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TEKTRONIX®

INSTRUCTION MANUAL

TEKTRONIX®

P7001

CORE MEMORY ASSEMBLY

672-0057-00

SERVICE

INSTRUCTION MANUAL

Tektronix, Inc.
P.O. Box 500
Beaverton, Oregon 97005

Serial Number _____



WARRANTY

All TEKTRONIX instruments are warranted against defective materials and workmanship for one year. Any questions with respect to the warranty should be taken up with your TEKTRONIX Field Engineer or representative.

All requests for repairs and replacement parts should be directed to the TEKTRONIX Field Office or representative in your area. This will assure you the fastest possible service. Please include the instrument Type Number or Part Number and Serial Number with all requests for parts or service.

Specifications and price change privileges reserved.

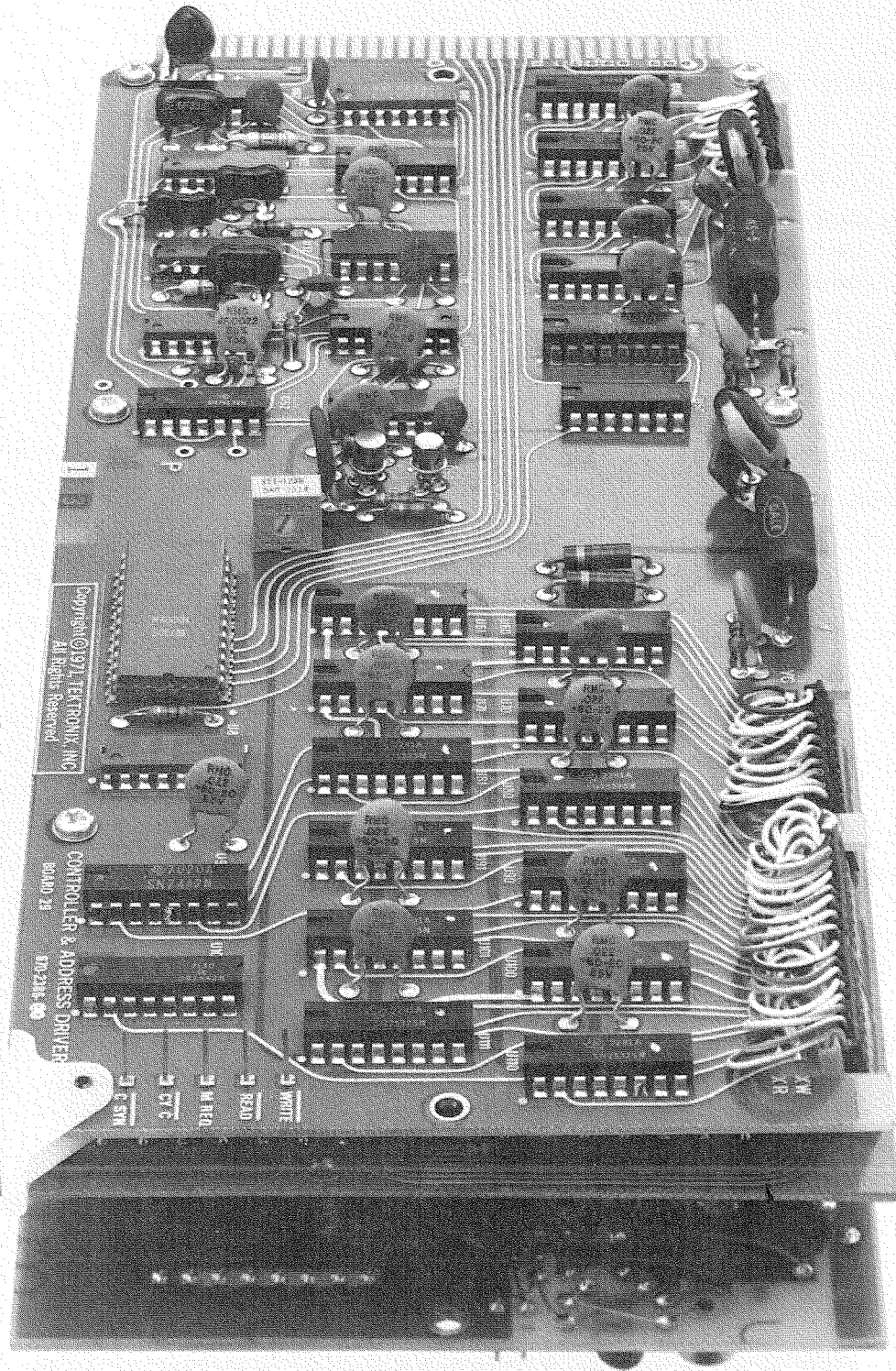
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P701 CORE MEMORY SYSTEM.

P7001 CORE MEMORY ASSEMBLY

CIRCUIT DESCRIPTION

CAUTION

The Memory Core Mat (center board) is not intended to be serviced by the user. The unit is sealed by the supplier, and the warranty is void if maintenance is attempted by breaking the seal.

The Core Memory Assembly includes circuitry on the following three boards: 1) Memory Controller and Address Driver, 2) Core Mat with Diode Selection Matrix, and 3) Memory Data Register. Fig. 1 is a block diagram showing major connections within the system.

