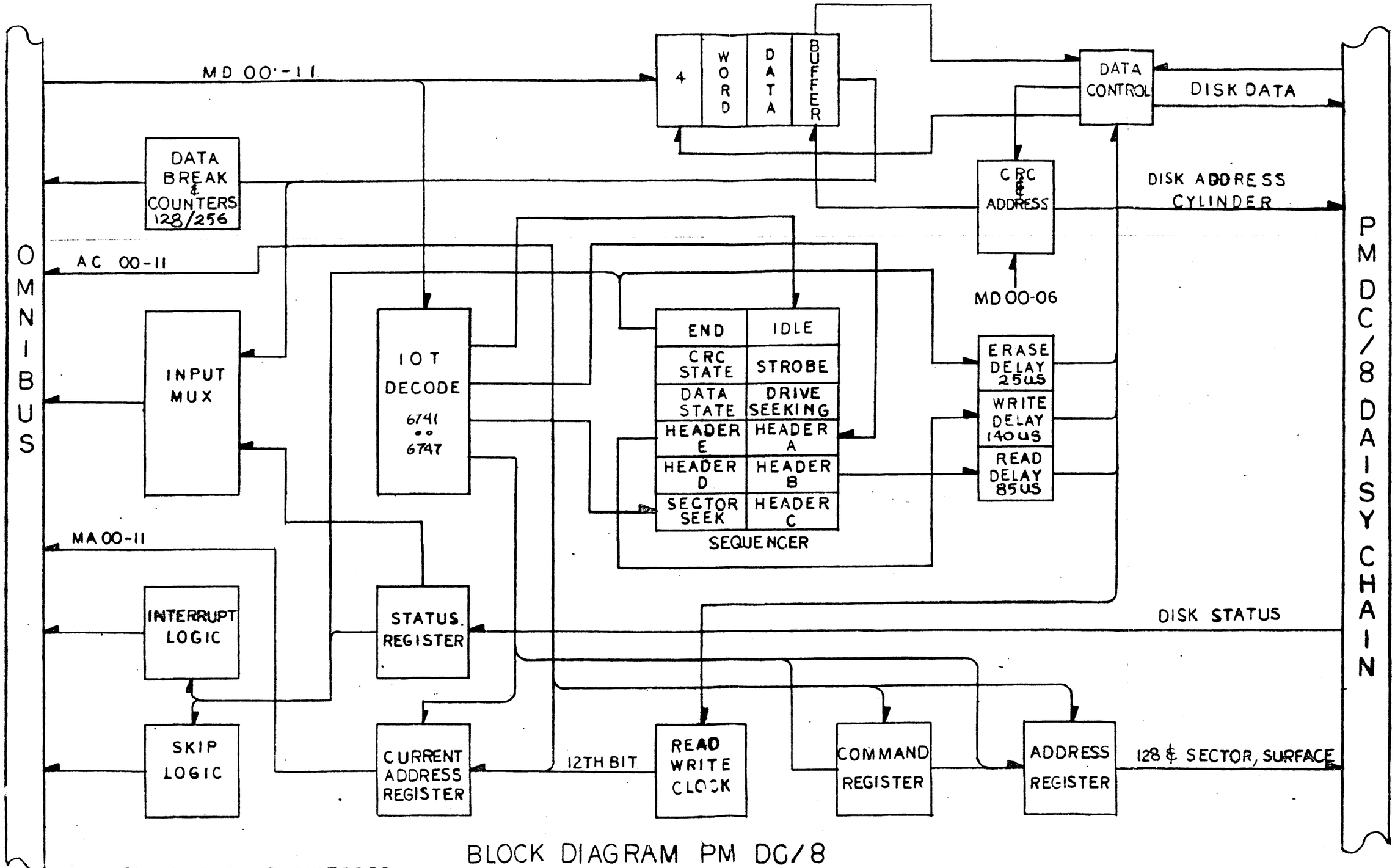


BLOCK DIAGRAM PM DC/8

OMNIBUS IS A REGISTERED TRADEMARK OF D.E.C.

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 3

1.0 CONTROL COMMANDS

1.1 Skip On Disc Done or Error (DSKP) 6741_8

When the conditions for transfer done are met or an error flag condition exists the instruction immediately following the DSKP will not be executed.

1.2 Clear All (DCLR) 6742_8

Bits 10 and 11 are decoded by the DC/8 logic to reset disc functions per the Table 1.2 and reset the accumulator to zero.

1.3 Load Disc Address and Execute Control Command (DLAG) 6743_8

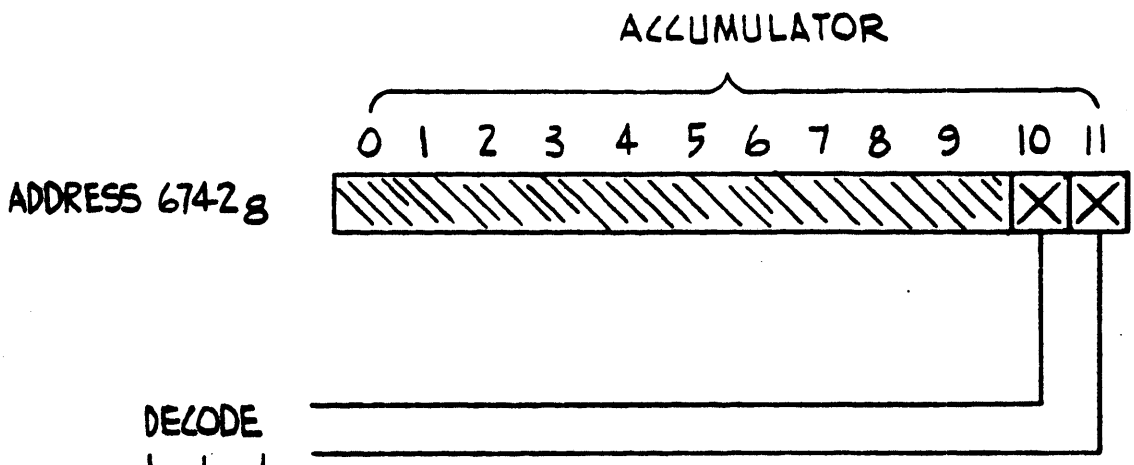
This instruction is used in conjunction with the (DLDC) instruction to cause the disc drive to execute a seek and read or write from/to specified memory locations.

The contents of the accumulator are transferred to the disc address register to form the first 7 bits of the cylinder address and the complete 16 sector and one of 2 surfaces disc drive address. The accumulator is left cleared. The (DLAG) instruction will cause the disc drive controller to execute commands previously stored in the command register using target memory addresses specified by the current address register. The bit identification is specified in Table 1.3.

1.4 Load Current Memory Address (DLCA) 6744_8

Execution of this instruction causes the transfer of the contents of the accumulator to the current memory address register of the disc controller, leaving the accumulator cleared. The 12 bit current address register is combined with bits 6, 7 & 8 of the disc command register (DLDC) to form a 15 bit extended memory address per Figure 1.4.

Table 1.2

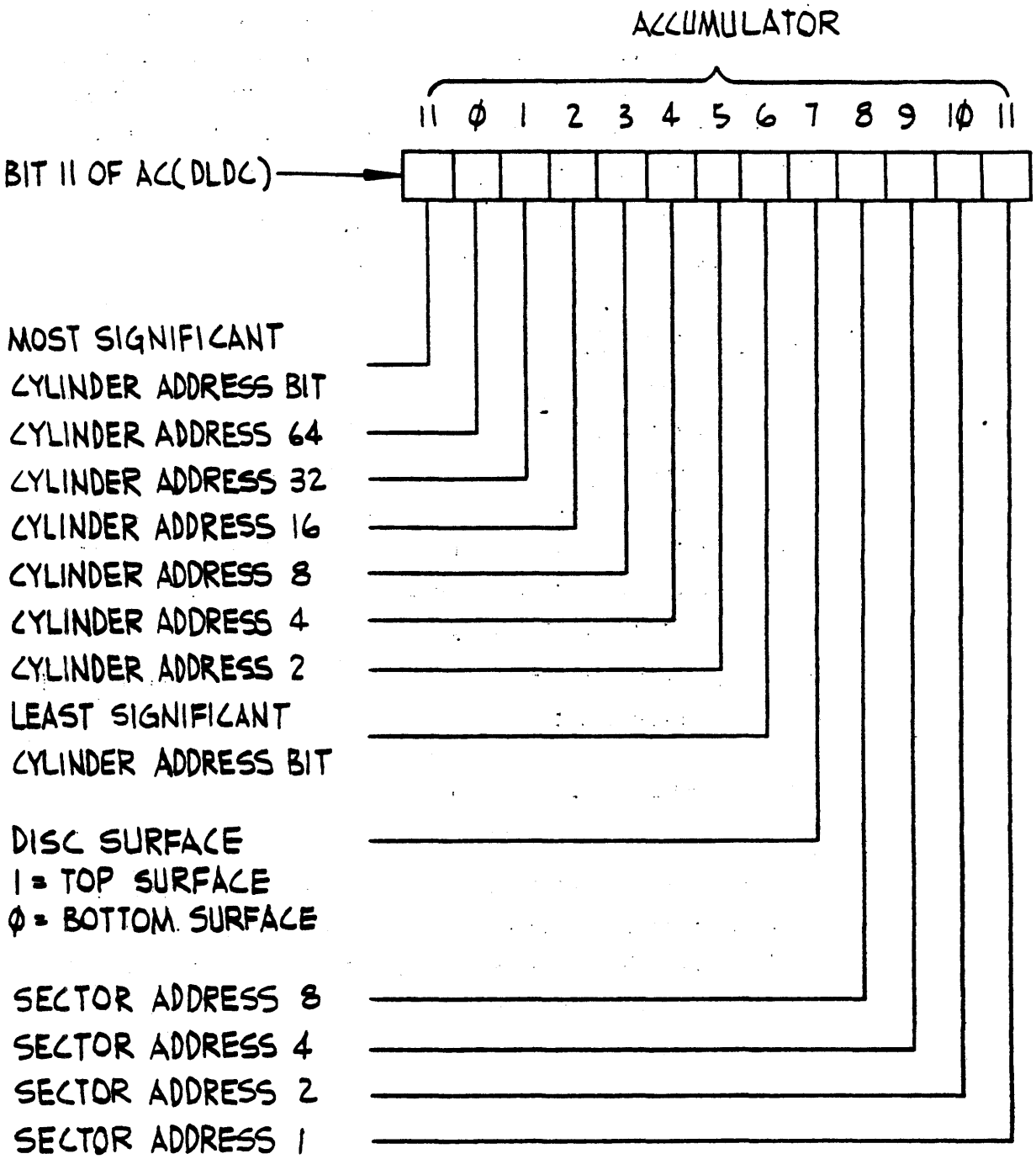


BIT 10	BIT 11	DECODE	
Ø	Ø	DCLS	CLEARS THE ACCUMULATOR AND DISC STATUS REGISTER
Ø	1	DCLC	CLEARS THE ACCUMULATOR AND SETS ALL THE DC/8 CONTROL FUNCTIONS TO THE ZERO STATE DOES NOT EFFECT THE DD/8 SETS THE DC/8 STATUS REGISTER TO ZERO'S NOTE: THIS COMMAND DOES NOT REGARD ANY DC/8 CONTROL FUNCTIONS AND WILL TRUNCATE ANY CURRENT OPERATION
1	Ø	DCLD	RESTORE SELECTED DISC DRIVE TO THE HOME POSITION
1	1	DCLS	SAME AS DECODE ØØ

SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 5

Table 1.3

(DLAG) ADDRESS 6743_8



SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 6

FORM 000021

1.4 Load Current Memory Address (DLCA) 6744_8 (continued)

This address is incremented once for each data transfer and asserted to the PDP8 Omnibus* during the data transfer between the DC/8 buffer storage and main memory. Address 11 thru zero are incremented module 12 fashion while EMA bits 0, 1 & 2 can be set by the program only.

1.5 Read disc status register (DRST) clear and load the AC with the contents of the disc status register.

Bit 00 Transfer Done

Bit 00 is set equal to a one in the status register for the following reasons. The controller has completed a data transfer; when the drive signals "seek complete" resulting from a seek only instruction; when the selected disc drive has completed a "restore" operation and bit 04 is set in the command register; when an error occurs during the execution of a disc operation.

If bit 03 is set in the command register bit 00 setting will cause an interrupt to occur.

Bit 01 Transfer Done

Bit 01 Ready To Seek Read or Write

Bit 01 is set, equal to a one, when the selected disc drive carriage head positioner is in place over the selected cylinder and the drive is ready to accept another seek command or a data transfer command.

* Trademarks of D.E.C.

Table 1.5

DISC STATUS REGISTER 6745_8

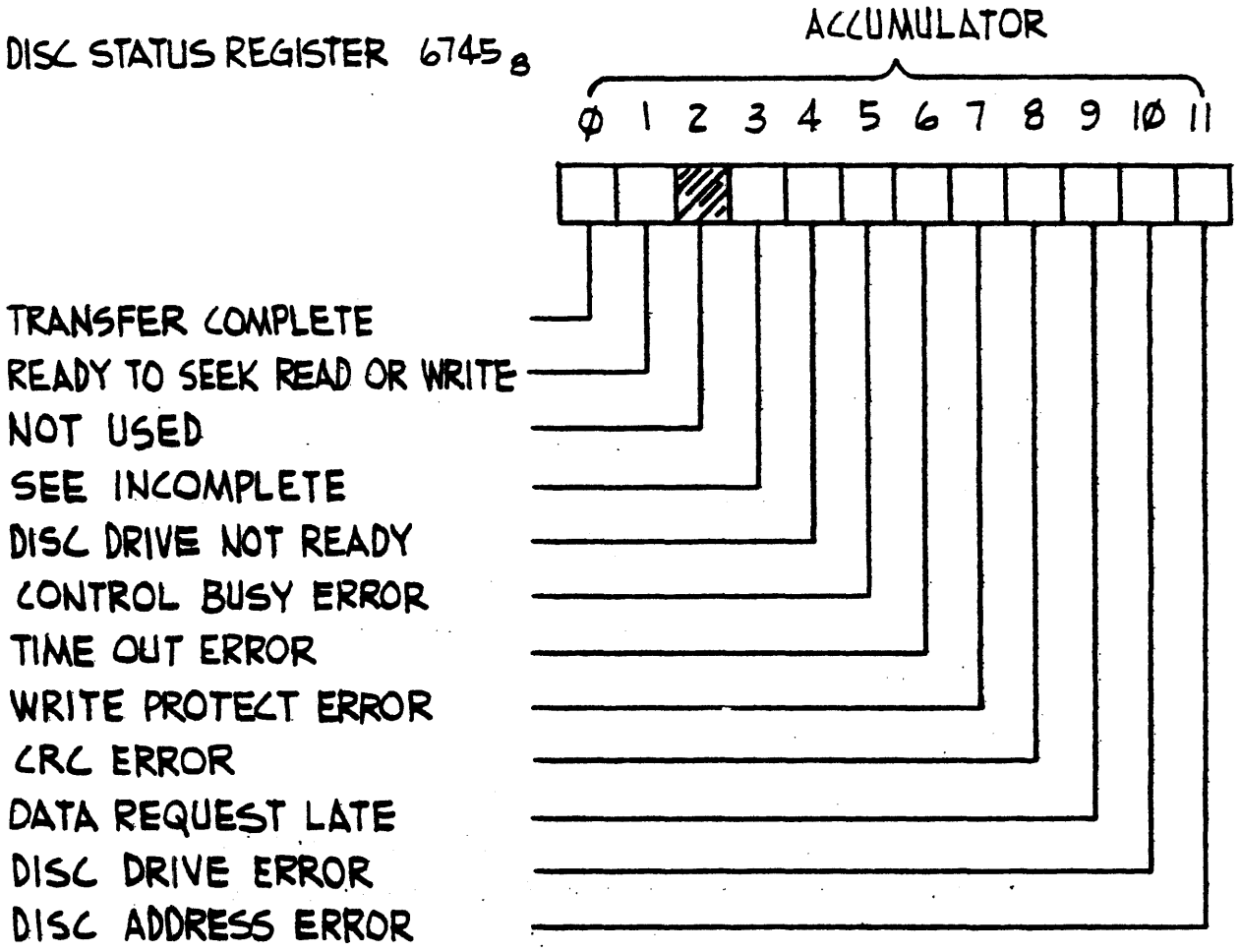
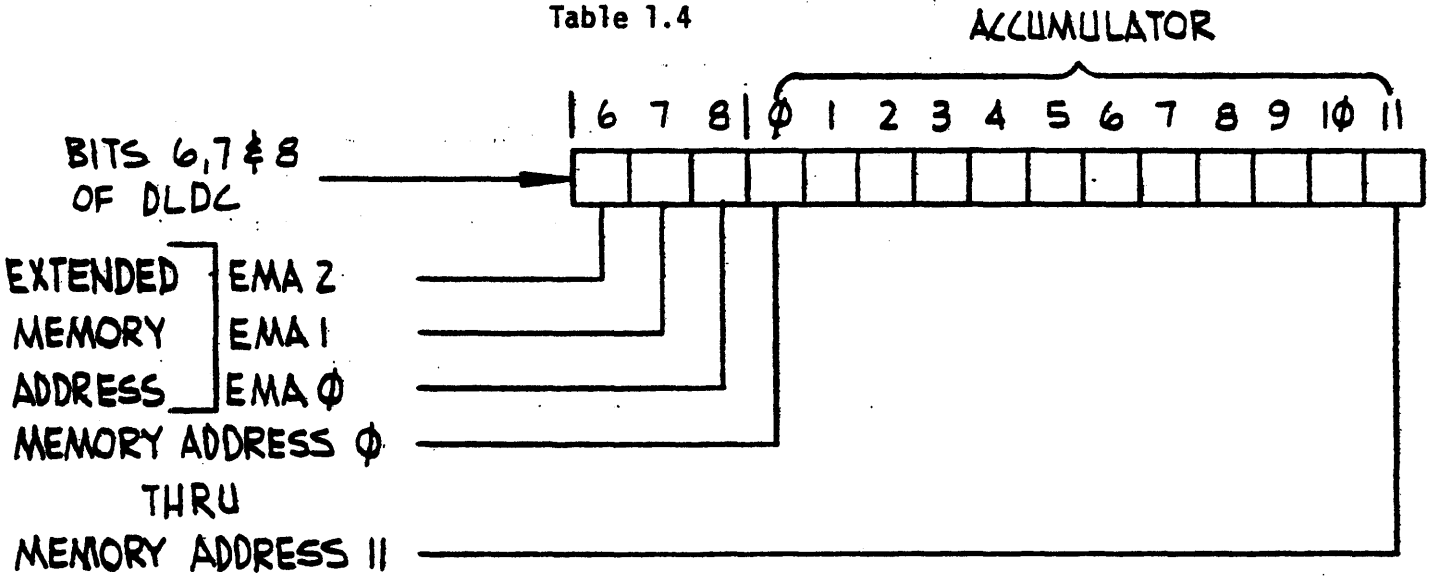


Table 1.4



SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 8

Bit 03 Seek Incomplete

Bit 03 is set, equal to a one, when a selected disc drive fails to complete a seek cylinder command. Bit 03 is set by the seek incomplete signal from the selected disc drive. If the (DLAG) instruction is executed with bit 03 set disc drive error bit 10 will set. Bit 03 can only be cleared by a restore command (Bit 10 set 1 and bit 11 reset 0) execute (DCLR) instruction.

Bit 04 Disc Drive Not Ready

When bit 04 is set the disc drive is not ready or unable to become ready due to an operational error requiring operator intervention. If the (DLAG) instruction is executed and bit 04 is set bit 10 disc drive error will set. The clearing of bit 04 requires operator intervention.

Bit 05 Control Busy Error

Bit 05 is set, equal to one, when the DLAG, DLCA or DLDC instructions are executed and the disc drive controller is busy having not completed a previously issued instruction.

Bit 00 is reset, equal to zero.

A command overlay causing the control busy error will not be allowed to be executed and the command currently in process will be completed with transfer complete bit 00 setting.

Bit 06 Time Out Error

Bit 06 is a control watchdog timer enabled whenever control is set busy. Control timer when enabled is allowed to count 7 revolutions of the disc media and sets time out error at the start of the eighth revolution. Control timer is reset by the Idle flip flop going true before the start of the eighth revolution. (280 milliseconds). Time Out Error sets the done interrupt if enabled. Time out error indicates a hardware fault and can be cleared by (DCLR).

Bit 07 Write Protect Error

Bit 07 is set, equal to one, when an attempt has been made to write data to a write protected disc. The write protect is cleared by manually moving the cartridge protect or fixed protect switch of the selected disc drive downward. Protected discs are indicated by the presence of write protect switch illumination.

Bit 08 CRC Error

Bit 08 is set to a one when the postamble CRC character read from the disc media does not compare with the CRC character generated by the major register board as the data field was read. CRC error forces the control to the idle state setting transfer complete.and truncating any operation in process. If the CRC error was caused by a soft data error then the sector may be reread with a new read command. If the data cannot be reread successfully then the data field has a hard data error and must be rewritten. Cyclic rendundancy check polynomial = 3072 bits divided $N^{16} + N^{15} + N^2 + 1$.

Bit 09 Data Request Late

Bit 09 is set to a one on the event that the processor does not respond to a data break request within 22.5 micro seconds indicating data overrun to the controllers 4 word data buffer. Data Request Late forces the control to the idle state setting transfer complete.

A new transfer sequence must be initiated in order to continue the transfer of data. The sector in the process of being read when Data Request Late occurred must be reread.

Computer service latency to a data break request cannot exceed 6.5 micro seconds when all the ranks of the input buffer are full, or 13 microseconds if 2 ranks are full.

Data Request Late timings are true whether the operation is a read or a write.

Bit 10 Drive Status Error

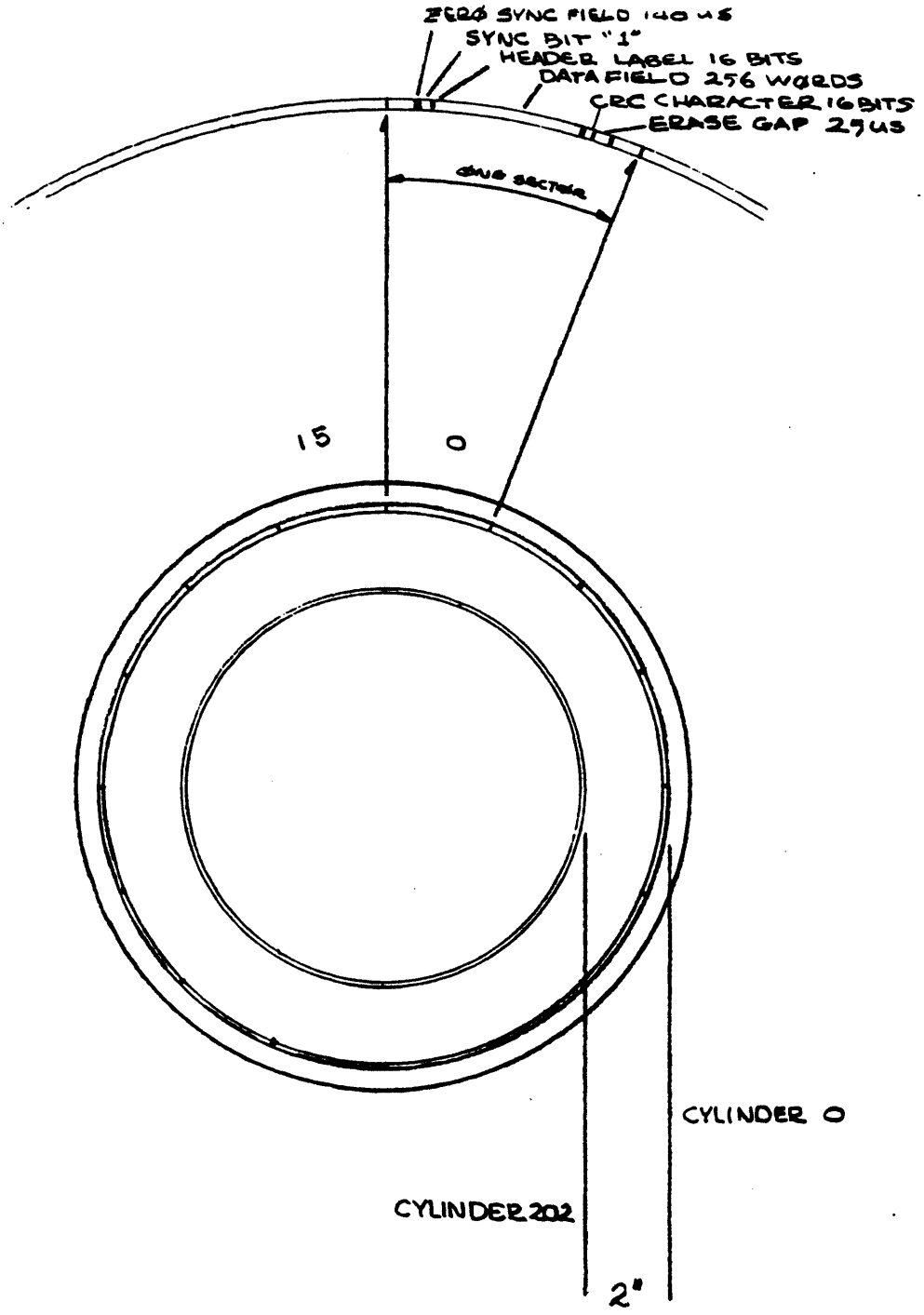
Bit 10 is set to a one when any of the following conditions exist and the (DLAG) instruction is executed.

1. Disc prime power off.
2. Address switches #1 & #2 are incorrectly set to the disc drive.
3. Disc cartridge not mounted or cartridge door not closed.
4. Disc not up to speed (Drive will not come ready even though broom cycle is completed)
5. Erase or write current is present without write gate.
6. The carriage servo mechanism has been detected inoperative.
7. Controller attempts to address a nonexistant cylinder (Sets transfer complete).
8. Seek incomplete is set.

Bit 11 Cylinder Address Error

Bit 11 is set to a one if a header label is read that does not compare with the header information stored on the Major Registers Board. This event could have been caused by either a servo positioner error or a read error. Transfer complete is set.

The cylinder address may be read from the CRC register using the maintenance instruction. The disc drive should be restored and a new seek issued.



DATA FØRMAT PMDC/8 - PMDD/8

SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 13

1.6 Load Disc Command Register (DLDC) 6746_8

This instruction is used in conjunction with the (DLAG) instruction to cause the disc drive to execute various control commands.

The contents of the accumulator are transferred to the disc controller command register leaving the accumulator cleared.

Actual initiations of command functions take place when the (DLAG) instruction is executed. The functional characteristic of each bit loaded to the command register is presented in the following paragraphs.

1.6.1 The settings of bits 0, 1 & 2 will determine the command function to be executed when the (DLDC) instruction is issued. These bit settings are coded 0 thru 5 in binary coded octal format to determine the particular function. See Table 1.6.1.

(00_8) Read Data: This is the command function usually used to transfer data from the disc media to the CPU. When the read command is acted upon the disc drive will seek to the physical cylinder, surface & sector address specified by the (DLDC-DLAG) instructions and compare the header information previously written with the contents of the controller registers. When a match is achieved the transfer of one block of serial data commences. 256 words for a full block 128 words if the half block bit is set. Data is deserialized and loaded to Rank 1 of the four word controller data buffer.

1.6.1 (Continued)

Data is subsequently shifted in twelve bit parallel form [illegible] empty ranks to Rank 4, and as data break requests are honored by the CPU the data is asserted on the Omnibus* data lines. A data break request will be issued whenever a Rank of the four word data buffer is full and a data break request will be pending for all full Ranks. The CPU's ability to keep up with the data transfers from the disc is monitored by the Data Request Late flag. At the conclusion of the block transfer the CRC word is read by the control logic and compared with the CRC computed during the read operation. Transfer Done status is set and an interrupt can be activated at the conclusion of each block or half block read.

(01_8) Read All: This command is used to verify header labels written when a disc cartridge has been newly formatted. The Read All command responds to data in the same manner as the Read Data command with the exception that headers are not verified before a transfer of data can commence. This feature allows an addressing word corresponding to the header address information to be read from the data field without regard to the information that actually exists in the header field.

* Trademark of Digital Equipment Corporation

1.6.1 (Continued)

(02_8) Write Protect: The write protect command can be used to set the write protect line on disc drives that are equipped with the remote write protect feature. When so equipped, the write protect can only be over-ridden by physically pushing off the write protect switch on the write protected disc drive. See paragraph 1.5, Write Protect Error.

If an attempt is made to write to a write protected disc drive, Write Protect Error(bit 07 of the disc status register) will be set and the write will be inhibited.

(03_8) Seek Only: The seek only command is used to initiate seeks to more than one disc drive at a time; this reduces the access latency when information might be resident on more than one disc drive. When the seek only command is issued, the selected disc drive will perform the seek specified by the (DLDC, DLAG) instructions, however the address information will not be compared with the block's header information.

The Transfer Done flag will be set when the Seek Only command is executed. Bit 4 can be set to a one in the control command register to specify the Transfer Done flag to be set again when the"seek complete" actually takes place.

1.6.1 (Continued)

Note: Care must be taken to avoid overlapping seeks to disc drives with unit numbers set to equal the same physical disc drive, i.e. units number 1 and number 2 usually are set to equal disc drive number 0 removable disc and fixed disc respectively. Both discs share the same carriage head positioner mechanism.

(04_8) Write Data: This is the command function usually used to transfer data from the CPU to the disc media. When the write command is acted upon, the disc drive will seek to the physical cylinder, surface, sector address previously specified by the (DLDC, DLAG) instructions and compare the header information previously written with the contents of the controller registers. When a match is achieved,the transfer of one block of serial data commences (256 words for a full block 128 words if the halfblock bit is set). Data is loaded from the Omnibus*to Rank 1 of the four word controller data buffer in 12 bit parallel format.

Data is subsequently shifted in parallel format thru all empty Ranks to Rank 4 where serialization takes place. From Rank 4,data is shifted out serially thru double frequency, crystal controlled clocking logic to the disc drive.

* Trademark of DIgital Equipment Corporation

1.6.1 (Continued)

Data is captured from the CPU as single cycle data break requests are honored. A Data Break Request will be issued whenever a Rank of the four word data buffer is empty and a Data Break Request will be pending for all empty ranks.

The CPU's capability to maintain data flow is monitored by the Data Request Late flag. At the conclusion of the data transfer a cyclic redundancy check character of the full data block is recorded.

(05_8) Write All: This command is used to format a new disc cartridge prior to actual usage in a computing system. The Write All responds to data in the same manner as the write data command with the exception that headers are not verified before a transfer of data can commence. This feature allows an addressing word corresponding to the header address information to be written to the sector data field without regard to the information that actually exists in the header field.

To format a new disc cartridge, all that is necessary is for the program to address each and every sector of the disc, writting one word each time. The controller will then take responsibility to write the header information that was physically used to access the disc and the program can write its own header verification word.

1.6.2 Bit 03 Interrupt Enable

The disc drive controller interrupt system is armed by the setting of bit 03 equal to 1 in the DC/8 command register. With the controller interrupt armed,a program interrupt is initiated by the setting of Transfer Done or Error Flag.

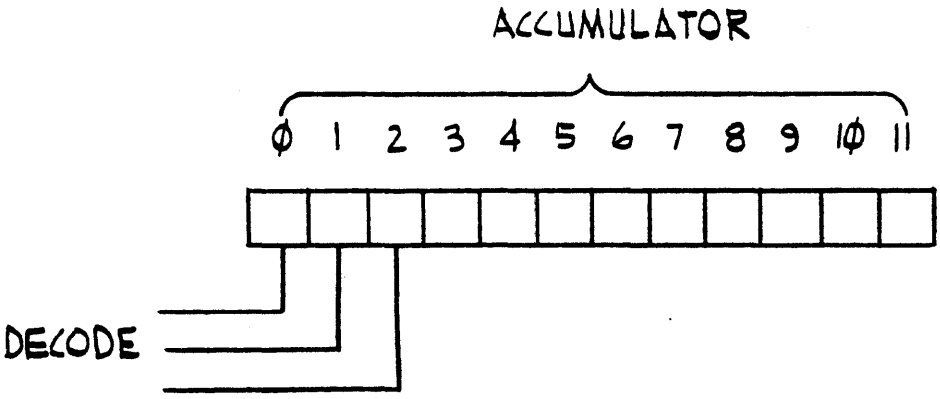
1.6.3 Bit 04 Seek Complete Transfer Done

The setting of bit 04 to a 1 in the DC/8 command register will cause Transfer Done flag to occur on the completion of a seek by the selected disc drive. See seek only 1.6.1.

1.6.4 Bit 05 Read/Write Half Block

The setting of bit 05 (half block bit) equal to a 1 in the DC/8 command register will cause the disc system to transfer a truncated (128 word) block of data. During a write, with the half block bit set,128 words of data are transferred from main memory to the disc drive followed by 128 words of zeroes generated by the controller logic. A CRC character is written after the 128 words of zero's and Transfer Done flag is asserted. During a read with the half block bit set 128 words of data are transferred to main memory,then a pause in CPU controller activity takes place while a CRC character is calculated based on the entire 256 word record. The calculated CRC is compared to the CRC written on the disc and Transfer Done flag is asserted.

SEEK/READ/WRITE FUNCTION BITS



BIT	Ø	1	2	FUNCTION
$Ø_8$	Ø	Ø	Ø	READ DATA (READ CHECK)
1_8	Ø	Ø	1	READ ALL (IGNORE HEADER) CHECK
2_8	Ø	1	Ø	WRITE PROTECT SELECTED DRIVE
3_8	Ø	1	1	SEEK ONLY
4_8	1	Ø	Ø	WRITE DATA (WRITE CHECK)
5_8	1	Ø	1	WRITE ALL (IGNORE HEADER) CHECK

Table 1.6.1

SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 20

1.6.5 Bits 6, 7 & 8 Select Extended Memory

The setting of bits 6, 7 & 8 in the command register determine the selection of extended memory address fields and are used as the most significant bits of a source, destination address for direct memory transfers by the disc controller. Bits 0 thru 11 of the memory address are provided by the Current Address Register. Bits 6, 7 & 8 become EMA bits, 2, 1 & 0 respectively and are asserted to the omnibus* per table 1.6.5 for each direct memory transfer.

The EMA bits are not effected by overflow from the Current Address Register and must be reset to select a new memory address field. If Current Address Register overflow occurs without the resetting of the EMA bits, the data transfer in process will exhaust its record space by wrapping around the selected memory address field.

* Trademark of Digital Equipment Corporation

Table 1.6.5

COMMAND REGISTER BIT EXTENDED MEMORY BIT	Φ6 EMA2	Φ7 EMA1	Φ8 EMA Φ	SELECTED MEMORY FIELD
	Φ	Φ	Φ	FIELD Φ
	Φ	Φ	1	FIELD 1
	Φ	1	Φ	FIELD 2
	Φ	1	1	FIELD 3
	1	Φ	Φ	FIELD 4
	1	Φ	1	FIELD 5
	1	1	Φ	FIELD 6
	1	1	1	FIELD 7

Table 1.6.6

BIT 9	BIT 1Φ	LOGICAL UNIT
Φ	Φ	# Φ
Φ	1	# 1
1	Φ	# 2
1	1	# 3

1.6.6 Bits 9 & 10 UNIT SELECT

Bits 9 and 10 of the Command Register are decoded to select one of four logical disc units per Table 1.6.6.

Unit select functionally establishes the communications path between the PM-DC/8 and the PM-DD/8 disc units available and must be used when data or control information is passed. Interpretation of the unit select lines can be established by the position of the two thumbwheel switches at the rear of the disc drives, rather than re-establishing the disc drive logical position in the daisy chain. Care must be taken in the setting of the thumbwheel switches to assure that only one disc drive unit occupies a logical unit position in the chain.

1.6.7 Bit 11 Extended Cylinder Address

Bill 11 of the command register is the most significant bit of the disc cylinder address register (bit significance 128). Bit 11 is stored with the disc address to form an eight bit cylinder address selection word. See Table 1.3. The usable cylinder range is 203_{10} or 312_{8}. Addresses above 203_{10} will cause an illegal address error.

SECTION II

MAINTENANCE FEATURES

1.7 Disc Maintenance (DMAN) 6747_8

The disc maintenance instruction is used to condition the DC/8 major registers such that they are linked to the fourth rank of the data buffer to be read to the accumulator or memory. The disc maintenance instruction can also be used when loading data to the DC/8 from the accumulator or memory. The (DCLC) instruction paragraph 1.2 must be used to terminate a function when changing modes from read to write or write to read. The maintenance functions are shown in Table 1.7 followed by a detailed description.

Table 1.7

BIT	FUNCTION
ØØ	ENABLE MAINTENANCE MODE DISABLE (DLAG)
Ø1	ENABLE SHIFT TO DATA BUFFER RANK 4 (DB4)
Ø2	SHIFT CRC TO DB4
Ø3	SHIFT COMMAND REGISTER TO DB4
Ø4	SHIFT SURFACE & SECTOR TO DB4
Ø5	SHIFT ACIØ TO DB1
Ø6	INITIATE SINGLE CYCLE DATA BREAK
Ø7	TRANSFER DB4 TO THE ACCUMULATOR
Ø8	NOT USED
Ø9	NOT USED
1Ø	DATA BIT FOR MAINTENANCE DATA SHIFT
11	NOT USED

1.7.1 Bit 00 Maintenance Mode

The maintenance mode is enabled by executing the (DMAN) instruction with accumulator bit 00 set to equal 1. The maintenance mode disables the (DLAG) instruction. The maintenance control bit is cleared by the (DCLC) clear control command.

Bit 01 Shift Enable

The execution of (DMAN) with accumulator bit 01 set equal to 1, sets Rank 4 of the 4 word data buffer to shift mode to receive maintenance data.

Bit 02 Shift CRC

The execution of (DMAN) with accumulator bit 02 set equal to 1 will cause bit 10 of the accumulator to load into bit position 01 of the CRC Register and shift the CRC Register one place into Rank 4 of the data buffer. AC10 → CRC01 CRC 16 → DB4 (PM00)

Twelve executions of (DMAN) with bit 02 set would fill DB4 with 12 bits of the CRC. Execution of (DMAN) with bit 07 set will transfer this value to the accumulator. To input the remaining 4 CRC bits. Shift CRC four more times and load this value from DB4 to the accumulator.

CRC Bits 4-11 contain the disc cylinder address when the CRC register is used as the Disc Address register Bits 1, 2 & 3 and 12, 13, 14, 15 & 16 would be zeros.

Bit 03 Shift Command Register to DB4

The execution of (DMAN) with the accumulator bit 03 set equal to a 1 shifts the command register one place left to DB4 and Bit 11 of the command register to Bit 00 of DB4. Twelve shifts will load the entire command register to DB4.

Bit 04 Shift Surface And Sector to DB4

The execution of (DMAN) with accumulator bit 04 set equal to 1 will shift the sector surface address register left one place to DB4. Five shifts will load the entire sector surface register to DB4.

Bit 05 Shift AC 10 to DB1

Execution of the (DMAN) instruction with accumulator bit 05 set equal to a 1 will shift accumulator bit 10 left one place to the least significant bit position of Rank 1 of the 4 word data buffer. The bit counter and word counter are incremented in the same manner as they would be by incoming disc data. (DCLC) must be issued to clear the action and results of (DMAN) with 05 set.

Bit 06 Initiate Single Cycle Data Break

The execution of the (DMAN) instruction with accumulator bit 06 set equal to a 1 will allow a single cycle data break to occur. Control information specified by the command register will be executed. Data transfer will occur using the memory address specified by the current address register and the extended memory address register. DB1 thru DB4 will transfer and act on data in their normal manner with the Data Request Late flag being active. Thus a read must occur for every write to avoid Data Request Late.

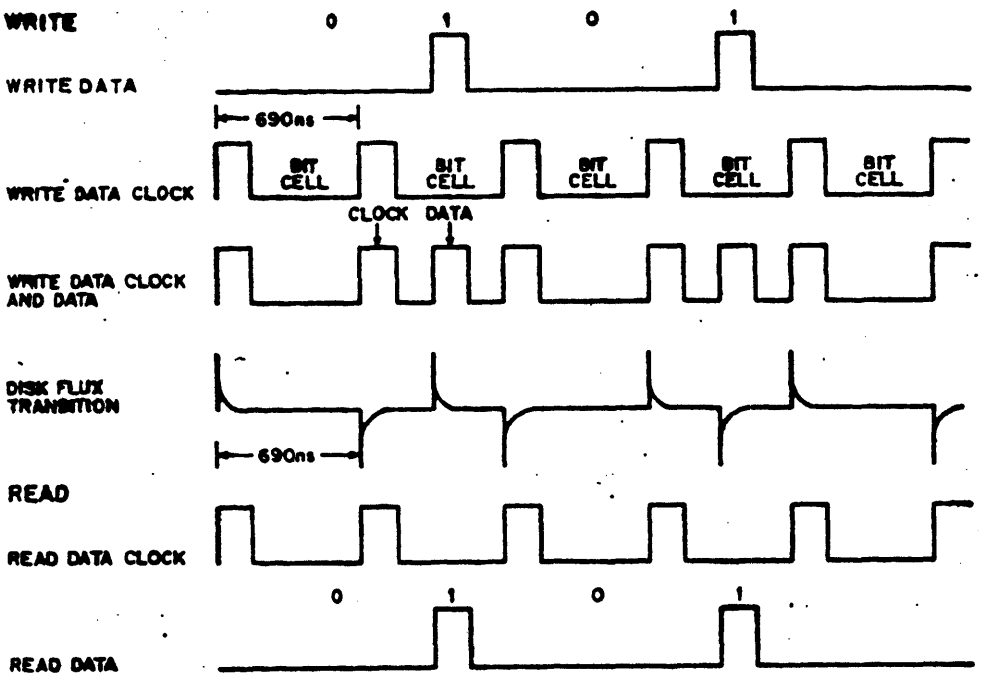
Accumulator Bit 06 is cleared automatically when Data Break Request is serviced. (DCLC) is used to reset the command register and make DB4 appear empty.

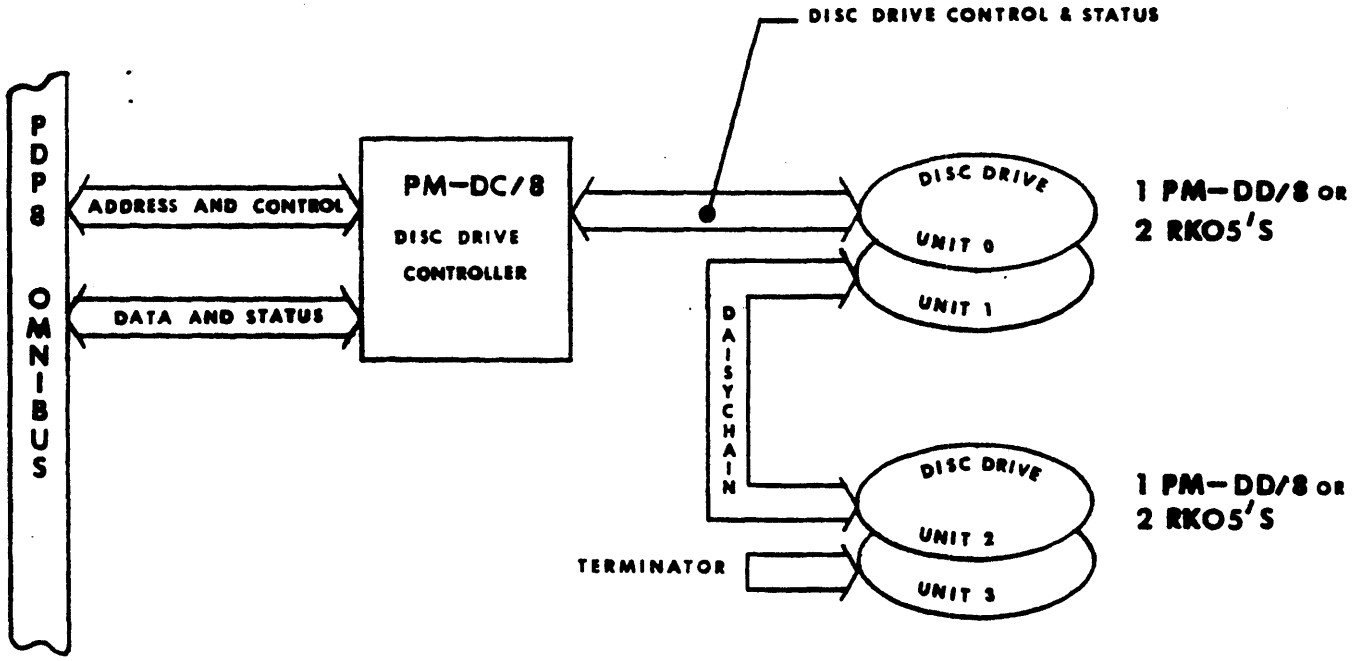
Bit 07 Transfer DB4 to the accumulator

The execution of (DMAN) with accumulator bit 07 set equal to a 1 will cause one word of information to be loaded from DB4 to the accumulator.

Bit 10 Data Bit

Bit 10 is used as a data bit in conjunction with various maintenance functions.





SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 30

SECTION III

INSTALLATION PROCEDURE & PM-DD/8 SPECIFICATIONS

APPLICATION

NEXT ASSY	USED ON

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
–	REL FOR PROD PER ERO 500712	2-18-76	

PRODUCTION RELEASE

REV STATUS OF SHEETS																						
	REV LTR																					
	SHEET																					
	REV LTR	–	–	–	–	–	–	–	–	–	–											
	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

DO NOT SCALE DRAWING

SCREW THREADS PER HANDBOOK H-28

COUNTERBORE AND SPOTFACE FILLET RADII TO BE .010 MAXIMUM

REMOVE ALL BURRS AND BREAK SHARP EDGES EQUIVALENT TO .010R

ROUGHNESS OF MACHINED SURFACES 125√ PER USAS B46.1.

STANDARD HOLE TOLERANCE PER ANSI 10307

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	T. Githens	2/17/76
CHECK	J. Boll	2/18/76
DESIGN		
PROJ. ENGR.	D. Nakaya	2/18/76
OTHER APPROVALS		

Plessey Memories Incorporated
Santa Ana, California

DWG TITLE

PLESSEY DISC DRIVE SYSTEM (PM-DS/8B)
INSTALLATION PROCEDURE

SIZE	CODE IDENT NO.	DWG NO.
A	52648	IP 700715

SCALE: | SHEET 1 OF 11

FORM 000020

DISTR NO.

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	Figure 1	7
	Figure 2	8
	Figure 3	9

PLESSEY DISC DRIVE INSTALLATION PROCEDURE

1.0 REQUIRED ITEMS

Disc Drive Manual	MA700540
Allen Wrench	5/64in.
Phillips Screwdriver	Xcelite X-108 #1
Common Screwdriver	Xcelite R-3166 3/16 x 6
4" Adjustable Wrench	Crescent etc.
Cable Extractor	3M

2.0 UNPACKING AND INSPECTION

2.1 Inspect shipping container for evidence of damage incurred during shipment. Reporting obvious damage to the carrier company.

2.2 Open the top side of the shipping container.

2.3 Remove the inner container and open the top side of the inner container.

2.4 Remove the top and side styrofoam liners.

2.5 Grip the unit along both sides of the casting while lifting the unit out of the container.

CAUTION: Do not support the unit via the handle on the front panel.

2.6 Remove the protective plastic bag.

2.7 The shipping container and internal packing material may be retained for future repacking of the unit. A replacement container may be ordered Plessey No. 300166.

3.0 DISC TOP COVER REMOVAL

3.1 Using a 5/64 allen wrench remove the six screws on the top surface of the cover.

3.2 Release the front door locking mechanism which may be depressed toward the rear of the unit by means of an access window located on the right side panel of the top cover toward the front of the unit. While holding the locking mechanism depressed open the front door. See Figure 1 for locations.

4.0 CARRIAGE SHIPPING RESTRAINT REMOVAL

4.1 Release the cabinet lock mechanisms located on each side of the drive by depressing them in an upward direction (See Figure 1 for location). This will release the slides. While holding the cabinet latch mechanism, push the disc slides toward the rear of the machine in order to gain access to the positioner assembly.

4.2 Remove the restraint retaining screw then reinstall it, as shown, in the stowed position.

NOTE: The restraint retaining screw secures the carriage rear stop and MUST be re-installed. See Figure 2 for location.

4.3 Plug in P-16 on power supply.

5.0 INITIAL CHECKOUT

5.1 Slightly elevate the front of the drive to give clearance for the motor pulley for temporary desk top checkout.

5.2 Apply AC power to the drive. The power cord receptacle is located in the drive back panel.

5.3 Turn the power switch on. The load lamp should illuminate.

5.4 Insert a "scratch" cartridge into the drive.

5.0 INITIAL CHECKOUT: (Continued)

5.5 Turn the run/load switch to RUN. After approximately 20 seconds the Ready lamp should illuminate.

5.6 Connect the Drive Bus cable to J-22 on the I/O connector board.

5.7 Run diagnostics or a DEC program to verify that the disc is operating properly.

6.0 RACK MOUNTING

6.1 Turn the Run/Load switch to the load position. After approximately 20 seconds the load lamp should illuminate.

6.2 Remove the cartridge and turn the power switch off.

6.3 Remove the A.C. power cord from the drive.

6.4 Remove the back panel as follows:

a. Remove the 2 screws securing the A.C. receptacle to the back panel.

b. Using the 3M cable extractor remove the cable from J-21 on the I/O connector.

c. Remove the 4 screws securing the back panel to the drive slides.

6.5 Remove the slides as follows:

a. Using the 3M cable extractor remove the cable from the DIB board J20.

b. Remove the 4 screws securing the slides to the drive. See Figure 1.

6.6 Mount the slides in the rack using the mounting hardware provided. The slide brackets may be adjusted to fit the rack by loosening the bracket fastening screws at the front and rear of the slide. The rear of the slide attaches to the rack by means of the bracket adjustment screw. (See Figure 1).

6.7 After both slides are mounted, fully extend them and set the drive on the extended slides.

6.8 Fasten the rails to the drive.

6.9 Mount the drive back panel and connect the ribbon cable to the DIB and I/O boards.

6.10 Reconnect the A.C. receptacle.

6.11 Reinstall the drive top cover.

7.0 CONTROLLER INSTALLATION

7.1 Ensure PDP-8 power is turned off.

7.2 Ensure correct jumpers are installed to select the device code assigned to this disc controller. The data and buffer board (700645) is normally shipped with the 674X device code 675X through 677X may be used (See Table 1).

7.3 Install jumpers to select priority assigned to disc controller. priority jumpers on major board *700647). See Table 2.

7.4 Connect disc bus cable. (700696) onto control board (700643)

NOTE: Cable labeled "P1" and "P2".

7.5 Insert three (3) card PDP 8 disc controller (PM-DC/8) into the omnibus - See Figure 3.

NOTE: Major board (700647) if inserted incorrectly,, will apply +15V, -15V, -5, and +5V to logic input/output gates. Insert all boards with connectors "A", "B", "C", and "D" down and into the OMNIBUS.

7.6 Install PM-DS/8 top connector (700713-100) onto the three disc control boards.

8.0 ACCEPTANCE TEST

The following diagnostics must be run in the order shown to satisfy minimum test requirement. Refer to instruction in diagnostic document to run test.

8.1 RK8-E discless control diagnostic - 2 passes

8.2 RK8-E drive control diagnostic - 1 pass

8.3 RK8-E formatter - 1 pass

8.4 RK8-E data reliability test - optional

TABLE I

DEVICE SELECT JUMPER INSTALLATION

OCTAL CODE	INSTALL FOLLOWING JUMPER ON P/N 700645 BOARD
674X	W2, W3
675X	W2
676X	W3
677X	NONE

TABLE II

PRIORITY SELECTION

PRIORITY	INSTALL JUMPER ON P/N 700647 BOARD
PRIORITY 0 (HIGHEST)	W1 & W4
PRIORITY 1	W2, W3, & W5

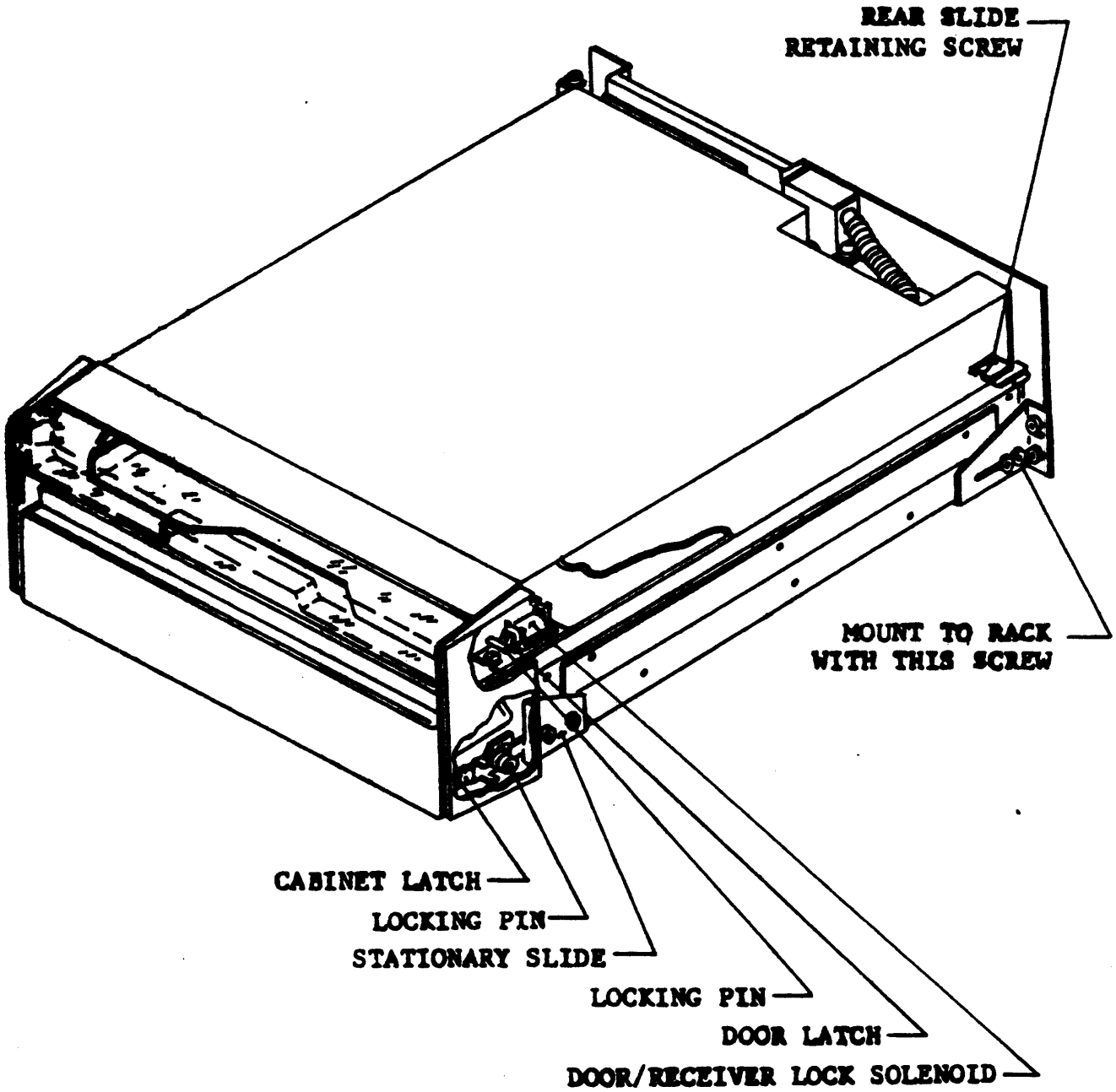
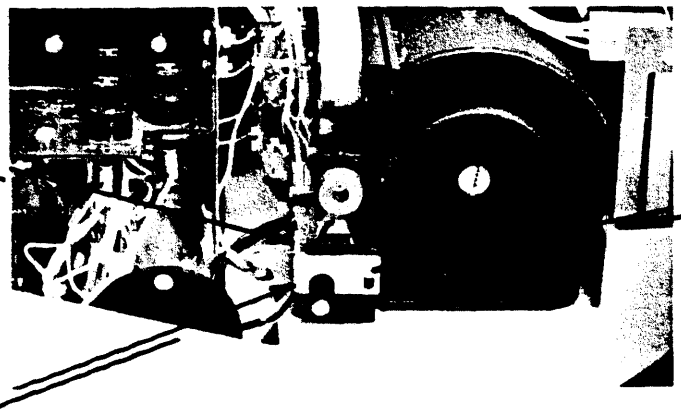


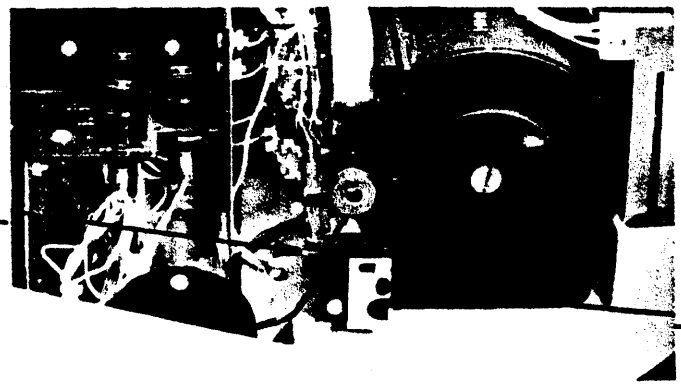
FIGURE 1

SIZE	CODE IDENT NO.	DWG NO.
A		IP 700715
SCALE	REV	SHEET 9

SHIPPING RESTRAINT



INSTALLED POSITION



STOWED POSITION

FIGURE 2

SIZE	CODE IDENT NO.	DWG NO.
A		IP 700715
SCALE	REV	SHEET 10

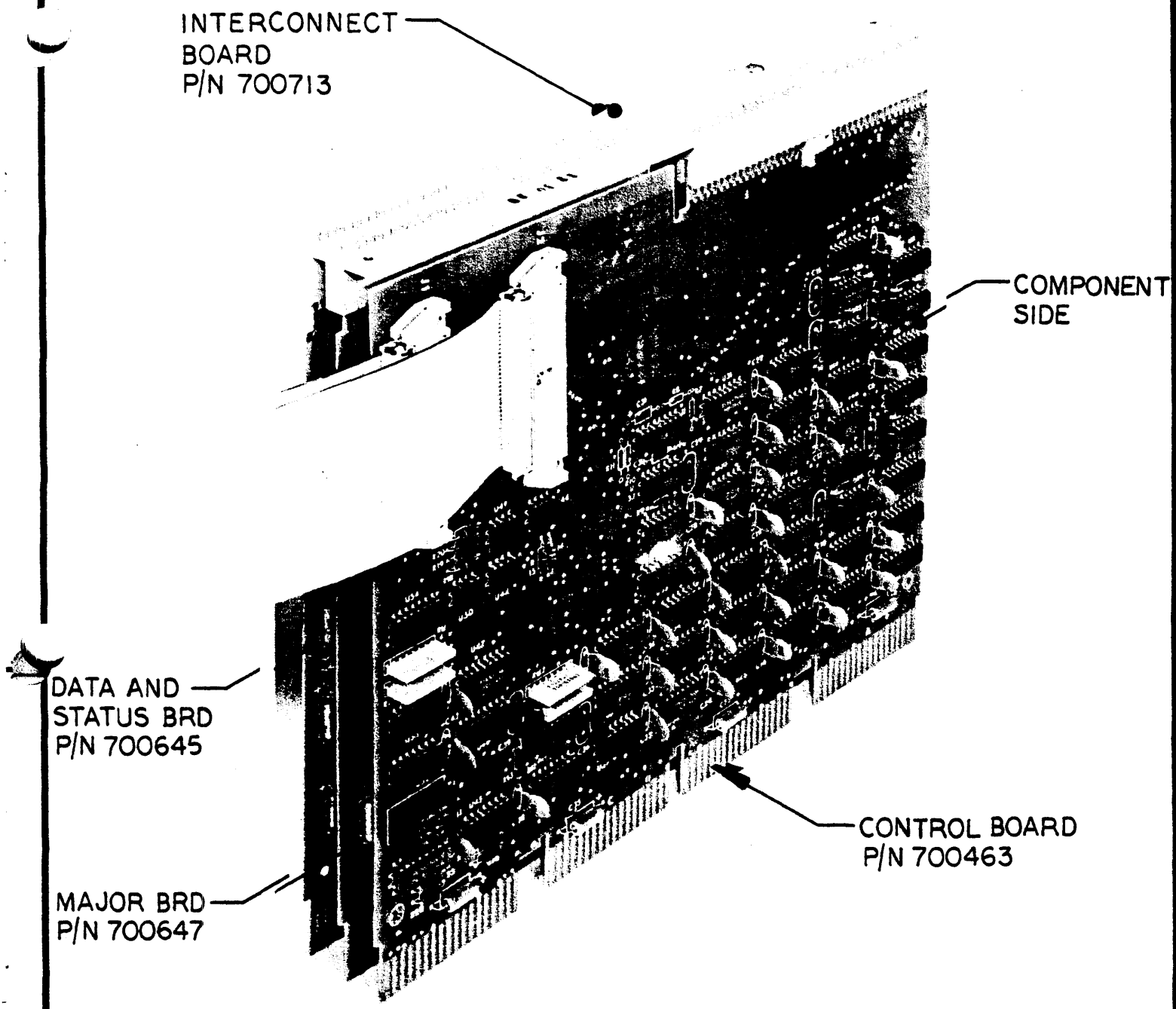


FIGURE 3

SIZE	CODE IDENT NO.	DWG NO.
A		IP 700713
SCALE	REV	SHEET 11

FORM 000021

APPENDIX

PM-DD/8 DUAL DISC SPECIFICATION

Please note that these specifications (capacity) represent two (2) logical unit addresses within the same chassis.

SPECIFICATIONS:

Gross Capacity:	5.0 M Bytes
Transfer Rate:	11.1usec/word
Recording Density:	2200 Bits/Inch, max.
Track Density:	100 tracks/inch
Disc Rotational Speed	1500 RPM
Speed Variation:	± 1% Max.
Access Times:	
Track to Track	15ms
Average	50ms
Maximum	90ms
Reliability:	
Recoverable errors(Max.)	1 in 1 x 10^{10} bits -ransferred
Non-recoverable errors (Max.)	1 in 1 x 10^{12} bits transferred
Mean timebetween failure (MTBF)	5000 hrs.
Mean time to repair (MTTR)	Less than 1 hour
Surfaces/Drive:	4
Tracks/Surface:	200 + 3 Spare
Sectors/Track:	16
Words/Sector:	256
Time for 1/2 revolution	20
Recording Mode:	Double frequency encoded
Cartridge Unload/Load Cycle:	60 seconds
Cartridge:	IBM 2315 type (D.E.C. compatible)

SPECIFICATIONS (Continued)

Power Requirements:

100, 110, 120, 130, 200,
220, 230, 240, 250, and
260 VAC ± 10% 47-63Hz

Physical Dimensions:

Height	7.00 inches
Width	17.60 inches
Length	22.00 inches
Weight	80 Lbs.

19 inch standard RETMA mounting

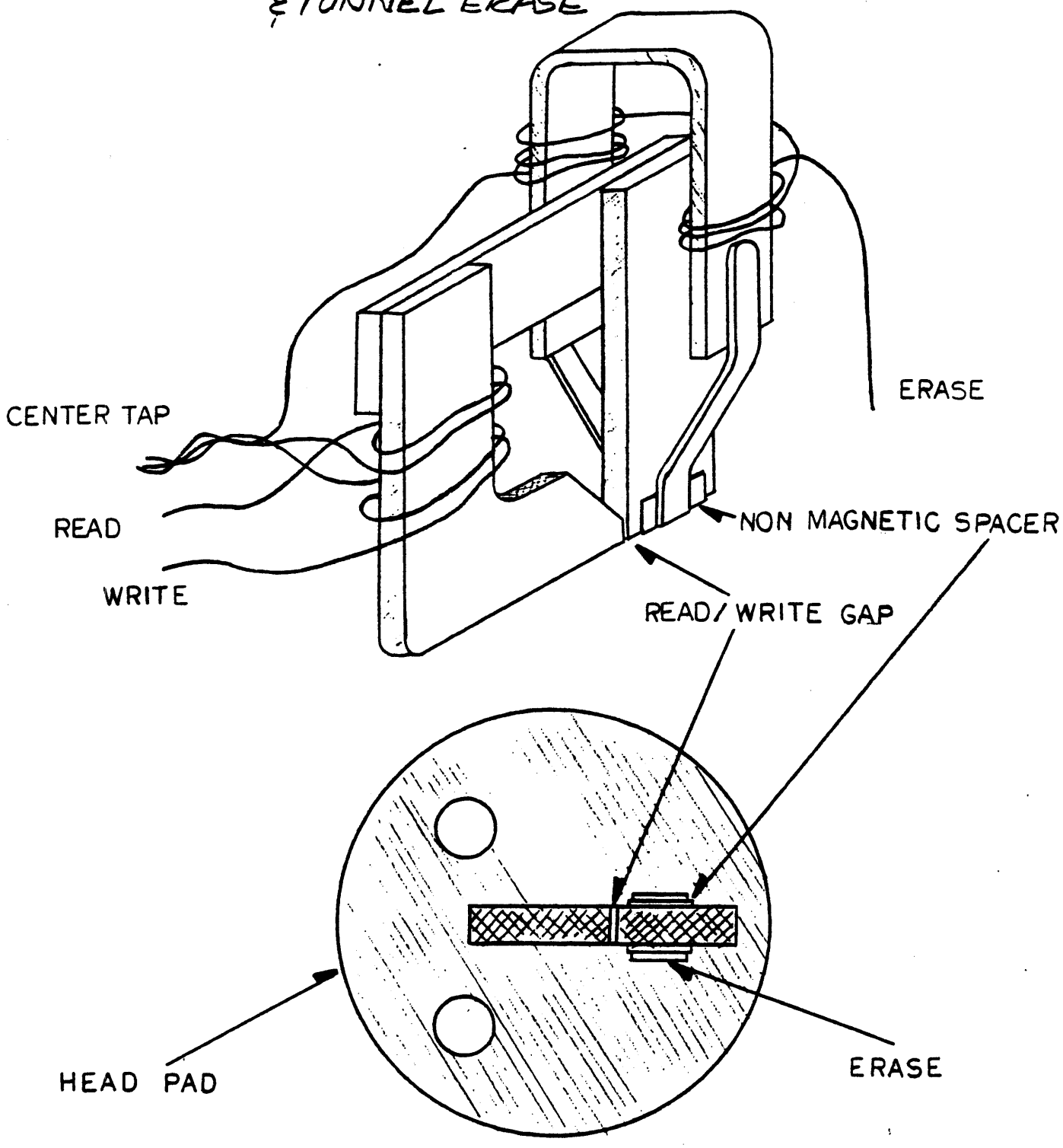
Environment (Operational)

Temperature	50 to 100 degrees F
Humidity (R.H.)	5 to 95% non condensing

Models:

PM-DDA/8	RK05-AA
PM-DDB/8	RK05-BB

READ WRITE HEAD & TUNNEL ERASE



SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 45

SECTION IV

SCHEMATICS

SIZE	CODE IDENT NO.	DWG NO.
A		MA 700655
SCALE	REV	SHEET 46

PARTS LIST — Plessey Memories Incorporated, Santa Ana, California

Title	BOARD ASSEMBLY, CONTROL, PM-DC/8
Signatures	C. ..WEY 12-12-75; ... Turk 10 DEC 75; ... 12-15-75; J ... 12-1-...
Parts List No.	PL700643-100
Rev Ltr	D
Code Ident No.	52648
SH	1 OF 6

LTR	DESCRIPTION	DATE	APPROVED
—	REL TO PROD. ER0500677	12-10-75	DT
A	INCORP EO 1134	2-27-76	JB
B	INCORPORATE EO #1173	5-13-76	DT JB
C	INCORPORATE EO 1214	6-1-76	
D	INCORP. E.O. 1269	8-17-76	JB

PRODUCTION RELEASE

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

INTERPRET SYMBOLS USED AS FOLLOWS:

PARTS LIST — Plessey Memories Incorporated, Santa Ana, California — Code Ident No. 52648 — PL700643-100 — SH 2 — 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.
U1,2,3,4,5,6	6	U47	21	RU2, RU4	36		
U7,11	7	U51	22		37		
U8,12,14,17,25, U27,33,45	8	C44,45	23	R1,16,17,22,23,24	38		
		C1,23,35,40	24	R2,3,4,5,6,9	39		
U9,35,36	9	C2,3,4,6,8,9,10,12,13 C16,17,18,19,20,21,22 C24,25,26,27,28,32,33 C34,37,38,41,42,43	25		40		
U10	10				41		
U13,23,26,29,30,40	11				42		
U15,18,19,20,21 U22,24,37,41	12	C5,15	26		43		
		C7,11	27	R12	44		
U16,32,55	13	C14	28	R13	45		
U28	14	C29	29	R14,18,21	46		
U31	15	C30,31	30	R15,19,20	47		
U34,39	16	C36	31	R7, R8, R10, R11 ARE LAB SET			
U38,43	17	C39	32				
U42,52,53,54	18	Y1	33				
U44,48,49,50	19	CR1	34				
U46	20	RU1, RU3	35				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 47

FORM 000021

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700643-100	SH 3	D

ASSY	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	STN	C/I USAGE: C/I CODE	TOT ON BOARD	PAR	UNIT COST
		1	700642-001	P.W.B./CONTROL				1	B				
		2	3432-1002	CONNECTOR, 40PIN	3M CO.	26066		2	A				
D								3					
D								4					
								5					
		6	SN74161	SYNCHRONOUS 4-BIT COUNTERS	TEXAS INSTR	01295		6	A				
		2	SN74H04	HEX INVERTER	TEXAS INSTR	01295		7	A				
		8	SN7400	QUAD 2-INPUT POS-NAND GATES	TEXAS INSTR	01295		8	A				
		3	SN7404	HEX INVERTER	TEXAS INSTR	01295		9	A				
		1	SN74H10	TRIPLE 3-INPUT POS-NAND GATES	TEXAS INSTR	01295		10	A				
		6	SN7402	QUAD 2-INPUT POS-NOR GATES	TEXAS INSTR	01295		11	A				
		9	SN7474	DUAL D-TYPE POS-EDGE TRIGGERED FLIP-FLOP	TEXAS INSTR	01295		12	A				
D		3	SN7408	QUAD 2-INPUT POS-AND GATES	TEXAS INSTR	01295		13	A				

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700643-100	SH 4	C

ASSY	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	STN	C/I USAGE: C/I CODE	TOT ON BOARD	PAR	UNIT COST
		1	SN74H52	EXPANDABLE 4 WIDE AND-OR GATES	TEXAS INSTR	01295		14	A				
		1	SN7442	4-LINE-TO-10-LINE DECODERS	TEXAS INSTR	01295		15	A				
		2	SN7410	TRIPLE 3-INPUT POS-NAND GATE	TEXAS INSTR	01295		16	A				
		2	SN74123	DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR W/CLEAR	TEXAS INSTR	01295		17	A				
		4	196021-380	QUAD 2-INPUT RECEIVERS				18	A				
		4	SN75452	DUAL PERIPHERAL POS-NAND DRIVER	TEXAS INSTR	01295		19	A				
		1	SN7496	5-BIT SHIFT REGISTERS	TEXAS INSTR	01295		20	A				
		1	SN7485	4-BIT MAGNITUDE COMPARATOR	TEXAS INSTR	01295		21	A				
		1	SN74H76	DUAL J-K TYPE FLIP-FLOPS W/PRESET AND CLEAR	TEXAS INSTR	01295		22	A				
C		2	CD15FD 221J03	CAPACITOR, 220pf. ±5%	CORNELL-DUBILIER	93790		23	A				
		4	CS13BF 685M	CAPACITOR, TANT, 6.8 μf	MIL-C-26655			24	A				
		29	C069B1 60E103Z	CAPACITOR, .01 μf, +80%-20%	SPRAGUE	05571		25	A				
B		2	CD15FD 471J03	CAPACITOR, 470 pf	CORNELL-DUBILIER	93790		26	A				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 48

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700643-100	SH 5	REV LTR B

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	INV ON HAND	PAR	UNIT COST
		2	CD15FC 821J03	CAPACITOR, 820pf, ±5%	CORNELL-DUBILIER	93790		27	A				
		1	CD15FD 181J03	CAPACITOR, 180pf, ±5%	CORNELL-DUBILIER	93790		28	A				
		1	CD15FC 561J03	CAPACITOR, 560pf, ±5%	CORNELL-DUBILIER	93790		29	A				
		2	X463UW	CAPACITOR, .022 μf, ±10%, 50V	TRW	84411		30	A				
		1	CD15CD 100J03	CAPACITOR, 10pf, ±5%	CORNELL-DUBILIER	93790		31	A				
B		1	CK06BX-472K	CAPACITOR, 4700 pf, 200 V, 10%	MIL-C-11015			32	A				
		1	JKTO-80	CRYSTAL OSCILLATOR 5.760 MHZ	CTS	75378		33	A				
B		1	138000-001	DIODE				34	A				
A		2	100013 -011	RESISTOR, MODULE, 390Ω, ±5%				35	E				
A		2	100013 -012	RESISTOR, MODULE, 180Ω, ±5%				36	E				
								37					
		6	RC07G F102J	RESISTOR, 1K, 5%, 1/4W	MIL-R-11			38	A				
		6	RC07G F101J	RESISTOR, 100Ω, 5%, 1/4W	MIL-R-11			39	A				

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700643-100	SH 6	REV LTR A

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	INV ON HAND	PAR	UNIT COST
								40					
								41					
								42					
								43					
		1	RC07G 562J	RESISTOR, 5.6K, 5%, 1/4W	MIL-R-11			44	A				
A		1	RN60D 2432F	RESISTOR, 24.3K, 1%, 1/4W	MIL-R-10509			45	A				
		3	RC07G F391J	RESISTOR, 390Ω, 5%, 1/4W	MIL-R-11			46	A				
		3	RC07G F181J	RESISTOR, 180Ω, 5%, 1/4W	MIL-R-11			47	A				
								48					
A		AR	5951	WIRE, 30AWG SOLID, KYNAR INSULATION	ALPHA WIRE	23172		49	G				
		AR	SN63WRAP3	SOLDER	QQ-S-571			50	G				
		REF	SD700643	SCHEMATIC DIAGRAM CONTROL, PM-DC/8				51	C				
		REF	TS700643	TEST SPECIFICATION CONTROL, PM-DC/8				52	C				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 49

PARTS LIST

Plessey Memories Incorporated
Santa Ana, California

BOARD ASSEMBLY, DATA BUFFER & STATUS, PM-DC/8

PL 700645-100 | REV LTR B

CODE IDENT NO. 52648 | SN 1 OF 7

LTR	DESCRIPTION	DATE	APPROVED
—	REL TO PROD PER EBD 500657	20 NOV 75	
A	INCORPORATED EO # 1215	6-1-76	
B	INCORPORATED EO 1270	9-8-76	

LTR	DESCRIPTION	DATE	APPROVED

PRODUCTION RELEASE

REV STATUS OF SHEETS

REV LTR	B	B	—	—	A	B	—			
SHEET	1	2	3	4	5	6	7	8	9	10

IMPROPERLY SYMBOLS USED AS FILLERS:

PARTS LIST — Plessey Memories Incorporated, Santa Ana, California

CODE IDENT NO. 52648 | PL 700645-100 | SH 2 | REV LTR B

CROSS INDEX OF REFERENCE DESIGNATIONS TO FIND NO.

REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.
U1,U10,U16,U18,U19,U25	3	U37	19	C16	35	C25 IS LAB SET	—
U2,U3,U5,U6,U12	4	U38	20	C17,C30	36		
U4,U7,U11,U13,U52	5	U41,U57	21		37		
U8	6	U43	22	C26,C31	38		
U9,U42,U44,U47 U48,U60,U64	7	U50	23	C27,C29	39		
		U51	24		40		
U14,U15,U23,U24	8	U56	25		41		
U17,U20,U26	9	U61	26		42		
U21,U63	10	U62	27	R1	43		
U22	11	U65	28	R2,3,9,17,20,24-28, 32,33,34	44		
U29,U35,U49,U53	12		29	R4,R5	45		
U30,U46	13		30	R6,19,21,22,23,29,31	46		
U31	14	C1,7,12,13,18,19,20	31	R7,R12	47		
U32,U45	15	C6,C21	32	R8,R13	48		
U33	16	C2,3,4,5,8,9,10,	33	R10,R30	49		
U34,U59	17	C11,14,22,23,24		R11	50		
U36,U54,U55,U58	18	C15	34	R14-R16	51		

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 50

FORM 000021

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO 52648	PL 700645-100	SH 3	—

ASSY LEVEL	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	700644-001	P.W.B./DATA BUFFER & STATUS				1	5				
								2					
		6	SN7495	4-BIT PARALLEL-ACCESS SHIFT REGISTER	TEXAS INSTR	01295		3	A				
		5	136021-380	QUAD 2-INPUT RECEIVERS				4	A				
		5	SN7438	QUAD 2-INPUT NAND BUFFERS W/OPEN-COLLECTOR OUTPUTS	TEXAS INSTR	01295		5	A				
		1	136020-384	QUAD 2-INPUT RECEIVERS				6	A				
		7	SN7402	QUAD 2-INPUT POS-NOR GATES	TEXAS INSTR	01295		7	A				
		4	SN74174	HEX/QUAD D-TYPE FLIP-FLOP W/CLEAR	TEXAS INSTR	01295		8	A				
		3	SN74157	QUAD 2-LINE-TO-1-LINE DATA SELECTORS/MULTIPLEXERS	TEXAS INSTR	01295		9	A				
		2	SN7440	DUAL 4-INPUT POS-NAND BUFFERS	TEXAS INSTR	01295		10	A				
		1	SN7442	4-LINE-TO-10-LINE DECODERS	TEXAS INSTR	01295		11	A				
		4	SN7408	QUAD 2 INPUT POS-AND GATES	TEXAS INSTR	01295		12	A				
		2	SN74H76	DUAL J-K FLIP-FLOPS W/PRESET AND CLEAR	TEXAS INSTR	01295		13	A				

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL 700645-100	SH 4	—

ASSY LEVEL	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	SN74123	DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR W/CLEAR	TEXAS INSTR	01295		14	A				
		2	SN74H53	EXPANDABLE 4-WIDE AND-OR INVERT GATES	TEXAS INSTR	01295		15	A				
		1	SN74H74	DUAL D-TYPE POS-EDGE TRIGGERED FLIP-FLOP	TEXAS INSTR	01295		16	A				
		2	SN7404	HEX INVERTER	TEXAS INSTR	01295		17	A				
		4	SN7400	QUAD 2-INPUT POS-NAND GATES	TEXAS INSTR	01295		18	A				
		1	SN7432	QUAD 2-INPUT POS-OR GATES	TEXAS INSTR	01295		19	A				
		1	SN7496	5-BIT SHIFT REGISTERS	TEXAS INSTR	01295		20	A				
		2	SN7474	DUAL D-TYPE POS-EDGE TRIGGERED FLIP-FLOP	TEXAS INSTR	01295		21	A				
		1	SN74H04	HEX INVERTER	TEXAS INSTR	01295		22	A				
		1	SN7410	TRIPLE 3-INPUT POS-NAND GATE	TEXAS INSTR	01295		23	A				
		1	SN74193	SYNCHRONOUS 4-BIT UP/DOWN COUNTERS (DUAL CLOCK W/CLEAR)	TEXAS INSTR	01295		24	A				
		1	SN7485	4-BIT MAGNETUDE COMPARATOR	TEXAS INSTR	01295		25	A				
		1	SN74H00	QUAD 2-INPUT POS-NAND GATES	TEXAS INSTR	01295		26	A				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 51

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700645-100	SH 5	REV LTR A

FIGURE NO.	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM	C/I USAGE: C/I CODE	INV ON HAND	PAR	UNIT COST
		1	SN7437	QUAD 2-INPUT POS-NAND BUFFERS	TEXAS INSTR	01295		27	A				
		1	TZA11-10	75 NS DELAY LINE	RHOMBUS IND	16714		28	A				
								29					
								30					
		7	CS13BF 685M	CAPACITOR, TANT, 6.8uf	MIL-C-26655			31	A				
A		2	150D475X 0010A2	CAPACITOR, TANT, 4.7uf, 10V	SPRAGUE	05571		32	A				
		12	C069B1 60E103E	CAPACITOR, .01uf, 50V	SPRAGUE	05571		33	A				
		1	CD15ED 390J03	CAPACITOR, 39pf, 500V	CORNELL-DUBILIER	93790		34	A				
		1	CD15CD 100J03	CAPACITOR, 10pf, 500V	CORNELL-DUBILIER	93790		35	A				
		2	CD15FD 181J03	CAPACITOR, 180pf,	CORNELL-DUBILIER	93790		36	A				
								37					
		2	CD15FD 331J03	CAPACITOR, 330pf	CORNELL-DUBILIER	93790		38	A				
		2	CD15FD 471J03	CAPACITOR, 470pf	CORNELL-DUBILIER	93790		39	A				

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700645-100	SH 6	REV LTR B

FIGURE NO.	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM	C/I USAGE: C/I CODE	INV ON HAND	PAR	UNIT COST
								40					
								41					
								42					
		1	RC07GF 222J	RESISTOR, 2.2K, 5%, 1/4W	MIL-R-11			43	A				
B		13	RC07GF 102J	RESISTOR, 1K, 5%, 1/4W	MIL-R-11			44	A				
B		2	RC07GF 512J	RESISTOR, 5.1K, 5%, 1/4W	MIL-R-11			45	A				
		7	RC07GF 101J	RESISTOR, 100Ω, 5%, 1/4W	MIL-R-11			46	A				
		2	RC07GF 391J	RESISTOR, 390Ω, 5%, 1/4W	MIL-R-11			47	A				
		2	RC07GF 181J	RESISTOR, 180Ω, 5%, 1/4W	MIL-R-11			48	A				
B		2	RC07GF 472J	RESISTOR, 4.7K, 5%, 1/4W	MIL-R-11			49	A				
		1	RC07GF 331J	RESISTOR, 330Ω, 5%, 1/4W	MIL-R-11			50	A				
B		3	RC07GF 201J	RESISTOR, 200Ω, 5%, 1/4W	MIL-R-11			51	A				
								52					

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE --	REV	SHEET 52

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700645-100	SH 1	—

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 ITEM OR NUMBER	C/I USAGE PAR	C/I USAGE UNIT COST
		AR	5951	WIRE, 30 AWG SOLID, KYNAR INSULATION, COLOR: OPTIONAL	ALPHA WIRE	23172		53	G				
		AR	SAN63WRAP3	SOLDER	QQ-S-571			54	G				
								55					
								56					
		REF	SD700645	SCHEMATIC DIAGRAM				57	C				
		REF	TS700645	TEST SPECIFICATION				58	C				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 53

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California				
BOARD ASSEMBLY MAJOR REGISTER, PM-DC/8	GATES 11-17-77	PL700647-100	—
		CODE IDENT NO. 52648	SH — OF 6

LTR	DESCRIPTION	DATE	APPROVED
—	REL TO PROD PER ECO 500658	20 NOV 77	[illegible]

LTR	DESCRIPTION	DATE	APPROVED

PRODUCTION RELEASE

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

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700647-100	SH 2	—

CROSS INDEX OF REFERENCE DESIGNATIONS TO FIND NO.

REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.	REFERENCE DESIGNATION	FIND NO.
U2, 4, 21, 22, 26, 41	4	U29, 30, 31	20		36		
U28, 42	5	U7, 10	21		37		
U1, 3	6	U5, 6, 8, 9	22		38		
U13, 14, 27	7	U37, 38, 46	23		39		
U25	8	U39	24	C20	40		
U12	9		25	C2-4, 6-19, 21, 22, 24-31 34-42, 46, 47, 49, 51, 52	41		
U34, 36, 40, 47, 48, 49	10		26				
U11	11		27	C1, 5, 32, 33, 43, 44, 45, 48, 50	42		
U35	12	R2	28				
U18, 19, 32, 33	13	R1	29				
U20	14	R3, 4, 5, 6, 7	30				
U15	15		31				
U23, 24	16		32				
U17	17	RU3, 4	33				
U43, 44, 45	18	RU1, 2	34				
U16	19		35				

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 54

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700647-100	SH 3	—

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	INV ON HAND	PAR	UNIT COST
		1	700646-00[illegible]	P.W.B. - MASTER REGISTER				1	B				
								2					
								3					
		6	SN7400	QUAD 2-INPUT POS-NAND BUFFERS	T. I.	01295		4	A				
		2	SN7402	QUAD 2-INPUT POS-NOR GATES	T. I.	01295		5	A				
		2	SN7404	HEX INVERTER	T. I.	01295		6	A				
		3	SN7408	QUAD 2-INPUT POS-AND GATES	T. I.	01295		7	A				
		1	SN74H10	TRIPLE 3-INPUT POS-NAND GATES	T. I.	01295		8	A				
		1	SN74H11	TRIPLE 3-INPUT POS-AND GATES	T. I.	01295		9	A				
		6	SN7438	QUAD 2-INPUT POS-NAND BUFFERS W/OPEN COLLECTOR	T. I.	01295		10	A				
		1	SN7440	DUAL 4-INPUT POS-NAND BUFFERS	T. I.	01295		11	A				
		1	SN74H52	EXPANDABLE 4-WIDE AND-OR GATES	T. I.	01295		12	A				
		4	SN7474	DUAL D-TYPE POS-EDGE-TRIGGERED FLIP-FLOP	T. I.	01295		13	A				

PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PL700647-100	SH 4	—

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	INV ON HAND	PAR	UNIT COST
		1	SN74H74	DUAL D-TYPE POS-EDGE-TRIGGERED FLIP-FLOP	T. I.	01295		14	A				
		1	SN7486	QUAD 2-INPUT EXCLUSIVE-OR-GATES	T. I.	01295		15	A				
		2	SN7496	5-BIT SHIFT REGISTERS	T. I.	01295		16	A				
		1	SN745139	DECODERS/DEMULTIPLEXERS	T. I.	01295		17	A				
		3	SN74161	SYNCRONOUS 4-BIT COUNTERS	T. I.	01295		18	A				
		1	SN74174	HEX/QUAD D-TYPE FLIP-FLOPS W/CLEAR	T. I.	01295		19	A				
		3	SN74179	4-BIT PARALLEL-ACCESS SHIFT REGISTERS	T. I.	01295		20	A				
		2	SN75451	DUAL PERIPHERAL POS-AND DRIVER	T. I.	01295		21	A				
		4	SN75452	DUAL PERIPHERAL POS-NAND DRIVER	T. I.	01295		22	A				
	(5)	3	136021-380	QUAD 2-INPUT RECEIVER				23	B				
		1	136020-384	QUAD 2-INPUT RECEIVER				24	B				
								25					
								26					

SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 55

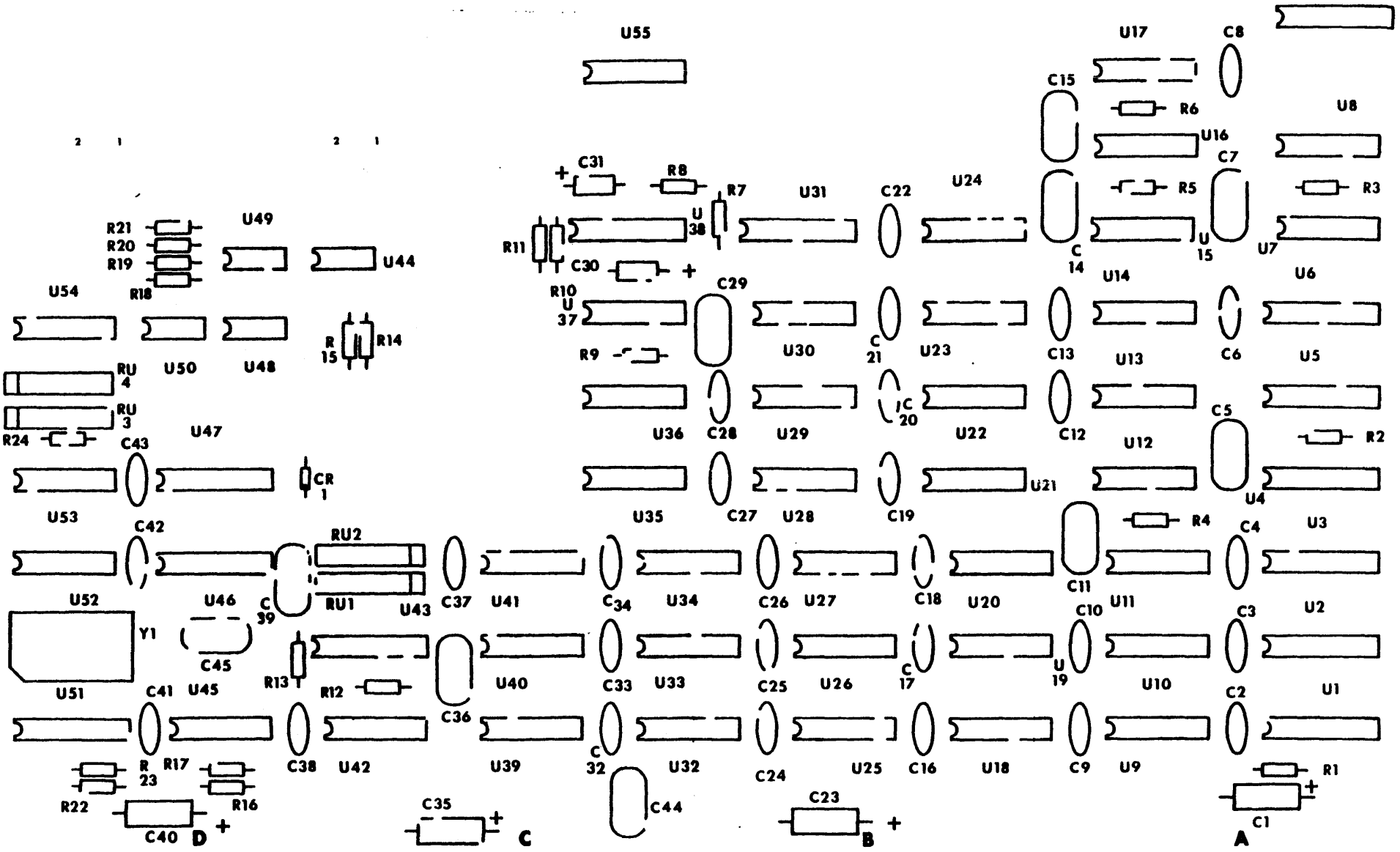
PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PARTS LIST NO. PL700647-100	SH 5	REV LTR —