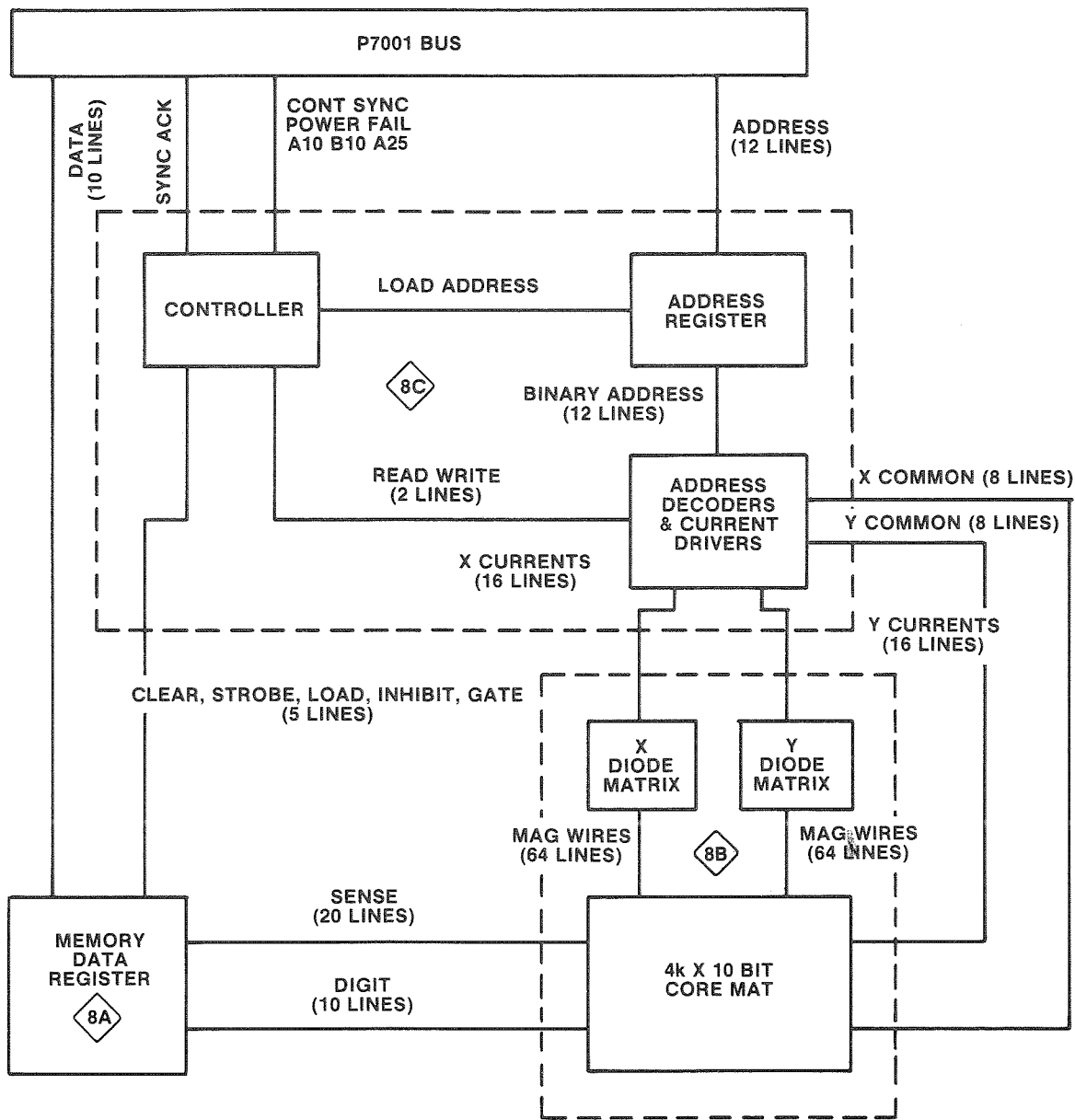


Fig. 1. Core Memory Assembly Block Diagram.

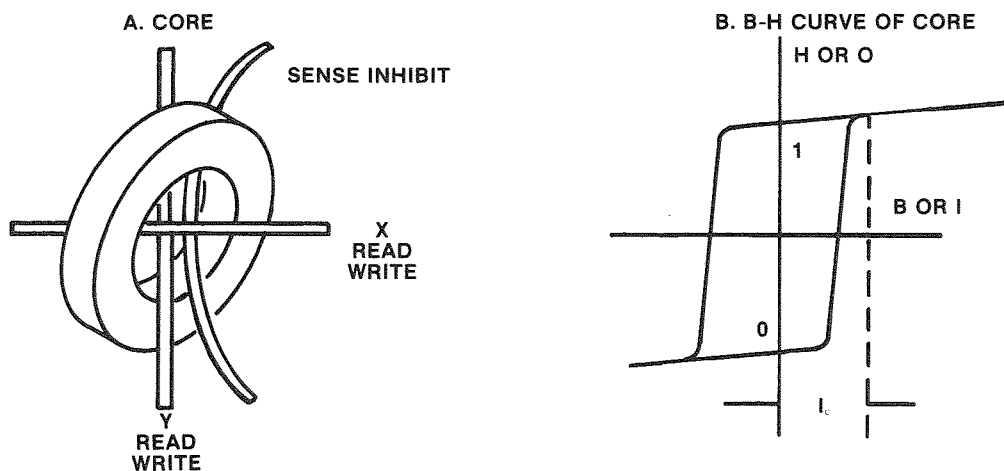


Fig. 2. Memory Core Wiring and B-H Curve.

CORE MAT AND DIODE MATRIX

The Core Mat is a planar stack of 20 mil cores. The cores are arranged in ten 64 x 64 arrays. The 64 "X" lines and 64 "Y" lines pass through each array with a core at each of the 4096 intersections. An additional wire, the sense-inhibit, passes through all cores in each array. The resulting pattern is a double herringbone, 3 wire-3D core stack (see figure 2).

The 64 lines on the X and Y axes are divided into 8 groups of 8 lines on each end. One line from each of the 8 groups on the common end is run to one group on the read-write end, so that selection of one group at each end drives only one of the 64 lines. Diodes are inserted in the lines to isolate the selected line from those unselected.

A core may be switched by forcing half of the required switching current down one line on each axis (X and Y). These currents will sum to switch only the core at the intersection of the lines. All other cores on the lines experience only half of the switch current so they are unaffected. In this manner, one of the 4096 cores in each of the 10 arrays is selected for switching by driving one of 8 lines on each end of each axis, and the 10 cores (bits) at each of the 4096 addresses in memory may be selected for switching.

In order to store an arbitrary bit pattern (word) in a memory address, it is necessary to inhibit the switching of some cores (ones) while allowing others (zeros) to switch. (The choice of ones as switched or unswitched is arbitrary. This description follows the designation used in the remainder of the processor rather than common memory practice.)

The cores that are not to be switched are driven with half of the switch current in the sense-inhibit line opposing the Y drive. By the end of the write cycle, the cores

containing zeros have switched, those containing ones have been inhibited from switching, and remain in the one state. The cores then remain permanently in the one or zero state until switching currents are again applied.

To read data out of the address, switching currents are supplied in the opposite direction, but on the same X and Y wires used to write. Since the magnetic field is in the opposite direction, cores that were left in the zero state will switch back to the one state, and induce a current in the sense-inhibit line. This current is used to determine that a zero was in that core position. If the core was already in the one state, it does not switch. The lack of current in the sense line then implies a one was residing at that position. The previously written data in the selected address is destroyed by the read operation (since the cores now contain ones) and must be rewritten if it is to be used again. This is done in the Restore portion of a Read-Restore cycle. The data that was brought from the core mat into the Memory Data Register and subsequently sent out on the data bus is now gated to the inhibit drives and restored to the core mat. The address that was given for the Read operation is retained and used to restore the data to the same location.

MEMORY CONTROLLER AND ADDRESS DRIVER SCHEMATIC 8C

ADDRESS DECODER AND CORE CURRENT DRIVERS

The Address Decoders (U40, U82, U92, and U102) are BCD, connected to drive one of 8 digital lines. Each decoder receives 3 of 12 address lines which activate one of the 8 output lines. These 8 lines are connected (in pairs) to 4 current drivers. The Core Current Drivers (U00, U10, U20, U30, U60, U61, U70, U71, U80, U81, U90, U91, and U100, U101, U110, U111) also receive READ and WRITE commands that determine whether the driver will source or sink current to the read-write and common lines. The Core Current Drivers supply current to both the X and Y read-write and common lines.