ITEM NO.	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM	C/I USAGE: C/I CODE	INV ON HAND	PAR	UNIT COST
								27					
		1	RC07GF101J	RESISTOR, 100Ω ±5%, 1/4 WATT	MIL-R-11			28	G				
		1	RC07GF100J	RESISTOR, 10Ω ±5%, 1/4 WATT	MIL-R-11			29	G				
		5	RC07GF102J	RESISTOR, 1K ±5%, 1/4 WATT	MIL-R-11			30	G				
								31					
								32					
		2	100013-011	RESISTOR MODULE, 390Ω	CTS P/N 750-81-R390			33	B				
		2	100013-012	RESISTOR MODULE, 180Ω	CTS P/N 750-81-R180			34	B				
								35					
								36					
								37					
								38					
								39					

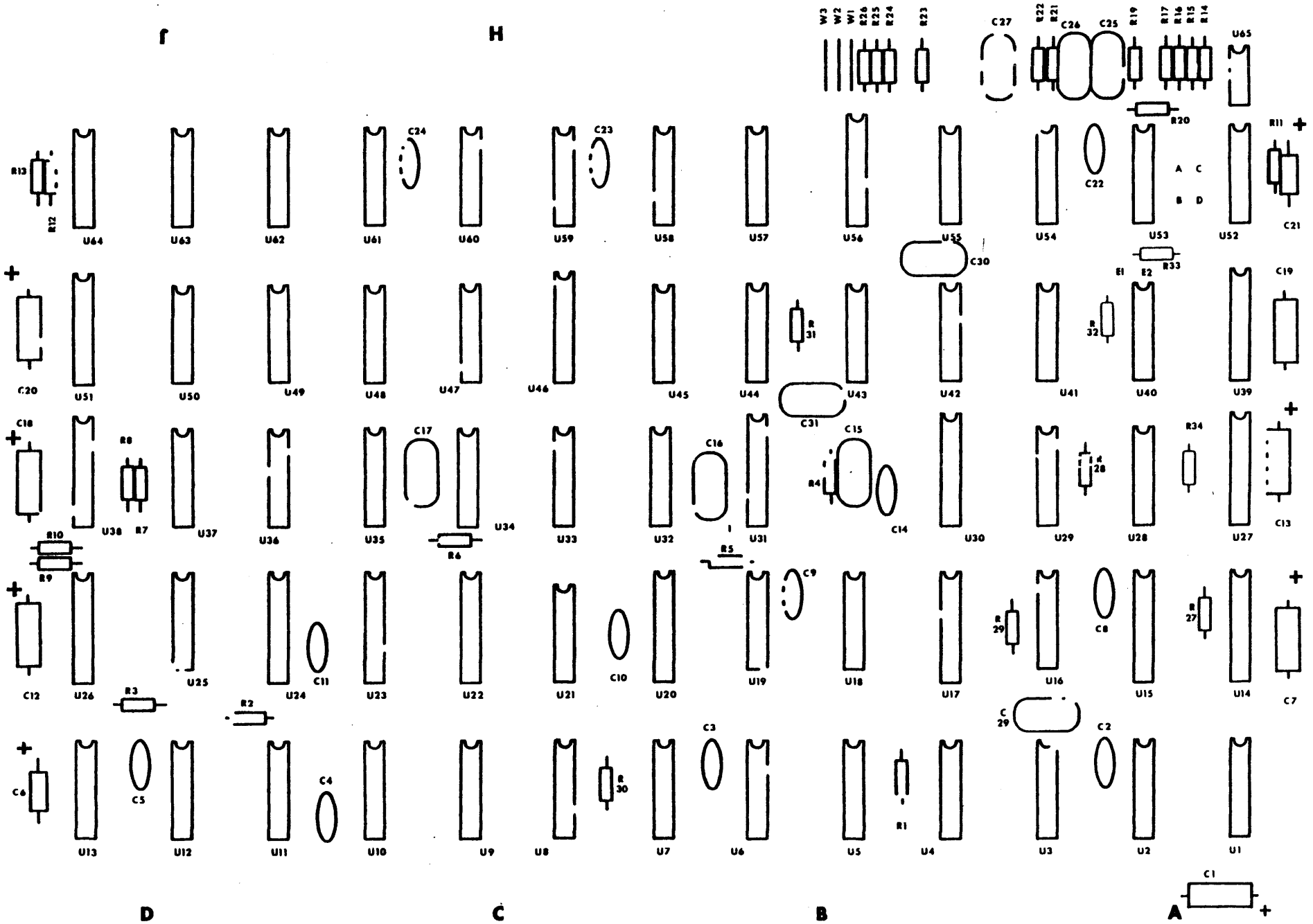
PARTS LIST	Plessey Memories Incorporated, Santa Ana, California	CODE IDENT NO. 52648	PARTS LIST NO. PL700647-100	SH 6	REV LTR —

ITEM NO.	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	FIND NO.	SYM	C/I USAGE: C/I CODE	INV ON HAND	PAR	UNIT COST
		1	CD15FD471J03	CAPACITOR, 470 pf ±5%, 500V	CORNELL-DUBILIER	93790		40	A				
X2		41	C0698160 E103Z	CAPACITOR, .01 μf +80-20%, 16V	SPRAGUE	05571		41	A				
		9	150D156 X0020B2	CAPACITOR, 15 μf ±20%, 20V	SPRAGUE	05571		42	A				
								43					
		AR	SN63WRAP3	SOLDER	QQ-S-571			44	G				
		AR	5951	WIRE, 30 AWG SOLID, KYNAR INSUL., COLOR: OPTIONAL	ALPHA WIRE	23172		45	A				
								46					
								47					
								48					
								49					
								50					
		REF	SKSD700647	SCHEMATIC DIAGRAM MASTER REGISTER				51	C				
		REF	TS700647	TEST SPECIFICATION MASTER REGISTER				52	C				

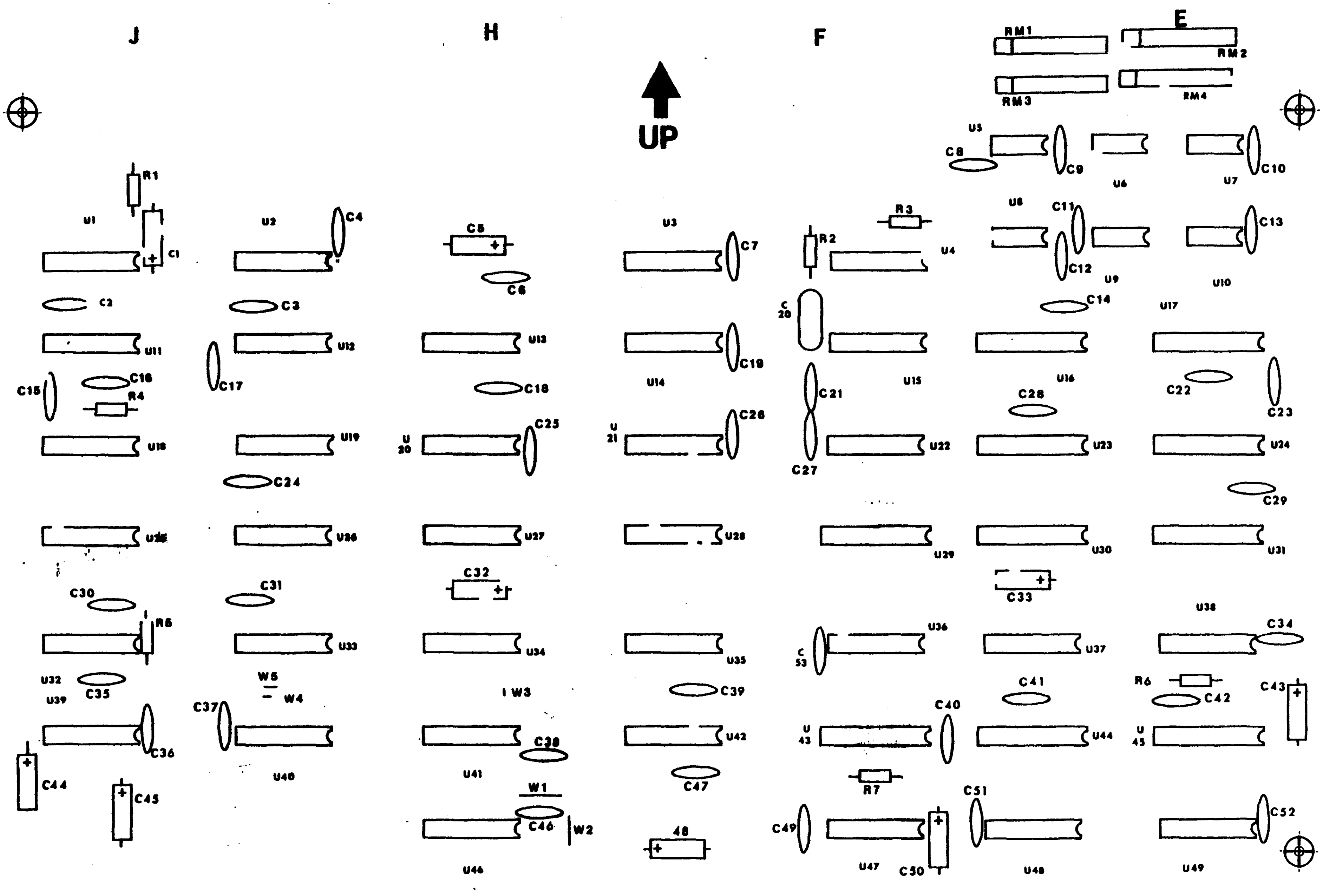
SIZE	CODE IDENT NO.	DWG NO.
A	52648	MA 700655
SCALE	REV	SHEET 56



COMPONENT LAYOUT Control Board 700643



COMPONENT LAYOUT Data Buffer and Status Board 700645


J
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RM2
RM3
RM4
U5
C8
C9
U6
U7
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U41
C47
R7
C44
C45
W1
C51
C52
C46
W2
48
C49
C50
U46
U47
U48
U49
D
C
B
A

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	–	REL TO PROD PER ERO 500753	1-15-76	
	A	INCORPORATED EO # 1173	5-13-76	
	B	INCORPORATED EO 1214	6-1-76	
	C	INCORPORATED EO 1269	7-7-76	
	D	INCORP E.O. 1339	1-26-77	

LAST DESIGNATION USED	
RESISTOR	R25
CAPACITOR	C46
INTEGRATED CIRCUIT	U55
RESISTOR MODULE	RU4
CRYSTAL	Y1

REF DES	GATES USED PER TOTAL	PART NO.
U7	4/6	74H04
U35	5/6	7404
U36	3/6	7404
U44	1/2	75452
U51	1/2	74H76

CONNECTOR A (SOLDER SIDE / COMPONENT SIDE)

SIDE 2		SIDE 1
+5V	A	
	B	
GND	C	
	D	
	E	
	F	GND
	H	
	J	
	K	
	L	
	M	
GND	N	GND
	P	
	R	
	S	
GND	T	GND
	U	
	V	

CONNECTOR B (SOLDER SIDE / COMPONENT SIDE)

SIDE 2		SIDE 1
+5V	A	
	B	
GND	C	GND
	D	
	E	
GND	F	GND
	H	
	J	
	K	
	L	
	M	
GND	N	GND
	P	
	R	
	S	
GND	T	GND
	U	
POWER OK H	V	

CONNECTOR C (SOLDER SIDE / COMPONENT SIDE)

SIDE 2		SIDE 1
+5V	A	
	B	
GND	C	GND
	D	
	E	
GND	F	GND
	H	
	J	
	K	
	L	
	M	
GND	N	GND
	P	
	R	
	S	
GND	T	GND
	U	
	V	

CONNECTOR D (SOLDER SIDE / COMPONENT SIDE)

SIDE 2		SIDE 1
	A	CTPA L
	B	OSCTP L
GND	C	GND
	D	
	E	
GND	F	GND
	H	
	J	
	K	
	L	
	M	
GND	N	GND
	P	
	R	DATA 8 L
	S	DATA 9 L
GND	T	GND
	U	DATA 10 L
	V	DATA 11 L

CONNECTOR E (SOLDER SIDE / COMPONENT SIDE)

SIDE 2		SIDE 1
DISC SEEK FAIL L	A	CRC DATA H
DISC ADD 64 L	B	RD CLK 1 H
DISC ADD 16 L	C	IDLE (1) H
DISC DRIVE Ø L	D	RDY S/R/W H
DISC ADD 128 L	E	FILE RDY H
STROBE (1) H	F	CLR SECTOR AD L
DISC ADD 4 L	H	CLR ALL L
DISC ADD 32 L	J	B DATA 11 H
DISC ADD 2 L	K	B DATA 10 H
DISC RDY S/R/W L	L	B DATA 9 H
LD DISC ADDRS H	M	B DATA 8 H
CRC 16 (1) H	N	DISC DRIVE 3 L
SECTOR ADDRS (1) H	P	DISC DRIVE 2 L
B DATA 7 H	R	DISC DRIVE 1 L
HALF BLOCK H	S	DISC ADD 1 L
FUNCTION Ø2 H	T	DISC ADD 8 L
FUNCTION ØØ H	U	DATA ENABLE (1) H
FUNCTION Ø1 H	V	ENAB DATA L

CONNECTOR F (SOLDER SIDE / COMPONENT SIDE)

SIDE 2		SIDE 1
6 PM 30K H	A	12 BIT OK H
CLR DRIVE CMD L	B	DISC FILE RDY L
DRV REV Ø H	C	DISC CAPACITY EX L
DISC WRT STATUS L	D	END STATE (Ø) H
ERROR CLR L	E	LAST WORD PL H
SECTOR SEEK (Ø) H	F	WRITE (1) H
BTP2 H	H	PM DATA 11 H
SHIFT WRT BUFF L	J	BTP3 H
BRK ENAB CLK H	K	SET IDLE PL L
B LAST BRK H	L	LO MAIN SHIFT L
BTP3 OK H	M	DATA CLK OK H
LAST BRK (1) H	N	SHIFT CRC L
MAIN (Ø) H	P	DATA STATE (Ø) H
IDLE (Ø) H	R	DATA IN (Ø) H
RD SHIFT DB L	S	CLR CNTRS L
HI MAIN SHFT L	T	RTRY - L
BRK IN CLK H	U	SHFT SURF/SEC H
WRT CMD L	V	STATE ENAB B H

CONNECTOR J2

1		21	DISC ADD 1 L
2	GND	22	GND
3	DISC CAPACITY EX L	23	DISC DRIVE Ø L
4	GND	24	GND
5	DISC SEEK FAIL L	25	DISC ADD 32 L
6	GND	26	GND
7	DISC ACKNOWLEDGE L	27	DISC RDY S/R/W L
8	GND	28	GND
9	DISC SEC 2 L	29	DISC ADD 128 L
10	GND	30	GND
11	DISC DRIVE 3 L	31	DISC WRT CLK DAT AT L
12	GND	32	GND
13	DISC RESTORE L	33	DISC ADD 16 L
14	GND	34	GND
15	DISC DRIVE 2 L	35	DISC ADD 64 L
16	GND	36	GND
17	DISC ADD 4 L	37	DISC ADD 2 L
18	GND	38	GND
19	DISC DRIVE 1 L	39	DISC ADD 8 L
20	GND	40	GND

CONNECTOR J1

1	GND	21	GND
2	GND	22	DISC INDEX MK L
3	GND	23	GND
4	DISC DATA IN L	24	DISC WRT-ERASE GATE L
5	GND	25	GND
6	DISC RD CLK L	26	DISC SEC 1 L
7	GND	27	GND
8	DISC WRT PROT L	28	DISC SEC 4 L
9	GND	29	GND
10	DISC READ L	30	
11	GND	31	GND
12		32	DISC SEC 8 L
13	GND	33	GND
14	DISC WRT STATUS L	34	
15	GND	35	GND
16	DISC SECTOR MK L	36	DISC STROBE L
17	GND	37	GND
18	DISC FILE RDY L	38	POWER OK H
19	GND	39	GND
20	DISC HEAD SEL L	40	

7. COMPONENTS ARE LAB SET. TO BE SET PER TEST SPEC TS700643.
6. ALL CAPACITORS ARE IN MICROFARADS.
5. ✱ INDICATES SIGNAL NOT USED ON THIS PARTICULAR BOARD.
4. DESIGNATIONS SHOWN IN PARENTHESIS (2/A1) INDICATES WHERE SIGNAL ORIGINATES OR TERMINATES.
   - ZONE DESIGNATIONS
   - SHEET NUMBER
3. SIGNALS SHOWN IN RECTANGLE [AA1] ARE I/O CONNECTIONS
   - BOARD SIDE
   - PIN DESIGNATION
   - CONNECTOR DESIGNATION.
2. FOR ASSEMBLY SEE DWG. 700643.
1. ALL RESISTORS ARE IN OHMS, ±5%, 1/4 W.

NOTES: UNLESS OTHERWISE SPECIFIED.

PRODUCTION RELEASE

NOTE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION / MATERIAL	SPEC/SOURCE	CODE IDENT NO.	FIND NO.

PART/ASSY NO. & QTY PER ASSY — PARTS LIST

PART/ASSY REV LTR

PART NO.	NEXT ASSY	USED ON
	700543-100	PM-DC/8

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

DRAWN KAVANAUGH 1-7-76
CHECK 2-17-76
ENGR
PROJ. ENGR
PROD. DESIGN 2-19-76
OTHER APPROVALS

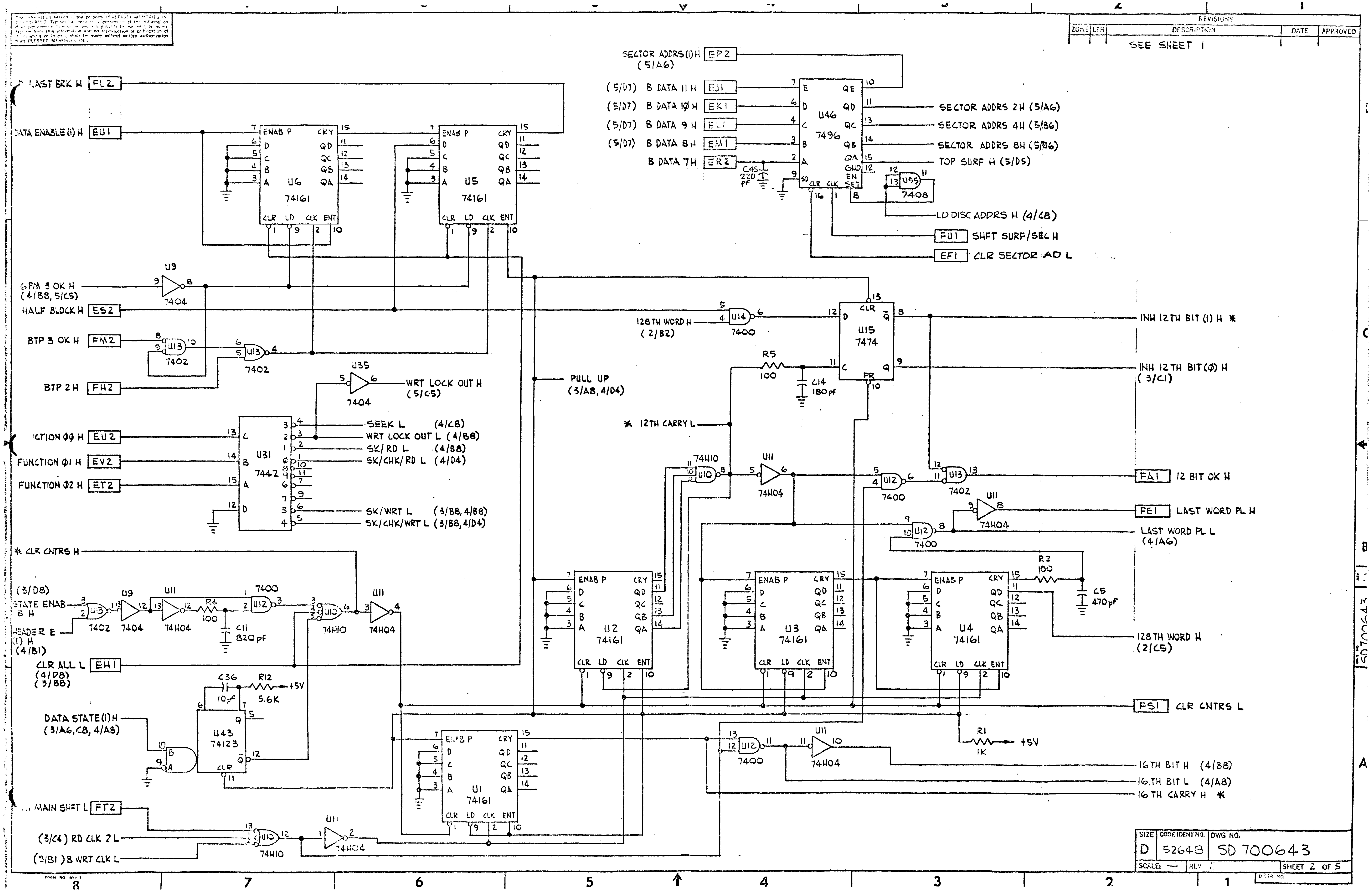
Plessey Memories Incorporated, Santa Ana, California