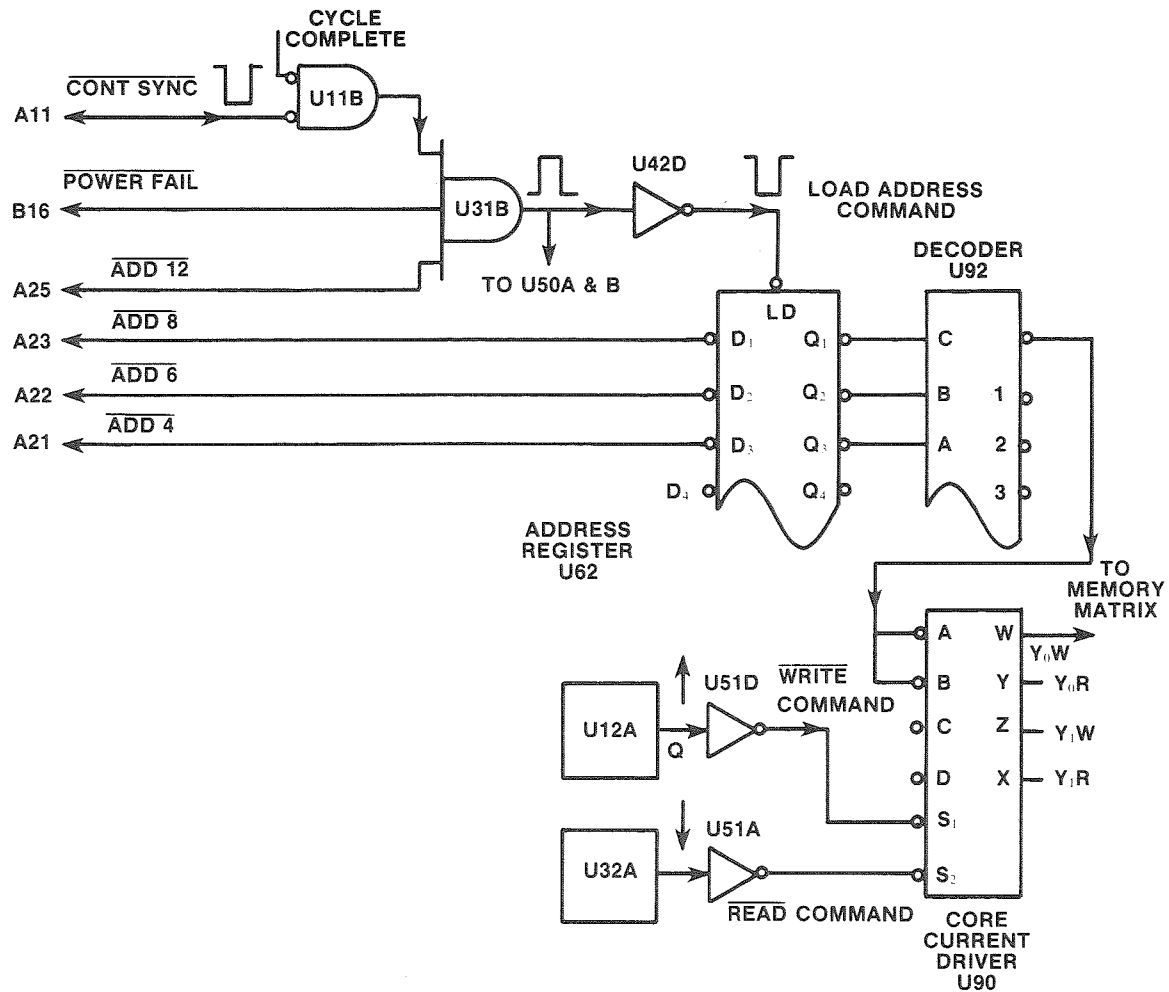


FIG. 3. PARTIAL MEMORY CONTROLLER & ADDRESS DRIVER IN WRITE MODE.

ADDRESS REGISTER

The Address Register contains a 10-bit latch (U62) and a 2-bit latch (U50). When Memory is requested to cycle (read or write), a Load Address command is given and the binary address on the Bus at that time is latched into the Address Register. The address is now available to the decoders, which select the appropriate lines in the Core Mat (via the Diode Matrix). Fig. 3 is a simplified diagram of part of the Memory Controller and Address Driver, illustrating a typical WRITE mode operation.

CONTROLLER

The asynchronous Controller answers requests of Memory via the Bus, and sends the controlling and timing signals for the memory cycle. The Controller includes U02A and B, U12A and B, U32A and B, and associated inverters, AND and OR gates.

Depending on the logic levels at terminals A10 and B10 (DATA MODE 0 and 1), the Controller generates READ or WRITE commands and appropriate timing signals. Figs. 4, 5 and 6 show relation of the various timing signals for each type of memory cycle.

MEMORY DATA REGISTER SCHEMATIC 8A

The Memory Data Register contains ten identical circuits that include a sense amplifier, storage element, and inhibit driver, plus TTL buffers for the control signals and a resistive divider circuit to control the temperature-regulated voltage.

The sense amplifier is coupled through a toroid transformer to the Sense-Inhibit line of the Core Mat. When a current pulse is induced in this winding, the sense amplifier places a zero into the storage element of the register. The storage element then presents this data, when directed, to the Bus. By applying either LOAD MDR or CLEAR MDR control signals, the storage elements load new data in Memory or they are cleared to receive the output of the sense amplifiers.

The inhibit driver circuit consists of discrete components (TTL and resistors) that supply the inhibit current required to prevent the cores in the Core Mat from switching.

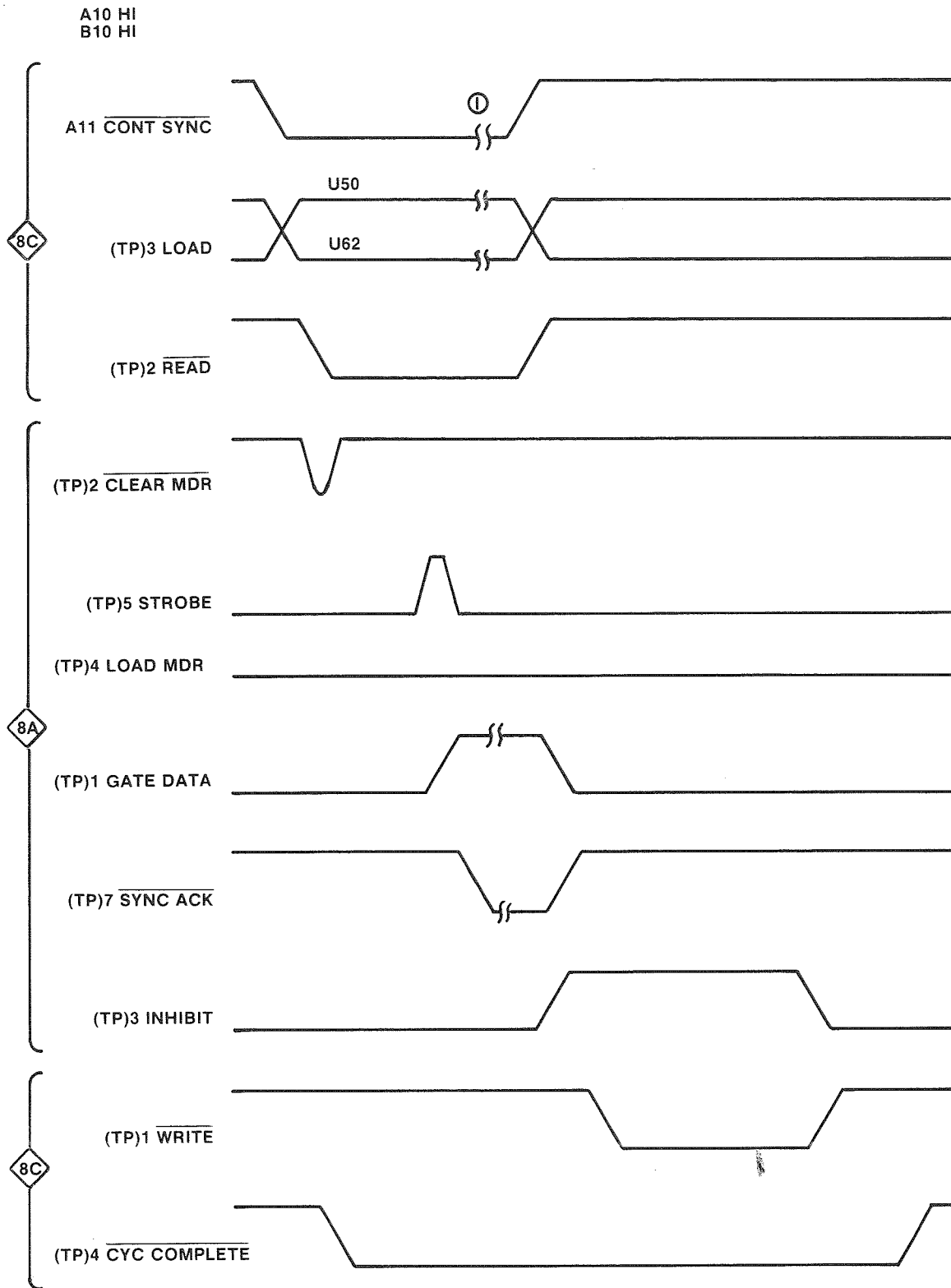


Fig. 4. READ-RESTORE TIMING

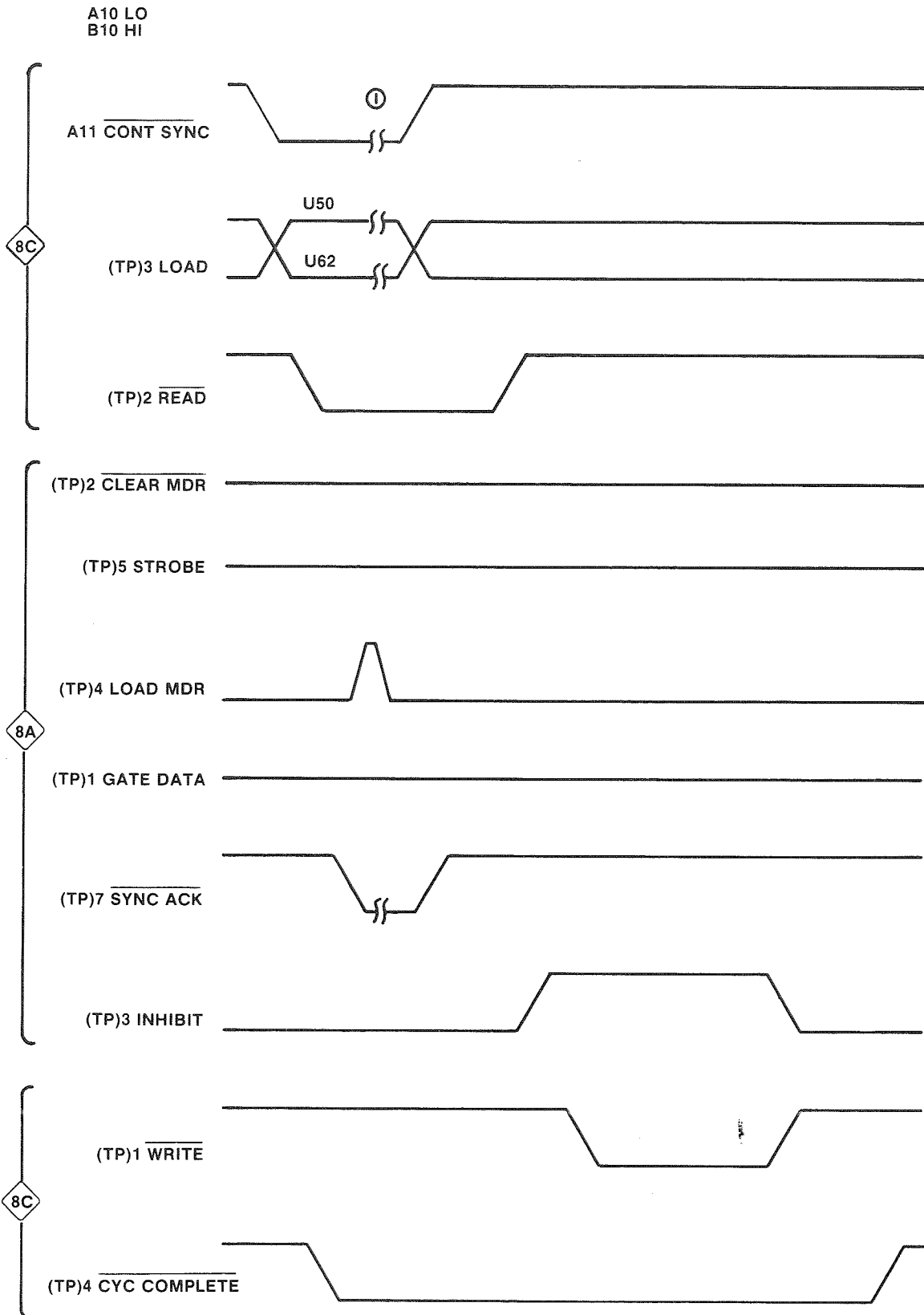


Fig. 5. CLEAR-WRITE TIMING

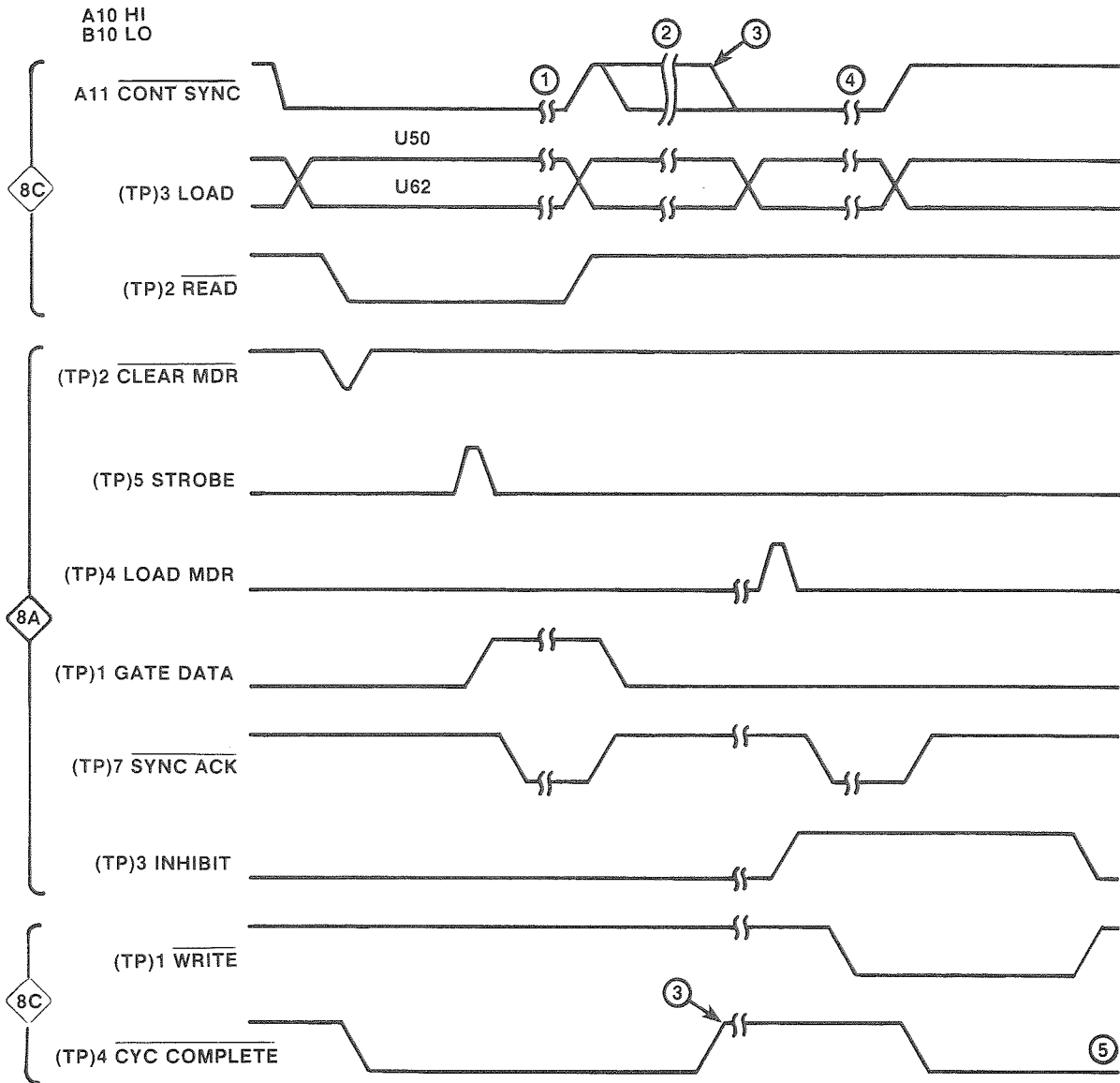


Fig. 6. READ-MODIFY-WRITE TIMING.