DWG TITLE: SCHEMATIC DIAGRAM CONTROL PM-DC/8

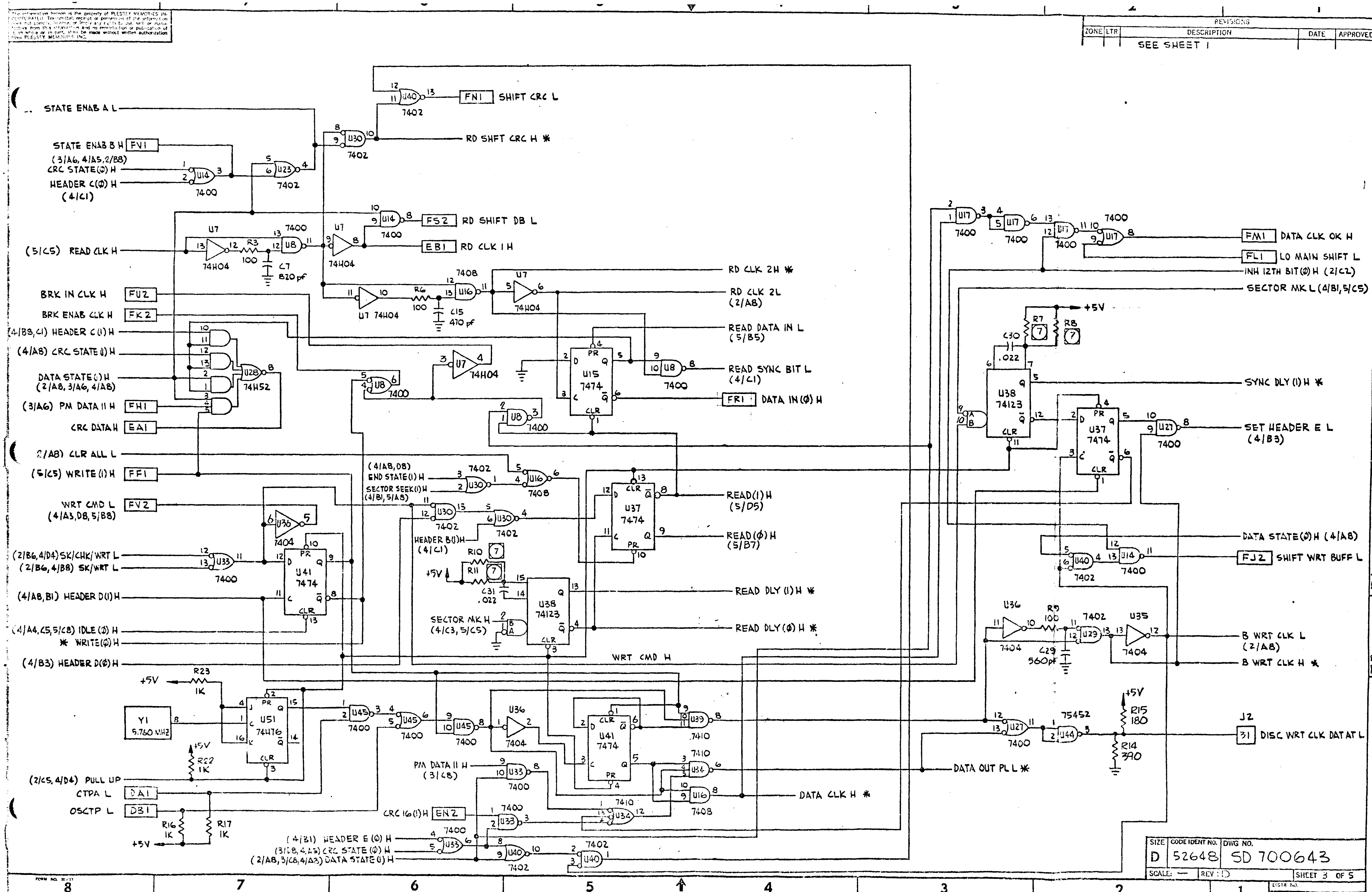
SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700543

SCALE: — | REV D | SHEET 1 OF 5

SD700543



REVISIONS
ZONE LTR DESCRIPTION DATE APPROVED
SEE SHEET 1
LAST BRK H FL2
DATA ENABLE (1) H EU1
U6 74161
U5 74161
ENAB P CRY D C B A QD QC QB QA CLR LD CLK ENT
6PM 3 OK H (4/B8, 5/C5)
U9 7404
HALF BLOCK H ES2
BTP 3 OK H FM2
U13 7402
BTP 2 H FH2
U35 7404
WRT LOCK OUT H (5/C5)
FUNCTION Ø0 H EU2
FUNCTION Ø1 H EV2
FUNCTION Ø2 H ET2
U31 7442
SEEK L (4/C8)
WRT LOCK OUT L (4/B8)
SK/RD L (4/B8)
SK/CHK/RD L (4/D4)
SK/WRT L (3/B8, 4/B8)
SK/CHK/WRT L (3/B8, 4/D4)
PULL UP (3/A8, 4/D4)
SECTOR ADDRS (1) H EP2 (5/A6)
(5/D7) B DATA 11 H EJ1
(5/D7) B DATA 10 H EK1
(5/D7) B DATA 9 H EL1
(5/D7) B DATA 8 H EM1
B DATA 7 H ER2
C45 220 pF
U46 7496
SECTOR ADDRS 2 H (5/A6)
SECTOR ADDRS 4 H (5/B6)
SECTOR ADDRS 8 H (5/B6)
TOP SURF H (5/D5)
U55 7408
LD DISC ADDRS H (4/C8)
FU1 SHFT SURF/SEC H
EF1 CLR SECTOR AD L
128TH WORD H (2/B2)
U14 7400
U15 7474
INH 12TH BIT (1) H *
INH 12TH BIT (Ø) H (3/C1)
R5 100
C14 180 pf
* 12TH CARRY L
74H10 U10
U11 74H04
U12 7400
U13 7402
FA1 12 BIT OK H
FE1 LAST WORD PL H
LAST WORD PL L (4/A6)
R2 100
C5 470 pF
U2 74161
U3 74161
U4 74161
128TH WORD H (2/C5)
* CLR CNTRS H
(3/D8) STATE ENAB B H
HEADER E (1) H (4/B1)
U3 7402
U9 7404
U11 74H04
R4 100
C11 820 pF
U12 7400
U10 74H10
CLR ALL L EH1 (4/D8) (3/B8)
C36 10 pF
R12 5.6K +5V
DATA STATE (1) H (3/A6, C8, 4/A8)
U43 74123
FS1 CLR CNTRS L
R1 1K +5V
U1 74161
16TH BIT H (4/B8)
16TH BIT L (4/A8)
16TH CARRY H *
MAIN SHFT L FT2
(3/C4) RD CLK 2 L
(3/B1) B WRT CLK L
SIZE D CODE IDENT NO. 52648 DWG NO. SD 700643
SCALE: — REV
SHEET 2 OF 5


REVISIONS
ZONE LTR DESCRIPTION DATE APPROVED
SEE SHEET 1
STATE ENAB A L
STATE ENAB B H
FV1
(3/A6, 4/A5, 2/B8) CRC STATE (Ø) H
HEADER C(Ø) H (4/C1)
(5/C5) READ CLK H
BRK IN CLK H
FU2
BRK ENAB CLK H
FK2
(4/B8, C1) HEADER C(1) H
(4/A8) CRC STATE (1) H
DATA STATE (1) H (2/A8, 3/A6, 4/A8)
(3/A6) PM DATA 11 H
FH1
CRC DATA H
EA1
(2/A8) CLR ALL L
(5/C5) WRITE (1) H
FF1
WRT CMD L (4/A3, D8, 5/B8)
FV2
(2/B6, 4/D4) SK/CHK/WRT L
(2/B6, 4/B8) SK/WRT L
(4/A8, B1) HEADER D(1) H
(4/A4, C5, 5/C8) IDLE (Ø) H
* WRITE (Ø) H
(4/B3) HEADER D(Ø) H
+5V
R23 1K
Y1 5.760 MHZ
U51 74H76
R22 1K
(2/C5, 4/D4) PULL UP
CTPA L
DA1
OSCTP L
DB1
R16 1K
R17 1K
FN1 SHIFT CRC L
RD SHFT CRC H *
FS2 RD SHIFT DB L
EB1 RD CLK 1 H
RD CLK 2H *
RD CLK 2L (2/A8)
READ DATA IN L (5/B5)
READ SYNC BIT L (4/C1)
FR1 DATA IN (Ø) H
READ (1) H (5/D5)
READ (Ø) H (5/B7)
READ DLY (1) H *
READ DLY (Ø) H *
WRT CMD H
(4/A8, D8) END STATE (1) H
SECTOR SEEK (1) H (4/B1, 5/A8)
HEADER B(1) H (4/C1)
SECTOR MK H (4/C3, 5/C5)
R3 100
C7 820 pf
R6 100
C15 470 pf
R10
R11
C31 .022
U15 7474
U37 7474
U38 74123
U41 7474
U28 74H52
PM DATA 11 H (3/C8)
CRC 16 (1) H
EN2
(4/B1) HEADER E (Ø) H
(3/C8, 4, A3) CRC STATE (Ø) H
(2/A8, 3/C8, 4/A8) DATA STATE (1) H
DATA CLK H *
DATA OUT PL L *
FM1 DATA CLK OK H
FL1 LO MAIN SHIFT L
INH 12TH BIT (Ø) H (2/C2)
SECTOR MK L (4/B1, 5/C5)
+5V
R7
R8
C30 .022
SYNC DLY (1) H *
SET HEADER E L (4/B3)
DATA STATE (Ø) H (4/A8)
FJ2 SHIFT WRT BUFF L
B WRT CLK L (2/A8)
B WRT CLK H *
R9 100
C29 560pf
75452
R15 180
R14 390
J2
31 DISC WRT CLK DATA T L
SIZE CODE IDENT NO. DWG NO.
D 52648 SD 700643
SCALE: — REV: D SHEET 3 OF 5
SD700643

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

ERROR CLR L FE2 — U25 7400 — (2/A8) CLR ALL L

(3/B8,4/A3,5/B8) WRT CMD L

LAST BRK (1) H FN2 — U39 7410 — U27 7400 — U26 7402

(3/B6,4/A8) END STATE (1) H

SET IDLE PL L FK1

U9 7404

(4/A3) ERASE DLY (Φ) H

U18 7474 (CLR, D, C, PR, Q, Q̄) — EC1 IDLE (1) H (4/A8)

(4/B4) STROBE (1) H — U25 7400 — U25 7400 — U9 7404

(2/C6) SEEK L

(4/D3) RESTORE (Φ) H — U25 7400

* SEEK ONLY H

RTRY L (4/C4)

U7 — 74H04 — FR2 IDLE (Φ) H (5/B8, 5/C8)

CLR DRIVE CMD L FB2

FT1

U9 7404 — U55 7408

(2/C3) LD DISC ADDRS H EM2

(2/C8, 5/C5) 6 PM 30K H — U32 7408 — U32 7408

(2/C6) WRT LOCK OUT L

BTP 3 H FJ1

MAIN (Φ) H FP2 — U33 7410 — U45 7400

C44 220 PF

U9 7404

(5/B5) FILE RDY H

U19 7474 — EF2 STROBE (1) H (4/C7)

STROBE (Φ) H * (5/D5)

(5/C6) ACKNOWLEDGE H — 7402 U26

(2/A2) 16TH BIT H — U27 7400

(3/C8, 4/C1) HEADER C (1) H

(2/B6) SK/RD L — U34 7410

(2/B6, 3/B8) SK/WRT L

* NOT CHK HEADER CMD

RDY S/R/W H ED1 — U16 7408

U24 7474 — FF2 SECTOR SEEK (Φ) H

(5/C8) DISC ACKNOWLEDGE L

(4/C5) IDLE (1) H — U29 7402

(3/B8, 4/B1) HEADER D (1) H

(2/A2) 16TH BIT L

(3/B1) DATA STATE (Φ) H FP1 — U23 7402

(2/B2) LAST WORD PL L — U23 7402

(3/C8) CRC STATE (1) H

(3/B6, 4/A8) END STATE (1) H

(2/A8, 3/C8, A6) DATA STATE (1) H

CRC STATE (Φ) H (3/A6, D8)

(3/B8, 4/C5) IDLE (Φ) H

FD1 END STATE (Φ) H

U22 7474 — U21 7474 — U21 7474

C39 4700pf — R13 24.3K — +5V — CR1 138000-001

U43 74123 — ERASE DLY (1) H * — ERASE DLY (Φ) H (4/C8)

WRT CMD L (3/B8, 4/D8, 5/B8)

(2/C6) SK/CHK/RD L — U32 7408

SK/CHK/WRT L (3/B8, 2/B6)

(2/C5, 3/A8) PULL UP

RTRY-L (4/C7) — U55 7408 — U19 7474

U18 7474 — (5/B5) FILE RDY H

+5V — R20 180 — R21 390 — J2 13 DISC RESTORE L

U49 75452

RESTORE (Φ) H (4/C8)

SECTOR MK H (3/B6, 5/C5)

U20 7474 — HEADER B (Φ) H *

U20 7474 — HEADER C (1) H (3/C8, 4/B8)

HEADER C (Φ) H (3/D8)

HEADER B (1) H (3/B6)

READ SYNC BIT L (3/C4)

7402 — U26

U29 7402

SECTOR SEEK (1) H (3/B6, 5/A8)

SECTOR EQ H (5/A4)

SECTOR MK L (3/C1, 5/C5)

HEADER D (1) H (3/C1, B8 (4/A8)

U24 7474 — HEADER D (Φ) H (3/B8)

U22 7474 — HEADER E (1) H (2/B8)

HEADER E (Φ) H (3/A6)

SET HEADER E L (3/C1) — 7408 U32

7402 U23

RTRY-L (4/C7) — U55 7408

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD 700643

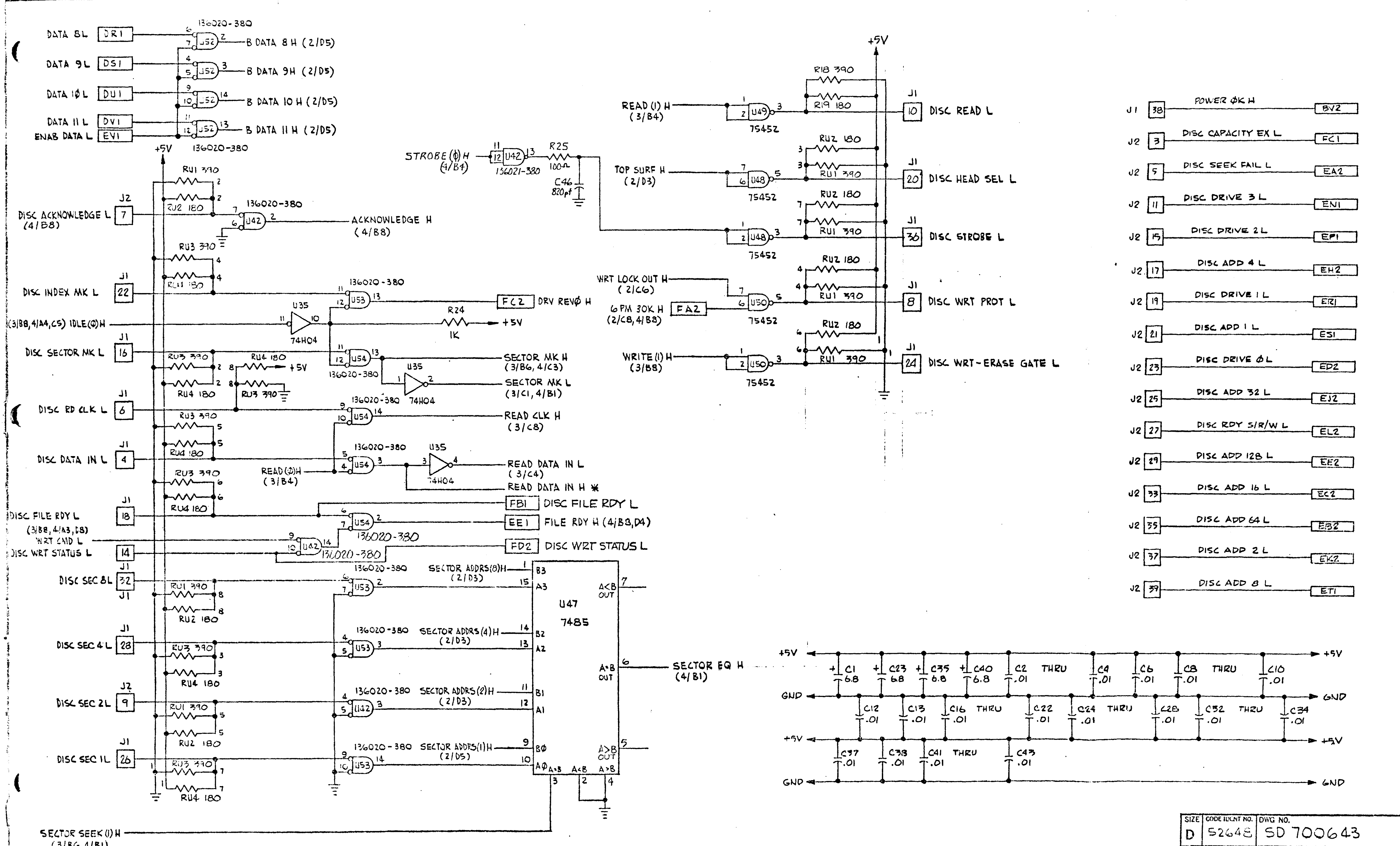
SCALE: — | REV: D | SHEET 4 OF 5 | DISTR NO.

8 7 6 5 4 3 2 1

D C B A

REV D | DWG NO SD 700643

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



DATA 8L DR1
DATA 9L DS1
DATA 10 L DU1
DATA 11 L DV1
ENAB DATA L EV1
136020-380
B DATA 8 H (2/D5)
B DATA 9H (2/D5)
B DATA 10 H (2/D5)
B DATA 11 H (2/D5)
+5V
DISC ACKNOWLEDGE L (4/B8)
ACKNOWLEDGE H (4/B8)
DISC INDEX MK L
(3/B8, 4/A4, C5) IDLE (0) H
74H04
R24 1K +5V
FC2 DRV REV0 H
DISC SECTOR MK L
SECTOR MK H (3/B6, 4/C3)
SECTOR MK L (3/C1, 4/B1)
DISC RD CLK L
READ CLK H (3/C8)
DISC DATA IN L
READ (0) H (3/B4)
READ DATA IN L (3/C4)
READ DATA IN H *
DISC FILE RDY L (3/B8, 4/A3, C8)
FB1 DISC FILE RDY L
EE1 FILE RDY H (4/B3, D4)
WRT CMD L
DISC WRT STATUS L
FD2 DISC WRT STATUS L
DISC SEC 8L
DISC SEC 4 L
DISC SEC 2L
DISC SEC 1L
SECTOR ADDRS (8) H (2/D3)
SECTOR ADDRS (4) H (2/D3)
SECTOR ADDRS (2) H (2/D3)
SECTOR ADDRS (1) H (2/D5)
U47 7485
A<B OUT
A=B OUT
A>B OUT
SECTOR EQ H (4/B1)
SECTOR SEEK (1) H (3/B6, 4/B1)
STROBE (0) H (4/B4)
136021-380
R25 100Ω
C46 820pf
READ (1) H (3/B4)
TOP SURF H (2/D3)
WRT LOCK OUT H (2/C6)
6 PM 30K H FA2 (2/C8, 4/B8)
WRITE (1) H (3/B8)
75452
R18 390
R19 180
DISC READ L
DISC HEAD SEL L
DISC STROBE L
DISC WRT PROT L
DISC WRT-ERASE GATE L
J1 38 POWER 0K H BV2
J2 3 DISC CAPACITY EX L FC1
J2 5 DISC SEEK FAIL L EA2
J2 11 DISC DRIVE 3 L EN1
J2 15 DISC DRIVE 2 L EP1
J2 17 DISC ADD 4 L EH2
J2 19 DISC DRIVE 1 L ER1
J2 21 DISC ADD 1 L ES1
J2 23 DISC DRIVE 0 L ED2
J2 25 DISC ADD 32 L EJ2
J2 27 DISC RDY S/R/W L EL2
J2 29 DISC ADD 128 L EE2
J2 33 DISC ADD 16 L EC2
J2 35 DISC ADD 64 L EB2
J2 37 DISC ADD 2 L EK2
J2 39 DISC ADD 8 L ET1
+5V
GND
C1 6.8
C23 6.8
C35 6.8
C40 6.8
C2 .01 THRU
C4 .01
C6 .01
C8 .01 THRU
C10 .01
C12 .01
C13 .01
C16 .01 THRU
C22 .01
C24 .01 THRU
C28 .01
C32 .01 THRU
C34 .01
C37 .01
C38 .01
C41 .01 THRU
C43 .01

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD 700643

SCALE: — REV: D SHEET 5 OF 5

DISTR NO

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	-	REL TO PROD PER ERO 500686	12-9-75	
	A	INCORP EO 1166	2-27-76	
	B	INCORPORATED EO#1215	6-1-76	
	C	INCORPORATED EO 1270	7-8-76	
	D	INCORP E.O. 1314	1-18-77	
	E	INCORP E.O. 1357	4-6-77	

LAST DESIGNATION USED	
RESISTOR	R34
CAPACITOR	C32
INTEGRATED CIRCUIT	U65

DESIGNATIONS NOT USED	
RESISTOR	R18
CAPACITOR	C28
INTEGRATED CIRCUIT	U27,28,39

REF DES	GATES USED PER TOTAL	PART NO.
U3	1/2	380
U29	1/2	7408
U37	3/4	7432
U42	3/4	7402
U43	5/6	74H04
U47	3/4	7402
U48	3/4	7402
U53	3/4	74S08
U55	1/2	7400
U8	3/4	136020-384
U62	3/4	7437

SIDE 2		SIDE 1
	A	
	B	
	C	
	D	
	E	
	F	
	H	
	J	
	K	MD0L
	L	MD1L
	M	MD2L
	N	
	P	MD3L
	R	DATA 0 L
	S	DATA 1 L
	T	
	U	DATA 2 L
	V	DATA 3 L
	A	
	B	
	C	
	D	
	E	
	F	
	H	
	J	
	K	MD4L
	L	MD5L
	M	MD6L
	N	
	P	MD7L
	R	DATA 4 L
	S	DATA 5 L
	T	
	U	DATA 6 L
POWER OK H	V	DATA 7 L

SOLDER SIDE — COMPONENT SIDE — CONNECTOR A — CONNECTOR B

SIDE 2		SIDE 1
	A	
	B	
	C	
TP1 H	D	I/O PAUSE L
TP2 H	E	C0L
	F	
TP3 H	H	C1L
	J	
	K	
	L	INTERVAL I/O L
T33L	M	
	N	
	P	
	R	INITIALIZE H
	S	
	T	
	U	
	V	
	A	
	B	
	C	
	D	
	E	
	F	
	H	
	J	
	K	MD8L
	L	MD9L
	M	MD10L
	N	
	P	MD11L
	R	DATA 8 L
	S	DATA 9 L
	T	
	U	DATA 10 L
	V	DATA 11 L

SOLDER SIDE — COMPONENT SIDE — CONNECTOR C — CONNECTOR D

SIDE 2		SIDE 1
MAIN (1) H	A	BRK RQ H
B BRK RQ H	B	AC 7 (0) H
BTP2 H	C	DATA CLK OK H
WRT BUFF→DATA L	D	CLR ALL H
DB CONT 4 (1) H	E	DISC FILE RDY L
	F	PM DATA 11 H
	H	WRT BRK L
	J	MAK (0) H
	K	BTP3 OK H
READ BRK L	L	B DATA STATE (1) H
WRITE (1) H	M	12TH BIT OK H
6PM7 OK H	N	DATA ENABLE (1) H
BRK DIR (0) H	P	LO MAIN SHIFT L
SHIFT WRT BUFF L	R	6PM6 H
6PM3 OK L	S	6PM3 OK H
B DATA 01 H	T	MAIN PL H
SEEK FAIL H	U	RDY S/R/W L
LO MAIN DATA H	V	DB CONT 1 (0) H
B DATA 10 H	A	DEVICE PM H
LD DISC ADDRS H	B	ENAB INT H
CLR DRIVE CMD L	C	6PM7 H
DISC WRT STATUS L	D	ERROR CLR L
WRT CMD L	E	MAIN (0) H
HDT EQ (0) H	F	SECTOR SEEK (0) H
DRIVE STATUS BAD H	H	B DATA 11 L
END STATE (0) H	J	SET IDLE PL L
DRIVE REV (0) H	K	DISC CAPACITY EXL
IDLE (1) H	L	RDY S/R/W H
DATA STATE (0) H	M	HI RD CLK H
LAST WORD PL H	N	IDLE (0) H
B DATA 10 L	P	LD CMD REG H
HI DATA IN H	R	B DATA 11 H
6PM4 L	S	SEEK DONE H
	T	BTP3 H
CLR ALL L	U	BTP3 L
	V	RTRY-L

SOLDER SIDE — COMPONENT SIDE — CONNECTOR H — CONNECTOR J

(6) VALUES ARE LAB SET. TO BE SET PER TEST SPEC TS 700645.
(5) INDICATES COMPONENT NOT USED.
4. DESIGNATIONS SHOWN IN PARENTHESIS
(2/A1) INDICATES WHERE SIGNAL ORIGINATES OR TERMINATES
ZONE DESIGNATIONS
SHEET NUMBER
3. SIGNALS SHOWN IN RECTANGLE
[A A1] ARE I/O CONNECTIONS
BOARD SIDE
PIN DESIGNATION
CONNECTOR DESIGNATION
2. FOR ASSEMBLY SEE DRAWING 700645.
1. ALL RESISTORS ARE ± 5%, 1/4 W.
NOTES: UNLESS OTHERWISE SPECIFIED.

PRODUCTION RELEASE

NOTE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION / MATERIAL	SPEC/SOURCE	CODE IDENT NO.	FIND NO.
		PARTS LIST			

PART/ASSY NO. & QTY PER ASSY

PART/ASSY REV LTR

700645-100 PM-DC18

PART NO. | NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

SCREW THREADS PER HANDBOOK H-28
COUNTERBORE AND SPOTFACE FILLET RADII TO BE .030 MAXIMUM
REMOVE ALL BURRS AND BREAK SHARP EDGES EQUIVALENT TO .010R
ROUGHNESS OF MACHINED SURFACES 125√ PER USAS B46.1
STANDARD HOLE TOLERANCE PER ANSI B32.1
TOLERANCES ON: .XX = ± .02 .XXX = ± .010 ANGLES = 2° 0' 0"
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	12-2-75
CHECK		18 DRGTS
ENGR		12/8/75
PROJ. ENGR		
PROD. DESIGN		12/8/75
OTHER APPROVALS		

Plessey Memories Incorporated
Santa Ana, California

DWG TITLE SCHEMATIC DIAGRAM
DATA BUFFER AND STATUS
PM-DC18

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700645

SCALE: NONE | REV: E | SHEET 1 OF 5 | DISTR NO.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

DATA STATE(Ø) H JM2
(5/C4) MAIN (Ø) H JE1
9) LD TO RD BUFF L
(L/A8) 12TH BIT OK H HM1
(3/A8) WRT CMD L
LD RD BUFFER H (3/A6)
(4/B1) CLR ALL H
(4/B5) 1→DB2 H
DB COUT 1 (Ø) H (2/D5)
R22 100Ω
(4/C1) DB CLK H
(4/B5) 1→DB 3 H
(4/B1) CLR ALL L
PU
(2/C6) DB COUT 3(1) H
MAIN PL H HT1
B DATA Ø1 H HT2
(2/B6) DB COUT 3(Ø) H
(4/B1) Ø→DB 4 H
(4/B6) LD DB→AC H
(4/B6) BTP3 OK H
B DATA STATE(1) H HL1
WRITE(1) H HM2
(2/D8) 12TH BIT OK H
R31 100Ω
DB COUT 1(1) H (5/B3)
DB COUT 1(Ø) H H11 (2/C8)
DB COUT 2(Ø) H
DB COUT 2(1) H (3/A6)
DB COUT 3(1) H (2/C8, 3/A5)
DB COUT 3(Ø) H (2/B8)
1→DB 4 H (3/A5, 4/B5)
DB COUT 4(1) H HE2
DB COUT 4(Ø) H (3/A5, 5/A3)
DB4 EVA H (4/B5)
6 PM 3L (4/D1)
(4/C1) 6 PM 2L
(4/D1) 6 PM 4L
(4/D1) 6 PM 6L
(4/D1) 6 PM 5L
EVAB PM DATA H
EVAB INIT H JB1
(5/D1) ERROR FL L
(5/C1) DONE FLAG (Ø) H
(4/C1) 6 PM 1L
(4/B6) LD DB→AC L
WRT BUFF→DATA L HD2
(4/B8) BTP2 H
DB COUT 4(1) H
+5V R11 330Ω
R28, 1K +5V
CLR SYN (Ø) H (4/B1)
BRK RQ H HA1
TPI H CD2
MAK(Ø) H HJ1
WRT BRK L HH1
READ BRK L HL2
(2/C8) DB COUT 3(1) H
(4/D1) DEVICE PM H
B BRK RQ H HB2
INTERNAL I/O L CL1
(5/B4) CRC ERROR H
(3/C2) PM DATA 8 H
(5/A1) DATA RQST LATE (1) H
(3/C2) PM DATA 9 H
(5/B4) DRIVE STATUS ER H
(3/D2) PM DATA 10 H
(5/B4) CLY ADDRESSER H
(3/D2) PM DATA 11 H
DISC FILE RDY L HE1
(3/C2) PM DATA 4 H
(5/B4) BUSY ERROR H
(3/C2) PM DATA 5 H
(5/B4) TIME OUT ERR H
(3/C2) PM DATA 6 H
(5/D5) WRT LOCK ER (1) H
(3/C2) PM DATA 7 H
(5/C1) DONE FLAG (1) H
(3/B2) PM DATA (Ø) H
RDY S/R/W L HU1
(3/B2) PM DATA 1 H
(3/B2) PM DATA 2 H
SEEK FAIL H HU2
(3/B2) PM DATA 3 H
DATA 8 H (4/A6)
DATA 9 H (4/A6)
DATA 10 H (4/A8)
DATA 11 H (4/A8)
DATA 4 H (4/A5)
DATA 5 H (4/A5)
DATA 6 H (4/A5)
DATA 7 H (4/A5)
DATA Ø H (4/A3)
DATA 1 H (4/A3)
DATA 2 H (4/A3)
DATA 3 H (4/A3)

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700645
SCALE: NONE	REV E	SHEET 2 OF 5
		DISTR NO.

REVISIONS			
ZONE LTR	DESCRIPTION	DATE	APPROVED
	SEE SHEET 1		

+5V

C1 6.8uf | C2 THRU .01uf | C5 .01uf | C6 4.7uf | C7 6.8uf | C8 THRU .01uf | C11 .01uf | C12 6.8uf | C13 6.8uf | C14 .01uf | C18 180pf | C19 6.8uf | C20 6.8uf | C21 4.7uf | C22 .01uf | C23 .01uf | C24 .01uf | C27 470pf | C31 330pf

U10 95 — (4/A7) BMD 11 H, (4/C7) BMD 10 H, (4/C7) BMD 9 H, (4/C7) BMD 8 H, (4/A6) MD TO RD BUFF H

U23 174 — PU, R2 1K +5V

U24 174 — PU

U25 95 — HF1 PM DATA 11 H (2/C2), PM DATA 10 H (2/C2), PM DATA 9 H (2/C2), PM DATA 8 H (2/C2)

U18 95 — (4/C7) BMD 7 H, (4/C7) BMD 6 H, (4/C7) BMD 5 H, (4/D7) BMD 4 H

U19 95 — PM DATA 7 H (2/B2), PM DATA 6 H (2/B2), PM DATA 5 H (2/B2), PM DATA 4 H (2/B2)

U1 95 — (4/D7) BMD 3 H, (4/D7) BMD 2 H, (4/D7) BMD 1 H, (4/D7) BMD 0 H

U14 174 — PU, +5V R27 1K

U15 174 — PU, (2/C6) DB COUT 3(1) H

U16 95 — PM DATA 3 H (2/A2), PM DATA 2 H (2/A2), PM DATA 1 H (2/A2), PM DATA 0 H (2/B2)

(2/D8 4/A8) MD TO RD BUFF L

LD RD BUFFER H (2/D8)

(2/D5) DB COUT 2 (1) H

DATA ENABLE (1) H — HJ11 — U61 HJ00 — U9 02

BRK DIR (0) H — HP2 — U61 HJ00

(4/B6) BTP3 L — U9 02

HI RD CLK L [5]

(5/B3) HI RD CLK H — U59 04 — U27 08

(5/C8) WRT CMD L — U27 08

HI DATA IN H — JP2

R29 100Ω, C29 470pf

(2/B6) DB COUT 4 (0) H

(2/B6) 1 → DB4 H — U29 08

(4/C1) DB CLK H — U29 08

LD DB4 H [5]

LO MAIN SHIFT L — HJP1 — U61 HJ00 — U59 04

SHIFT WRT BUFF L — HR2 — U61 HJ00 — U59 04

WRT BUFF SHIFT L [5]

LO MAIN DATA H — HV2

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD7006645

SCALE: NONE REV E SHEET 3 OF 5

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

MD0L AK1 — U2 380 — BMD0H (3/B8)
MD1L AL1 — U2 380 — BMD1H (3/B8)
MD2L AM1 — U2 380 — BMD2H (3/B8)
(4/D5) MD3L AP1 — U2 380 — BMD3H (3/B8)
(4/D5) MD4L BK1 — U5 380 — BMD4H (3/C8)
(4/C5) MD5L BL1 — U5 380 — BMD5H (3/C8)
MD6L BM1 — U5 380 — BMD6H (3/C8)
MD7L BP1 — U5 380 — BMD7H (3/C8)
MD8L DK1 — U12 380 — BMD8H (3/C8)
MD9L DL1 — U12 380 — BMD9H (3/C8, 4/C3)
MD10L DM1 — U12 380 — BMD10H (3/D8, 4/C3)
MD11L DP1 — U12 380 — BMD11H (3/D8, 4/C3)
R3 1K +5V

I/O PAUSE L CD1
T83 L CM2
U6 380 — U9 02 — MD PM L (5)

TP3 H CH2 — U53 74S08 — U61 H00 — U59 04 — BTP3 L (3/A8) JU1; BTP3 H (5/A8) JT1; BTP3 OK H (2/B8) (5/A8) HK1; BTP3 OK L (5)

(5/B8) IDLE (1) H
(4/D1) 6PM7H
U58 00 — U43 H04 — LD DB→AC H (2/B8); LD DB→AC L (2/A6)

(4/A5) DATA 7 L — U6 380
(2/A6) BTP2 H HC2
TP2 H CE2 — U8 136020-384
PU — U33 74 (PR, CK, CLR) — HB1 AC 7 (Φ) H
(5/C4) MAIN (1) H HA2

(3/A8) MD TO RD BUFF L — U43 H04 — MD TO RD BUFF H (3/C7)
R 2.2K +5V

(2/C1) DATA 11 H — U13 38 — DATA 11 L DV1
(2/C1) DATA 10 H — U13 38 — DATA 10 L DU1
(2/C1) DATA 9 H — U13 38 — DATA 9 L DS1
(2/C1) DATA 8 H — U13 38 — DATA 8 L DR1

(4/D8) MD3L — U6 380
(4/D8) MD4L — U6 380
+5V
R26 1K, R25 1K, R24 1K
W1, W2, W3
U56 85 (B3 A3 B2 A2 B1 A1 B0 A0; A=B, A<B, A>B, A=B)
PU

(4/D8) MD5L — U6 380
U9 02 — (4/D1) 6PM7L
U47 02 — HU2 6PM7OK H
(4/D1) 6PM3L
(5/A8) IDLE (Φ) H
U47 02 — HS2 6PM3OK L
BDATA ΦH JA2
(5/B8) BDATA 11 L
(5/B8) 6PM2H
C32 470 PF
U63 40 — HS1 6PM3OK H
U59 04 — JC2 CLR DRIVE CMD L (5/C8)

(4/C1) 6PM2L — U34 04
B DATA 11 H JR1
B DATA 10 L JP2
U63 40 — U62 37
INITIALIZE H CR1
POWER OK H BV2
U3 380 — U3 380

(2/C8) 1→DB3 H
(2/B5) DBA ENA H
(2/B5) 1→DBA H
(2/C8) 1→DB2 H
(4/B1) Φ→DBA H
U32 H53

(2/B1) DATA 7 H — U7 38
(4/B8) DATA 7 L BV1
(2/B1) DATA 6 H — U7 38
DATA 6 L BU1
(2/B1) DATA 5 H — U7 38
DATA 5 L BS1
(2/B1) DATA 4 H — U7 38
DATA 4 L BR1

U34 04 — JC1 6PM7H (4/B8)
U34 04 — HR1 6PM6H
JA1 DEVICE PM H (2/C4)
DEVICE PM L (5)
U39 — U22 42
(4/C7) BMD9H
(4/C7) BMD10H
(4/C7) BMD11H
U61 H00
6PM7L (4/C5)
6PM6L (2/B5, 5/B8)
6PM5L (2/A3, B5)
JS2 6PM4L (2/B5, 5/B8)
6PM3L (2/B5, 4/C5, 5/B8)
6PM2L (2/B5, 4/C5, 5/B5)
6PM1L (2/A6)

C10 10pf, R5 5.1K +5V
U31 123 (CLR)
DB CLK H (2/C8, 3/A4)
PU
C15 39pf, R4 5.1K +5V
U31 123 (CLR)
CLR SYN (Φ) H (2/A3)
Φ→DB4 H (2/B8, 4/B5)
TEST CLK H (5)
TEST CLK L (5)
PU
HD1 CLR ALL H (2/D8, 5/A8)
JU2 CLR ALL L (2/C8)

U62 37
DATA 3 H (2/A1) — U4 38 — DATA 3 L AV1
(2/A1) DATA 2 H — U4 38 — DATA 2 L AU1
(2/B1) DATA 1 H — U4 38 — DATA 1 L AS1
(2/B1) DATA Φ H — U4 38 — DATA Φ L AR1

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700645
SCALE: NONE	REV E	SHEET 4 OF 5

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

SECTOR SEEK(Ø) H JF1
2 CAPACITY EX L JE1
DISC WRT STATUS L JD2
(4/D8) WRT CMD L JE2
(3/A8)
LD DISC ADDRS H JB2
(5/A1) CLR STATUS L
DRIVE STATUS BAD H JH2
(4/C1) CUR DRIVE CMD L
(4/B8) IDLE(1) H JL2
DRIVE REV Ø H JK2
NOT EQ(Ø) H JF2
*END STATE(Ø) H JJ2
(4/C5) 6 PLN 2 H
(4/C5) B DATA 11 L JH1
(4/D1) 6 PLN 3 L
(4/D1) 6 PLN 4 L
(4/D1) 6 PLN 6 L
(4/B6) BTP3 H
(4/C5) IDLE(Ø) H JJ1
(4/B8) BTP3 OK H
(4/B1) CLR ALL H
LD CMD REG H JD1

+5V R8 180Ω; R7 390Ω; R13 180Ω; R12 390Ω; R23 100Ω; C30 130pf; R32 1K; R33 1K; R34 1K; R14 200Ω; R15 1K; R20 1K; R19 100Ω; C25 (6); R17 200Ω; R16 200Ω; R21 100Ω; C26 330pf; R30 4.7K; R10 4.7K; R9 1K

U64 02; U36 00; U57 74 (PU, PR, CLR); U55 00; U43 H04; U42 02; U43 04; U51 193 (BORROW, CARRY, CLR, CUP, LD, CD); U40 74 (E1, E2); U52 38; U65 DELAY 75 NS; U53 74S08; U54 00; U54 02; U38 96 (SER IN, ALP CLK, SHIFT); U35 08; U34 04; U21 40; U36 00; U35 03; U64 02

WRT LOCK ER(1) H (2/B2)
WRT LOCK ER(Ø) H
CLR DRV CMD L (4/C1)
(5/B4) BUSY ERROR H
(5/B4) CRC ERROR H
DATA RQST LATE (Ø) H (5/A1)
(5/B4) DRIVE STATUS ER H
(2/D8) MAIN (Ø) H
(5/B4) CYL ADDRS ER H
(5/B4) TIME OUT ER H
LAST WORD PL H JN2
(4/A8) MAIN (1) H
ENAB SEEK DONE H JS1
RDY S/R/W H JL1
6 PLN 2L (4/C1)
CLY ADDRS ER H (2/C2, 5/C4)
DRIVE STATUS ER H (2/C2, 5/D4)
TIME OUT ER H (2/B2, 5/C4)
CRC ERROR H (2/C2, 5/D4)
BUSY ERROR H (2/B2, 5/D4)
(3/A8) HI RD CLK H JJA1
(2/D5) DB COUT (1) H
(2/B6) DB COUT 4 (Ø) H
DATA CLK OK H HC1

U8 13B020-384; U49 08; U48 02; U50 10; U58 00; U57 74 (PR, CLR); U41 74 (PR, CLR)

JV1 RTRY-L
JD1 ERROR CLR L
ERROR FL L (2/B6)
DONE FLAG (1) H (2/B3)
DONE FLAG (Ø) H (2/A6)
JJ1 SET IDLE PL L
DATA RQST LATE (1) H (2/C2)
DATA RQST LATE (Ø) H (5/D4)
CLR STATUS L (5/C8)

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700645
SCALE: NONE	REV E	SHEET 5 OF 5
		DISTR NO.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	—	REL TO PROD PER ECO 520708	2-17-76	
	A	INCORP E.O. 1179	8-16-76	
	B	INCORP E.O. 1315	11-18-77	
	C	INCORP. E.O. 1366	2-15-77	

LAST DESIGNATION USED	
RESISTOR	R7
CAPACITOR	C53
INTEGRATED CIRCUIT	U49
RESISTOR NOD	RN4

REF DES	GATES USED PER TOTAL	PART NO.
U1	5/6	7404
U2	3/4	7400
U11	1/2	7440
U34	3/4	7438
U39	2/4	136020-384
U41	3/4	7400
U17	1/2	74S139

SOLDER SIDE — COMPONENT SIDE — CONNECTOR A

SIDE 2		SIDE 1
+5V	A	
	B	
GND	C	
EMA ØL	D	MAØL
EMA 1 L	E	MA1L
GND	F	
EMA 2 L	H	MA2L
	J	MA3L
MD DIR L	K	
	L	
	M	
GND	N	
	P	
	R	DATA ØL
	S	DATA 1 L
GND	T	
	U	DATA 2 L
	V	DATA 3L

SOLDER SIDE — COMPONENT SIDE — CONNECTOR B

+5V	A	
	B	
GND	C	
INIT STROBE H	D	MA4L
BRK IN PROG L	E	MA5L
GND	F	
MA, MS LOAD CONT L	H	MA6 L
	J	MA7L
	K	
BK CYCLE L	L	
	M	
	N	GND
	P	
	R	DATA 4L
	S	DATA 5L
GND	T	
	U	DATA 6 L
	V	DATA 7 L

SOLDER SIDE — COMPONENT SIDE — CONNECTOR C

SIDE 2		SIDE 1
+5V	A	
	B	
GND	C	GND
TP1 H	D	
	E	
GND	F	GND
	H	
TP4 H	J	
	K	
TS2L	L	
	M	
GND	N	
TS4L	P	
	R	
	S	
GND	T	GND
	U	CPMA DIS L
	V	MS, IR DIS L

SOLDER SIDE — COMPONENT SIDE — CONNECTOR D

	A	
	B	
GND	C	GND
	D	MAB L
	E	MA9L
GND	F	
	H	MA10L
	J	MA11 L
	K	
	L	
	M	
GND	N	GND
	P	
	R	
	S	
GND	T	GND
	U	
	V	

SOLDER SIDE — COMPONENT SIDE — CONNECTOR H

MAIN (1) H	A	BRK RQ H
B BRK RQ H	B	ACT (Ø) H
BTP2- H	C	BTP3 ØK H
WT BUFF - DATA L	D	CLR ALL H
DB CONT 4 (1) H	E	DISC FILE RDY L
	F	PM DATA 11 H
	H	WRT BRK L
	J	MAK Ø H
	K	BTP3 OK H
READ BRK L	L	B DATA STATE (1) H
WRITE (1) H	M	12TH BIT ØK H
6 PM 7 OK H	N	DATA ENABLE (1) H
BRK DIR (Ø) H	P	LO MAIN SHIFT L
SHFT WRT BUFF L	R	6 PM 6 H
6 PM 3 OK L	S	6 PM 3 ØK H
B DATA 1 H	T	MAIN PL H
SEEK FAIL H	U	RDY S/R/W L
LO MAIN DATA H	V	DB CONT 1 (Ø) H

SOLDER SIDE — COMPONENT SIDE — CONNECTOR E

SIDE 2		SIDE 1
DISC SEEK FAIL L	A	CRC DATA H
DISC ADD 64 L	B	RD CLK 1 H
DISC ADD 16 L	C	IDLE (1) H
DISC DRIVE ØL	D	RDY S/R/W H
DISC ADD 128 L	E	FILE RDY H
STROBE (1) H	F	CLR SECTOR AD L
DISC ADD 4 L	H	CLR ALL L
DISC ADD 32 L	J	B DATA 11 H
DISC ADD 2 L	K	B DATA 10 H
DISC RDY S/R/W L	L	B DATA 9 H
LD DISC ADDRS H	M	B DATA 8 H
CRC 16 (1) H	N	DISC DRIVE 3 L
SECTOR ADDRS (1) H	P	DISC DRIVE 2 L
B DATA 7 H	R	DISC DRIVE 1 L
HALF BLOCK H	S	DISC ADD 1 L
FUN Ø2 H	T	DISC ADD 8 L
FUN ØØ H	U	DATA ENABLE (1) H
FUN Ø1 H	V	ENAB DATA L

SOLDER SIDE — COMPONENT SIDE — CONNECTOR F

6 PM 3 ØK H	A	12TH BIT ØK H
CLR DRIVE CMD L	B	DISC FILE RDY L
DRIVE REV Ø H	C	DISC CAPACITY EX L
B DATA 10 L	D	END STATE (Ø) H
ERROR CLR L	E	LAST WORD PL H
SECTOR SEEK (Ø) H	F	WRITE (1) H
BTP2 H	H	PM DATA 11 H
SHFT WRT BUFF L	J	BTP3 H
BRK ENAB CLK H	K	SET IDLE PL L
B LAST BRK H	L	LO MAIN SHIFT L
BTP3 OK H	M	BTP3 ØK H
LAST BRK (1) H	N	SHIFT CR CL
MAIN (Ø) H	P	DATA STATE (Ø) H
IDLE (Ø) H	R	DATA IN (Ø) H
ED SHFT DBL	S	CLR CNTRS L
HI MAIN SHIFT L	T	
BRK IN CLK H	U	SHIFT SUBR/SEC H
WRT CMD L	V	STATE ENAB B H

SOLDER SIDE — COMPONENT SIDE — CONNECTOR J

SIDE 2		SIDE 1
B DATA 10 H	A	DEVICE PM H
LD DISC ADDRS H	B	ENAB INT H
CLR DRIVE CMD L	C	6 PM 7 H
B DATA 10 L	D	ERROR CLR L
WRT CMD L	E	MAIN (Ø) H
NOT ED (Ø) H	F	SECTOR SEEK (Ø) H
DRIVE STATUS BD A	H	B DATA 11 L
END STATE (Ø) H	J	SET IDLE PL L
DRIVE REV Ø H	K	DISC CAPACITY EX L
IDLE (1) H	L	RDY S/R/W S L O H
DATA STATE (Ø) H	M	HI RD CLK H
LAST WORD PL H	N	IDLE (Ø) H
B DATA 10 L	P	LD CMD REG H
HI DATA IN H	R	B DATA 11 H
6 PM 4 L	S	ENAB SEEK DONE H
	T	BTP3 H
CLR ALL L	U	BTP3 L
	V	

5. INDICATES SIGNAL NOT USED.
4. DESIGNATIONS SHOWN IN PARENTHESIS (2/A1) INDICATES WHERE SIGNAL ORIGINATES OR TERMINATES
   - ZONE DESIGNATIONS
   - SHEET NUMBER
3. SIGNALS SHOWN IN RECTANGLE
   - AA1 ARE I/O CONNECTIONS
   - BOARD SIDE
   - PIN DESIGNATION
   - CONNECTOR DESIGNATION
2. FOR ASSEMBLY SEE DWG. 700647.
1. ALL RESISTORS ARE ±5%, 1/4W.