CALIBRATION PROCEDURE

The Core Memory Assembly has two calibration adjustments, labeled MEMORY VOLTS (R103) on diagram 8A and STROBE DELAY (R34) on diagram 8C. This procedure requires the use of Tektronix P7001 Checkout Software for use with PDP-11 (mini-computer).

EQUIPMENT REQUIRED

1 – Test Oscilloscope – Tektronix 7704A with 7B70 or 7B71 Time Base and 7A18 Dual-Trace Amplifier or equivalent instrument with CRT Readout.

2 – 10X Probes – P6053A or equivalent

1 – Digital Multimeter – 7D13 (with leads)

1 – Adjusting Tool – 10-inch length, screwdriver tip, insulated full length. (Tektronix Part No. 003-0001-00 recommended)

MEMORY VOLTS ADJUSTMENT

1. With the DPO power turned OFF, pull out and swing open the P7001 Front Panel (see Front Panel & Z Axis/Front Panel manual for instructions 070-1610-00).

Remove the Core Memory Assembly from the P7001, so that the thermistor (RT103) can reach ambient room temperature, be sure that the Memory is turned off for at least twenty minutes before calibration.

2. Install the Digital Multimeter (7D13) in the LEFT VERT compartment of the 7704A Test Oscilloscope.

Set the 7D13 MODE/RANGE switch to RESISTANCE 20 k Ω . Connect the 7D13 COM lead to the junction of R101-R105 (located near MEMORY VOLTS (R103) on the Memory Data Register board) and the HIGH lead to the V test point (near the front edge of the board). See Fig. 7.

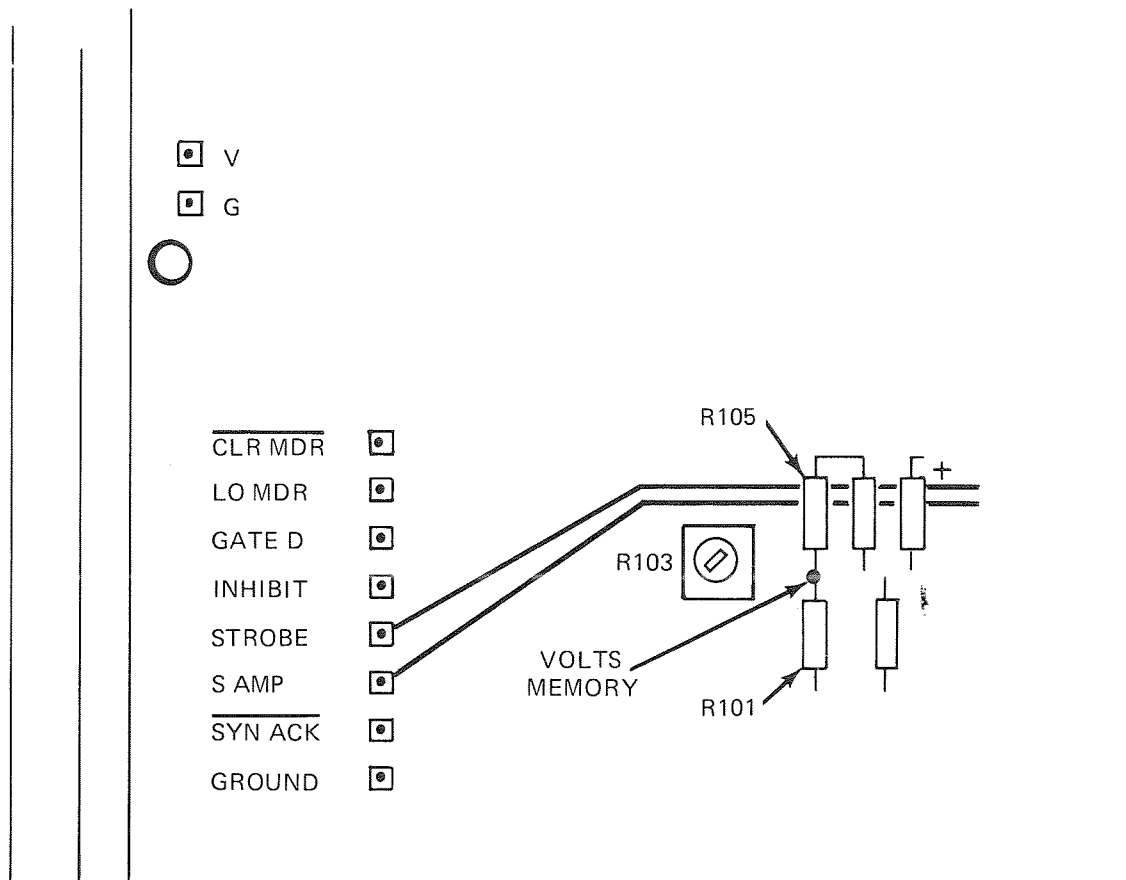


Fig. 7. Location of MEMORY VOLTS (R103) adjustment and test points.

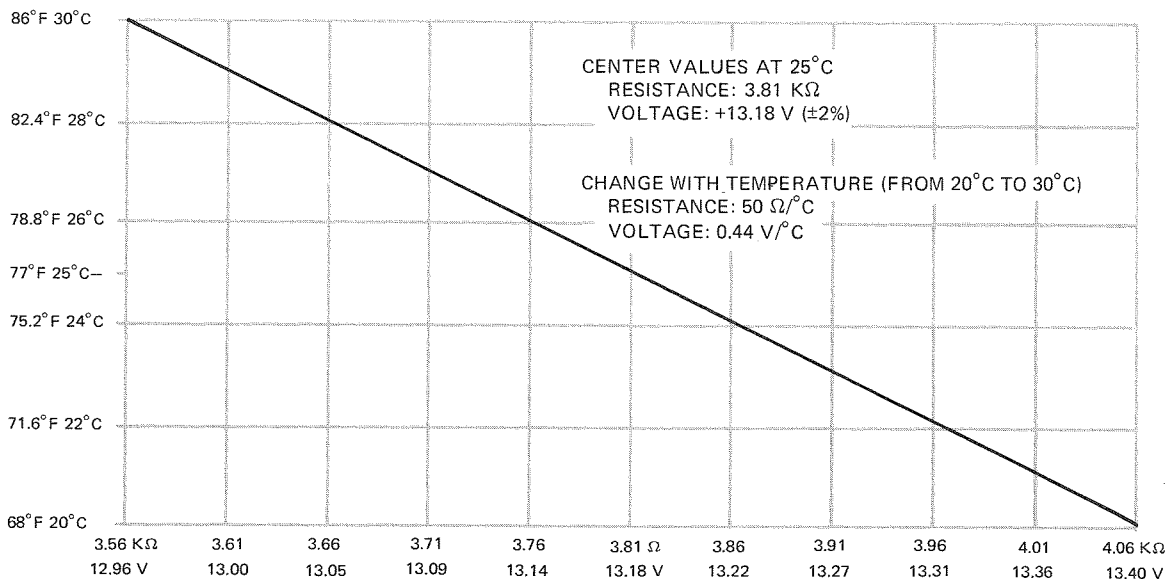


Fig. 8. Change of Memory Volts and resistance with temperature, over the range of 20°C to 30°C.

3. Note the resistance reading (on the Test Oscilloscope CRT). Adjust MEMORY VOLTS (R103) for a resistance reading of 3.81 kΩ.

NOTE

If the ambient room temperature is other than 25°C (77°F), refer to the graph in Fig. 8 for the correct resistance reading.

NOTE

The test leads must be connected in the polarity indicated in Step 2 to obtain the correct resistance reading.

4. Disconnect the leads from the test points and install the Core Memory Assembly in the P7001.

5. Reconnect the HIGH lead to the V test point and connect the COM lead to the Ground test point (located near the front edge of the board, bottom pin).

Set the 7D13 MODE/RANGE switch to DC VOLTS, 20V.

6. Turn the DPO power ON and immediately note the voltage reading on the Test Oscilloscope CRT.

If the ambient room temperature is 25°C, the voltage reading should be +13.18V ±2% (+12.92V to +13.44V).

The graph in Fig. 8 shows the center voltage for other ambient temperatures.

The voltage must be read immediately upon instrument turn-on, since the voltage level drops as the instrument warms up.

STROBE DELAY ADJUSTMENT

7. Remove the 7D13 from the Test Oscilloscope and install the 7A18 Dual-Trace Amplifier in its place (LEFT VERT compartment). Install the 7B70 or 7B71 Time Base unit in the B HORIZ compartment. Attach the 10X probes to the 7A18 CH 1 and CH 2 inputs.

8. Preset controls as follows:

DPO

P7001

DISPLAY SOURCE	MEMORY
DATA HANDLING	STORE
MEMORY LOCATION	A
PROGRAM CALL	none

DISPLAY UNIT

INTENSITY	Normal Brightness
READOUT	Normal Brightness
DPO ACQUISITION UNIT	Settings not critical

TEST OSCILLOSCOPE

TIME BASE

TIME/DIV	.02 μs
----------	--------

TRIGGERING

MODE	P-P AUTO
COUPLING	AC
SOURCE	INT
LEVEL/SLOPE	-SLOPE
MAGNIFIER	X1

DUAL-TRACE AMPLIFIER

CH 1 and CH 2

VOLTS/DIV	.1 (1 V with 10X Probes)
POSITION	Centered
COUPLING	AC
CH 1 POLARITY	+UP
DISPLAY MODE	ALT
TRIGGER SOURCE	CH 1
VERTICAL MODE	LEFT
HORIZONTAL MODE	B
B TRIGGER SOURCE	LEFT VERT
INTENSITY	Normal Brightness

9. Connect the probe, attached to the Test Oscilloscope CH 1 input, to the READ test point on the Memory Controller & Address Driver board. This test point is located on the front edge of the board, second pin down. See Fig. 9.

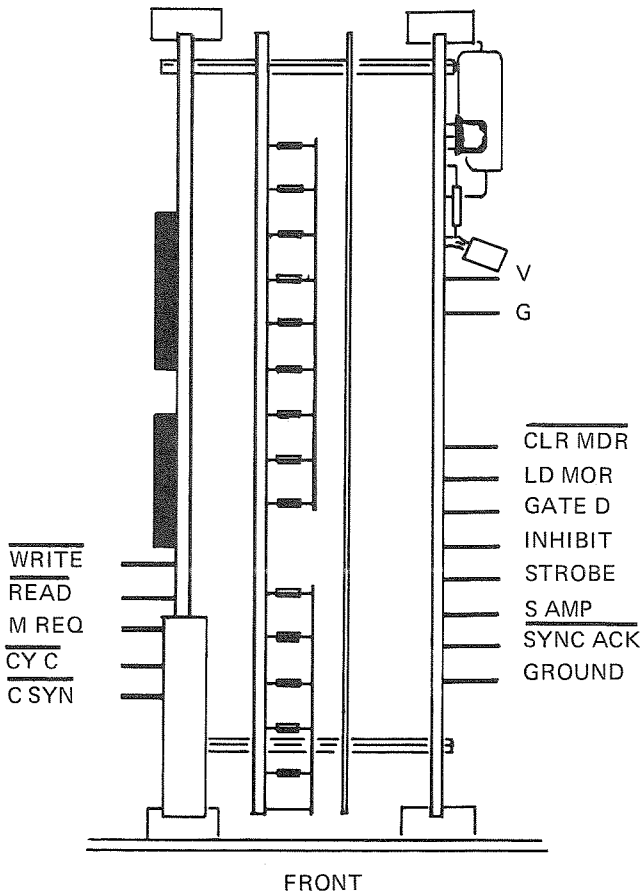


Fig. 9. Location of READ test point on the Memory Controller & Address Driver board.

Connect the Test Oscilloscope CH 2 input probe to the STROBE test point on the Memory Data Register board. This test point is located on the front edge of the board, fifth pin down in the lower row of pins (row of 8 pins). See Fig. 7.

10. The DPO should be connected to a controller (PDP-11 Computer) with a keyboard. P7001 Checkout Software should be loaded into the controller (PDP-11 mini computer). Select the WCT/S test procedure.

11. The trace on the DPO Display Unit should be off the top of the screen. DATA HANDLING should have changed to HOLD, and MEMORY LOCATION A, B, C, and D should be lit.

12. The Test Oscilloscope should now display the negative-going READ waveform and the positive STROBE waveform.

Center the CH 1 READ waveform vertically so that the 50% point on the falling edge of the waveform is on the graticule center line, and center the CH2 STROBE waveform so that its rising 50% point is also on the graticule centerline.

With the Test Oscilloscope Time-Base POSITION control, set the falling edge 50% point of the READ waveform on the left-most graticule line. See Fig. 10 for a typical display.

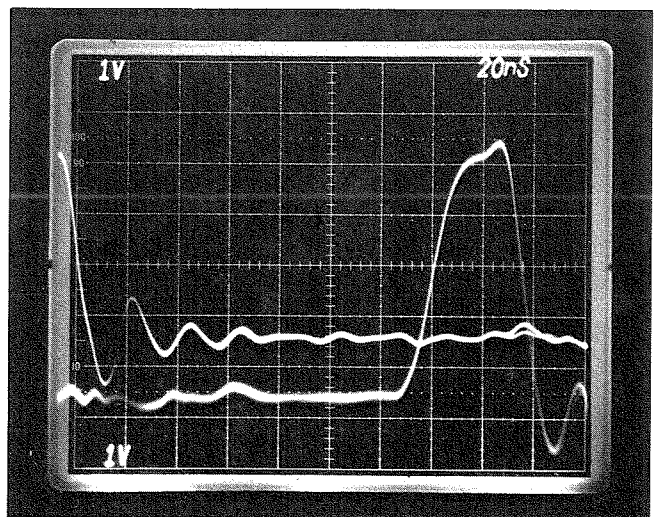


Fig. 10. READ and STROBE waveforms observed during adjustment of STROBE DELAY (R34).

13. Adjust STROBE DELAY (R52) slowly counter-clockwise (CCW) until Data Bit dropping just starts to occur, or until the CCW limit of the control is reached. (The STROBE DELAY adjustment is located on the Memory Controller & Address Driver board, approximately 5 inches back from the front edge, and approximately 1½ inches up from the bottom edge. Fig. 11 shows the location).

On the Test Oscilloscope, measure the time between the falling 50% point of READ and the rising 50% point of STROBE. Note the reading.