NOTES: UNLESS OTHERWISE SPECIFIED.

PRODUCTION RELEASE

NOTE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION / MATERIAL	SPEC/SOURCE	CODE IDENT NO.	FIND NO.
		PARTS LIST			

PART/ASSY NO. & QTY PER ASSY

PART/ASSY REV LTR

PART NO.	NEXT ASSY	USED ON
/	700847-100	PM-DC18

APPLICATION

DO NOT SCALE DRAWING

SCREW THREADS PER HANDBOOK H-28
COUNTERBORE AND SPOTFACE FILLET RADII - TO BE .010 MAXIMUM
REMOVE ALL BURRS AND BREAK SHARP EDGES EQUIVALENT TO .010R
ROUGHNESS OF MACHINED SURFACES 125 PER USAS B46.1
STANDARD HOLE TOLERANCE PER ANSI B32.1
TOLERANCES ON: .XX = ± .03 .XXX = ± .010 ANGLES = ± 1° 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	1-15-76
CHECK	[illegible]	2-17-76
ENGR		
PROJ. ENGR	[illegible]	2-17-76
PROD. DESIGN	[illegible]	2-17-76

OTHER APPROVALS

Plessey Memories Incorporated
Santa Ana, California

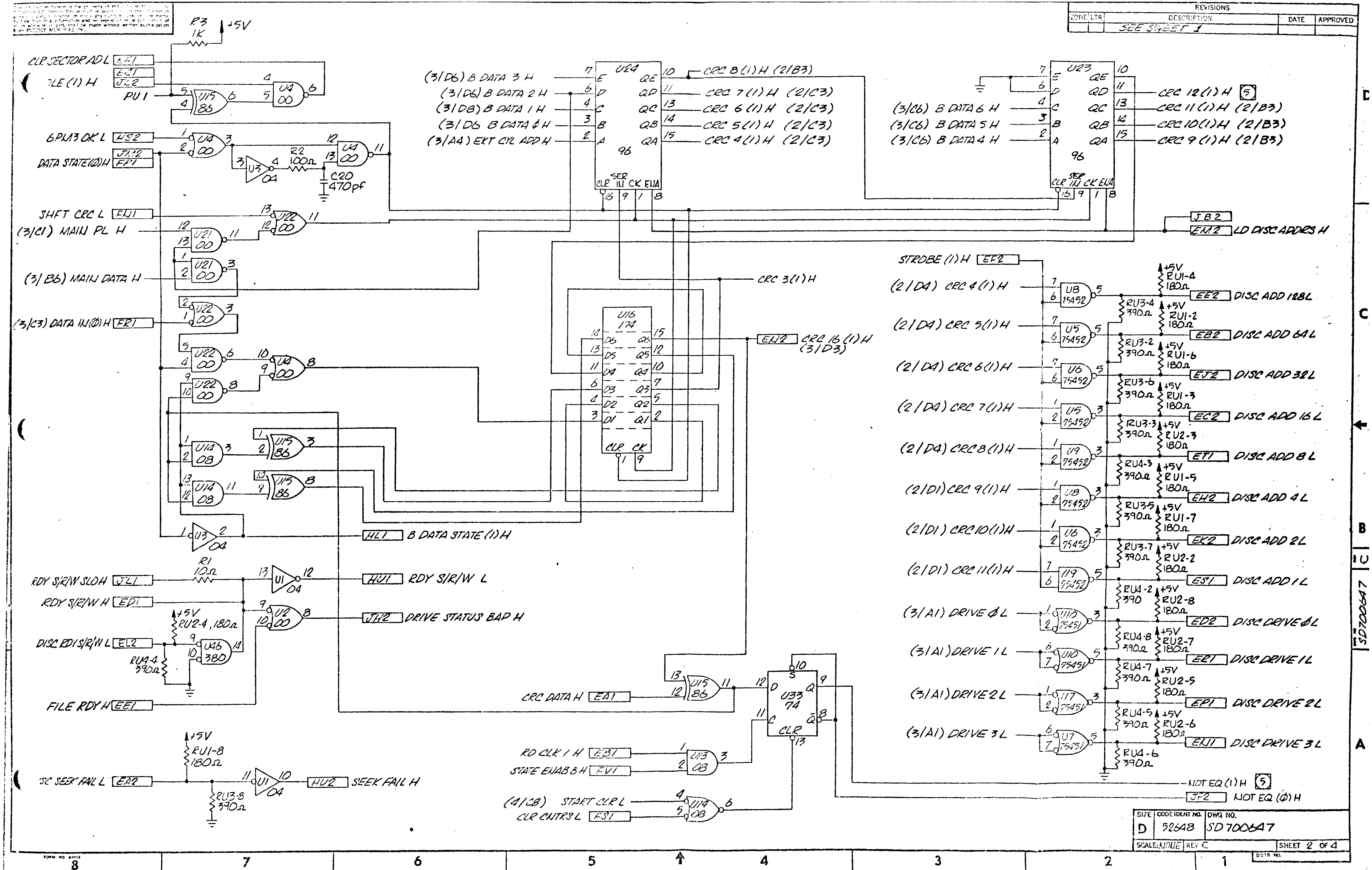
DWG TITLE: SCHEMATIC DIAGRAM MAJOR REGISTER, PM-DC18

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700647

SCALE: NONE | REV: C | SHEET 1 OF 4

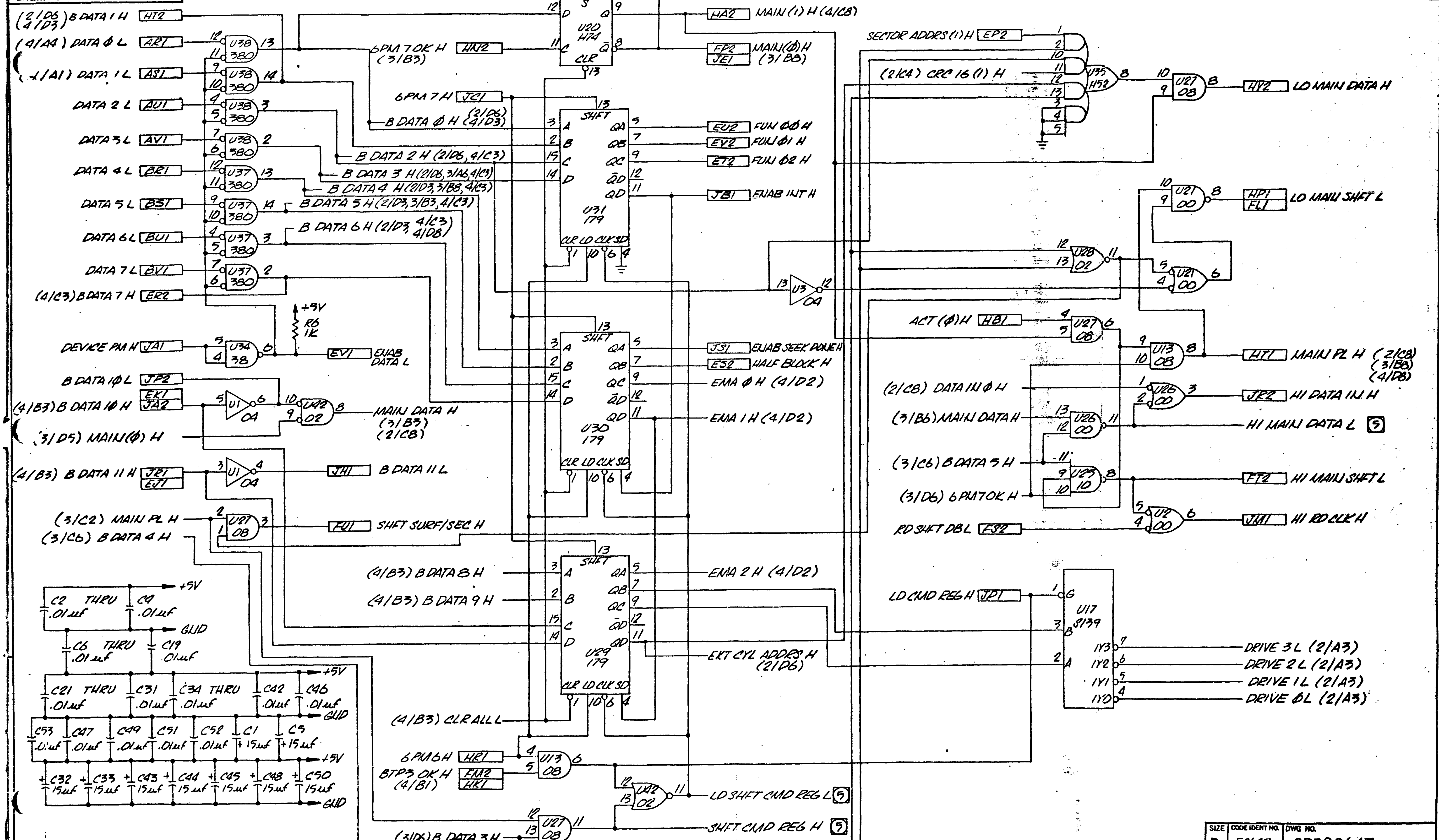
DISTR NO.

FORM NO. SDV-2



CLR SECTOR AD L
PU 1
6PLA3 OK L
DATA STATE(Ø)H
SHFT CRC L
(3/C1) MAIN PL H
(3/B6) MAIN DATA H
(3/C3) DATA IN(Ø) H
B DATA STATE (1) H
RDY S/R/W SLO H
RDY S/R/W H
DISC RDI S/R/W L
FILE RDY H
SEEK FAIL L
SEEK FAIL H
RDY S/R/W L
DRIVE STATUS BAP H
(3/D6) B DATA 3 H
(3/D6) B DATA 2 H
(3/D8) B DATA 1 H
(3/D6) B DATA Ø H
(3/A4) EXT CYL ADD H
CRC 8 (1) H (2/B3)
CRC 7 (1) H (2/C3)
CRC 6 (1) H (2/C3)
CRC 5 (1) H (2/C3)
CRC 4 (1) H (2/C3)
(3/C6) B DATA 6 H
(3/C6) B DATA 5 H
(3/C6) B DATA 4 H
CRC 12 (1) H
CRC 11 (1) H (2/B3)
CRC 10 (1) H (2/B3)
CRC 9 (1) H (2/B3)
LD DISC ADDRES H
CRC 3 (1) H
CRC 16 (1) H (3/D3)
STROBE (1) H
(2/D4) CRC 4 (1) H
(2/D4) CRC 5 (1) H
(2/D4) CRC 6 (1) H
(2/D4) CRC 7 (1) H
(2/D4) CRC 8 (1) H
(2/D1) CRC 9 (1) H
(2/D1) CRC 10 (1) H
(2/D1) CRC 11 (1) H
(3/A1) DRIVE Ø L
(3/A1) DRIVE 1 L
(3/A1) DRIVE 2 L
(3/A1) DRIVE 3 L
DISC ADD 128 L
DISC ADD 64 L
DISC ADD 32 L
DISC ADD 16 L
DISC ADD 8 L
DISC ADD 4 L
DISC ADD 2 L
DISC ADD 1 L
DISC DRIVE Ø L
DISC DRIVE 1 L
DISC DRIVE 2 L
DISC DRIVE 3 L
CRC DATA H
RD CLK 1 H
STATE ENAB B H
(4/C8) START CLR L
CLR CNTRS L
NOT EQ (1) H
NOT EQ (Ø) H
REVISIONS
SEE SHEET 1
SIZE D
CODE IDENT NO. 52648
DWG NO. SD700647
SCALE: NONE
REV C
SHEET 2 OF 4

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

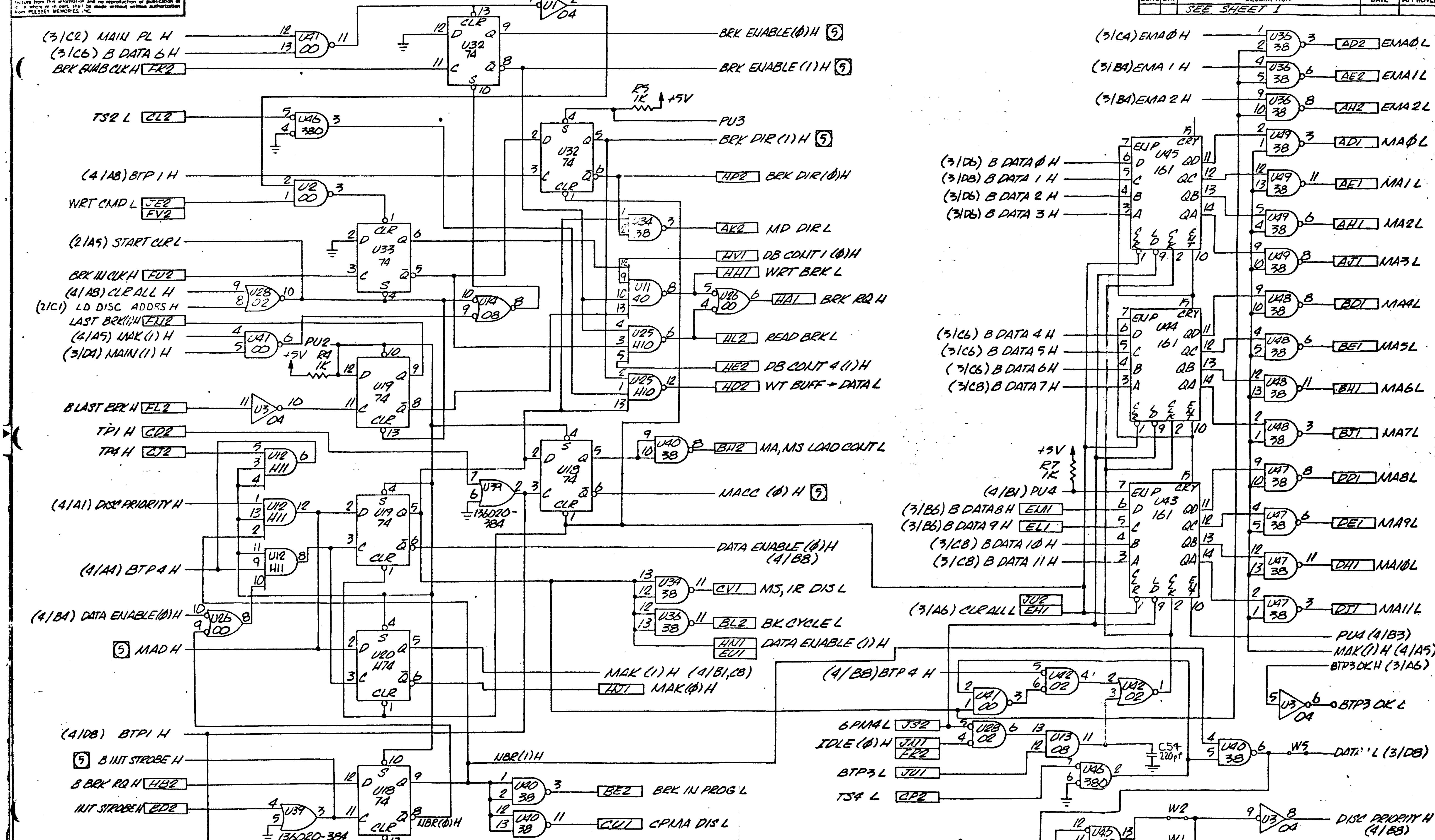


(2/D6)(4/D3) B DATA 1 H HT2
(4/A4) DATA Ø L AR1
(4/A1) DATA 1 L AS1
DATA 2 L AU1
DATA 3 L AV1
DATA 4 L BR1
DATA 5 L BS1
DATA 6 L BU1
DATA 7 L BV1
(4/C3) B DATA 7 H ER2
DEVICE PM H JA1
ENAB DATA L EV1
+5V R6 1K
B DATA 1Ø L JP2
(4/B3) B DATA 1Ø H EK1 JA2
(3/D5) MAIN(Ø) H
MAIN DATA H (3/B3) (2/C8)
(4/B3) B DATA 11 H JR1 EJ1
B DATA 11 L JH1
(3/C2) MAIN PL H
(3/C6) B DATA 4 H
SHFT SURF/SEC H FU1
6PM 7ØK H HN2 (3/B3)
6PM 7 H JC1
B DATA Ø H (2/D6) (4/D3)
B DATA 2 H (2/D6, 4/C3)
B DATA 3 H (2/D6, 3/A6, 4/C3)
B DATA 4 H (2/D3, 3/B8, 4/C3)
B DATA 5 H (2/D3, 3/B3, 4/C3)
B DATA 6 H (2/D3, 4/C3 4/D8)
U20 H74
U31 179
U30 179
U29 179
SHFT
MAIN (1) H (4/C8) HA2
MAIN(Ø) H (3/B8) FP2 JE1
FUN ØØ H EU2
FUN Ø1 H EV2
FUN Ø2 H ET2
ENAB INT H JB1
ENAB SEEK DONE H JS1
HALF BLOCK H ES2
EMA Ø H (4/D2)
EMA 1 H (4/D2)
EMA 2 H (4/D2)
EXT CYL ADDRS H (2/D6)
(4/B3) B DATA 8 H
(4/B3) B DATA 9 H
(4/B3) CLR ALL L
6PM 6 H HR1
BTP3 ØK H (4/B1) FM2 HK1
LD SHFT CMD REG L 5
SHFT CMD REG H 5
(3/D6) B DATA 3 H
SECTOR ADDRS (1) H EP2
(2/C4) CRC 16 (1) H
U35 H52
LO MAIN DATA H HV2
LO MAIN SHFT L HP1 FL1
ACT (Ø) H HB1
MAIN PL H (2/C8) (3/B8) (4/D8) HT1
(2/C8) DATA IN Ø H
HI DATA IN H JR2
(3/B6) MAIN DATA H
HI MAIN DATA L 5
(3/C6) B DATA 5 H
HI MAIN SHFT L FT2
(3/D6) 6PM 7ØK H
RD SHFT DBL FS2
HI RD CLK H JM1
LD CMD REG H JP1
U17 8139
DRIVE 3 L (2/A3)
DRIVE 2 L (2/A3)
DRIVE 1 L (2/A3)
DRIVE Ø L (2/A3)
C2 THRU C9 .01uf
C6 THRU C19 .01uf
C21 THRU C31 .01uf
C34 THRU C42 .01uf
C46 .01uf
C53 C47 C49 C51 C52 .01uf
C1 C5 15uf
C32 C33 C43 C44 C45 C48 C50 15uf
+5V
GND

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700647
SCALE: NONE	REV C	SHEET 3 OF 4

8 7 6 5 4 3 2 1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		


(3/C2) MAIN PL H
(3/C6) B DATA 6 H
BRK ENAB CLK H FR2
TS2 L CL2
(4/A8) BTP 1 H
WRT CMD L JE2 FV2
(2/A5) START CLR L
BRK IN CLK H EU2
(4/A8) CLR ALL H
(2/C1) LD DISC ADDRS H
LAST BRK(1)H EN2
(4/A5) MAK (1) H
(3/D4) MAIN (1) H
B LAST BRK H FL2
TP1 H CD2
TP4 H CJ2
(4/A1) DISC PRIORITY H
(4/A4) BTP 4 H
(4/B4) DATA ENABLE(Ø)H
5 MAD H
(4/D8) BTP1 H
5 B INT STROBE H
B BRK RQ H HB2
INT STROBE H BD2
(4/C8) CLR ALL H HD1
BRK ENABLE(Ø)H 5
BRK ENABLE (1) H 5
PU3
BRK DIR (1) H 5
HP2 BRK DIR (Ø) H
AK2 MD DIR L
HV1 DB CONT 1 (Ø) H
HH1 WRT BRK L
HA1 BRK RQ H
HL2 READ BRK L
HE2 DB CONT 4 (1) H
HD2 WT BUFF → DATA L
BH2 MA, MS LOAD CONT L
MACC (Ø) H 5
DATA ENABLE (Ø)H (4/B8)
CV1 MS, IR DIS L
BL2 BK CYCLE L
HN1 EV1 DATA ENABLE (1) H
MAK (1) H (4/B1, C8)
HJ1 MAK (Ø) H
NBR(1)H
NBR(Ø)H
BE2 BRK IN PROG L
CU1 CPMA DIS L
136020-384
(3/C4) EMA Ø H
(3/B4) EMA 1 H
(3/B4) EMA 2 H
AD2 EMAØ L
AE2 EMA1 L
AH2 EMA2 L
AD1 MAØ L
AE1 MA1 L
AH1 MA2 L
AJ1 MA3 L
BD1 MA4 L
BE1 MA5 L
BH1 MA6 L
BJ1 MA7 L
DD1 MA8 L
DE1 MA9 L
DH1 MA1Ø L
DJ1 MA11 L
(3/D6) B DATA Ø H
(3/D8) B DATA 1 H
(3/D6) B DATA 2 H
(3/D6) B DATA 3 H
(3/C6) B DATA 4 H
(3/C6) B DATA 5 H
(3/C6) B DATA 6 H
(3/C8) B DATA 7 H
(4/B1) PU4
(3/B6) B DATA 8 H EM1
(3/B6) B DATA 9 H EL1
(3/C8) B DATA 1Ø H
(3/C8) B DATA 11 H
(3/A6) CLR ALL L JU2 EH1
PU4 (4/B3)
MAK(1)H (4/A5)
BTP3 OK H (3/A6)
BTP3 OK L
(4/B8) BTP 4 H
6 PMA4 L J32
IDLE (Ø) H JN1 FR2
BTP3 L JU1
TS4 L CP2
C54 220pf
W5
DATA L (3/D8)
W2
W1
W4
W3
DISC PRIORITY H (4/B8)
(3/D8) DATA Ø L
R5 1K +5V
R4 1K
R7 1K
+5V

SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700647
SCALE: NONE	REV C	SHEET 4 OF 4