14. Observing the DPO screen, adjust STROBE DELAY slowly clockwise until Data Bit dropping just starts to occur. Dropping appears as negative-going spikes (coming down from the top of the screen) or as random Readout symbols on the screen. Fig. 12 shows a typical display with dropping occurring. Holding in the BEAM FINDER button on the Display Unit brings the trace down into the viewing

area, and may make the adjustment easier to observe. Fig. 13 shows the display with the BEAM FINDER depressed.

Measure the time between the falling 50% point of READ and the rising 50% point of STROBE at this setting. Note the reading.

15. Adjust STROBE DELAY to mid-way between the readings from Step 13 and Step 14. (Typically at approximately 140 ns).

16. Terminate the WCT/S by depressing CTRL and P simultaneously on the keyboard. Select the WCT test procedure (with no switch options).

The terminal response should be "ERRORS(S) OCCURRED FOR WORST CASE TEST (WCT)".

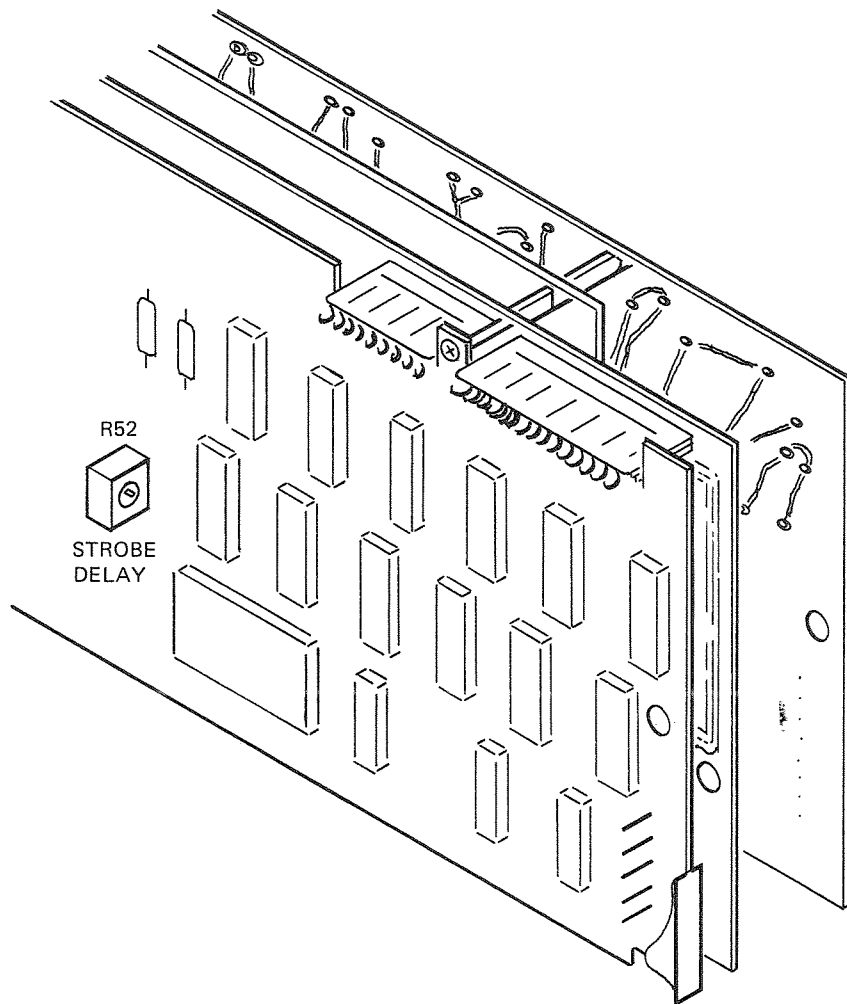


Fig. 11. Location of STROBE DELAY (R52) adjustment on the Memory Controller & Address Driver board.

SERVICING NOTES

The Core Memory Assembly consists of three circuit boards, physically mounted together into a "sandwich". Electrical contact between the assembly and other circuitry within the P7001 is achieved via edge-connectors, one at the rear edge of each of the two outside boards.

For convenience in troubleshooting, major test points are located at the front edge of the two outer boards. Using a test oscilloscope and referring to Figs. 4, 5, and 6 (in the Circuit Description), troubles may often be isolated before removing the assembly from the instrument.

To operate the Core Memory Assembly outside the instrument, two Card Extender Boards (Part No. 670-2924-00) are required.

1) Open the P7001 front panel (see Front Panel manual).

2) Turn the instrument power off.

3) Release the Core Memory Assembly by pressing down on the nylon release (located on the front lower edge). Carefully pull the assembly out and free of the slide tracks.

4) Install the two card extenders in place of the assembly and plug the assembly into the extenders.

CAUTION

Make sure that the assembly is not plugged in upside down.

The instrument power may now be turned on, with full access to the Memory Controller & Address Driver and Memory Data Register boards.

CAUTION

The Memory Core Mat (center board) is not intended to be serviced by the user. The unit is sealed by the supplier, and the warranty is void if maintenance is attempted by breaking the seal.

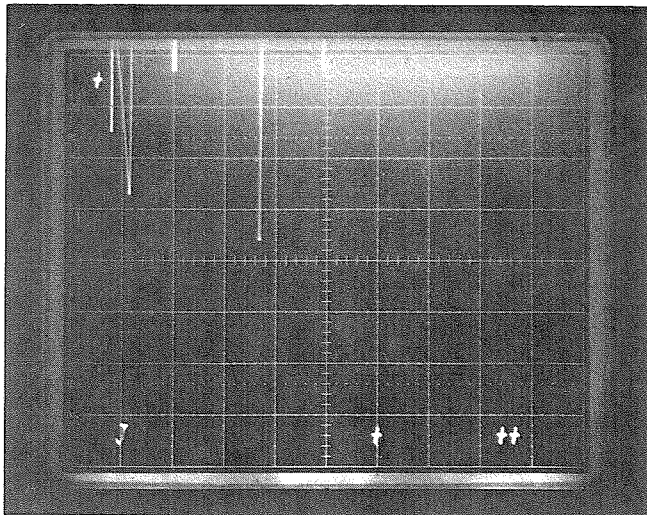


Fig. 12. Threshold of Data Bit dropping from Memory during adjustment of STROBE DELAY (R34).

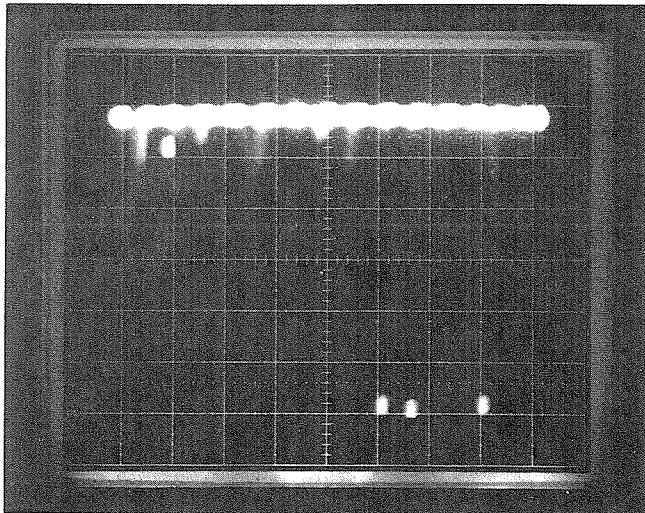


Fig. 13. Threshold of Data Bit dropping from Memory with BEAM FINDER depressed.

Select the ADR test routine. The response should be "O ERROR(S) OCCURRED FOR ADDRESS TEST (ADR).

This concludes calibration of the Core Memory Assembly.

REPLACEABLE PARTS LIST

PARTS ORDERING INFORMATION

Replacement parts are available from or through your local Tektronix, Inc. Field Office or representative.

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available, and to give you the benefit of the latest circuit improvements developed in our engineering department. It is therefore important, when ordering parts, to include the following information in your order: Part number, instrument type or number, serial number, and modification number if applicable.

If a part you have ordered has been replaced with a new or improved part, your local Tektronix, Inc. Field Office or representative will contact you concerning any change in part number.

Change information, if any, is located at the rear of this manual.

SPECIAL NOTES AND SYMBOLS

- X000 Part first added at this serial number
- 00X Part removed after this serial number

FIGURE AND INDEX NUMBERS

Items in this section are referenced by figure and index numbers to the illustrations.

INDENTATION SYSTEM

This mechanical parts list is indented to indicate item relationships. Following is an example of the indentation system used in the description column.

1	2	3	4	5	<i>Name & Description</i>
					<i>Assembly and/or Component</i>
					<i>Attaching parts for Assembly and/or Component</i>
				---*---	
					<i>Detail Part of Assembly and/or Component</i>
					<i>Attaching parts for Detail Part</i>
				---*---	
					<i>Parts of Detail Part</i>
					<i>Attaching parts for Parts of Detail Part</i>
				---*---	

Attaching Parts always appear in the same indentation as the item it mounts, while the detail parts are indented to the right. Indented items are part of, and included with, the next higher indentation. The separation symbol ---*--- indicates the end of attaching parts.

Attaching parts must be purchased separately, unless otherwise specified.

ITEM NAME

In the Parts List, an Item Name is separated from the description by a colon (:). Because of space limitations, an Item Name may sometimes appear as incomplete. For further Item Name identification, the U.S. Federal Cataloging Handbook H6-1 can be utilized where possible.

ABBREVIATIONS

"	INCH	FLH	FLAT HEAD	PWR	POWER
#	NUMBER SIZE	FLTR	FILTER	RCPT	RECEPTACLE
ACTR	ACTUATOR	FR	FRAME or FRONT	RES	RESISTOR
ADPTR	ADAPTER	FSTNR	FASTENER	RDG	RIGID
ALIGN	ALIGNMENT	FT	FOOT	RLF	RELIEF
AL	ALUMINUM	FXD	FIXED	RTNR	RETAINER
ASSEM	ASSEMBLED	GSKT	GASKET	SCH	SOCKET HEAD
ASSY	ASSEMBLY	HDL	HANDLE	SCOPE	OSCILLOSCOPE
ATTEN	ATTENUATOR	HEX	HEXAGON	SCR	SCREW
AWG	AMERICAN WIRE GAGE	HEX HD	HEXAGONAL HEAD	SE	SINGLE END
BD	BOARD	HEX SOC	HEXAGONAL SOCKET	SECT	SECTION
BRKT	BRACKET	HLCPS	HELICAL COMPRESSION	SEMICOND	SEMICONDUCTOR
BRS	BRASS	HLEXT	HELICAL EXTENSION	SHLD	SHIELD
BRZ	BRONZE	HV	HIGH VOLTAGE	SHLDR	SHOULDERED
BSHG	BUSHING	IC	INTEGRATED CIRCUIT	SKT	SOCKET
CAB	CABINET	ID	INSIDE DIAMETER	SL	SLIDE
CAP	CAPACITOR	IDENT	IDENTIFICATION	SLFLKG	SELF-LOCKING
CER	CERAMIC	IMPLR	IMPELLER	SLVG	SLEEVEING
CHAS	CHASSIS	IN	INCH	SPR	SPRING
CKT	CIRCUIT	INCAND	INCANDESCENT	SQ	SQUARE
COMP	COMPOSITION	INSUL	INSULATOR	SST	STAINLESS STEEL
CONN	CONNECTOR	INTL	INTERNAL	STL	STEEL
COV	COVER	LPHLDR	LAMPHOLDER	SW	SWITCH
CPLG	COUPLING	MACH	MACHINE	T	TUBE
CRT	CATHODE RAY TUBE	MECH	MECHANICAL	TERM	TERMINAL
DEG	DEGREE	MTG	MOUNTING	THD	THREAD
DWR	DRAWER	NIP	NIPPLE	THK	THICK
ELCTRN	ELECTRON	NON WIRE	NOT WIRE WOUND	TNSN	TENSION
ELEC	ELECTRICAL	OB	ORDER BY DESCRIPTION	TPG	TAPPING
ELCTLT	ELECTROLYTIC	OD	OUTSIDE DIAMETER	TRH	TRUSS HEAD
ELEM	ELEMENT	OVH	OVAL HEAD	V	VOLTAGE
EPL	ELECTRICAL PARTS LIST	PH BRZ	PHOSPHOR BRONZE	VAR	VARIABLE
EQPT	EQUIPMENT	PL	PLAIN or PLATE	W/	WITH
EXT	EXTERNAL	PLSTC	PLASTIC	WSHR	WASHER
FIL	FILLISTER HEAD	PN	PART NUMBER	XFMR	TRANSFORMER
FLEX	FLEXIBLE	PNH	PAN HEAD	XSTR	TRANSISTOR

CROSS INDEX MFR. CODE NUMBER TO MANUFACTURER

MFR.CODE	MANUFACTURER	ADDRESS	CITY, STATE, ZIP
00853	Sangamo Electric Co., S. Carolina Div.	P. O. Box 128	Pickens, SC 29671
01121	Allen-Bradley Co.	1201 2nd St. South	Milwaukee, WI 53204
01295	Texas Instruments, Inc., Components Group	P. O. Box 5012	Dallas, TX 75222
02735	RCA Corp., Solid State Division	Route 202	Somerville, NY 08876
04713	Motorola, Inc., Semiconductor Products Div.	5005 E. McDowell Rd.	Phoenix, AZ 85008
07263	Fairchild Semiconductor, A Div. of Fairchild Camera and Instrument Corp.	464 Ellis St.	Mountain View, CA 94040
07910	Teledyne Semiconductor	12515 Chadron Ave.	Hawthorne, CA 90250
18324	Signetics Corp.	811 E. Arques	Sunnyvale, CA 94086
27014	National Semi-Conductor Corp.	2900 San Ysidro Way	Santa Clara, CA 95051
56289	Sprague Electric Co.		North Adams, MA 01247
72982	Erie Technological Products, Inc.	644 W. 12th St.	Erie, PA 16512
75042	TRW Electronic Components, IRC Fixed Resistors, Philadelphia Division	401 N. Broad St.	Philadelphia, PA 19108
80009	Tektronix, Inc.	P. O. Box 500	Beaverton, OR 97005
80294	Bourns, Inc., Instrument Div.	6135 Magnolia Ave.	Riverside, CA 92506
90201	Mallory Capacitor Co., Div. of P. R. Mallory Co., Inc.	3029 E. Washington St.	Indianapolis, IN 46206
91637	Dale Electronics, Inc.	P. O. Box 609	Columbus, NB 68601
18677	Scanbe Mfg. Corp.	3445 Fletcher Ave.	El Monte, CA 91731
22526	Berg Electronics, Inc.	Youk Expressway	New Cumberland, PA 17070
80009	Tektronix, Inc.	P. O. Box 500	Beaverton, OR 97005
83385	Central Screw, Co.	2530 Crescent Dr.	Broadview, IL 60153

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
AA	672-0057-00		CKT CARD ASSY:MEMORY	80009	672-0057-00
		INCLUDES:			
	670-2384-00		CKT CARD ASSY:MEMORY DATA REGISTER	80009	670-2384-00
	670-2386-00		CKT CARD ASSY:CONTROLLER/ADDRESS DRIVERS	80009	670-2386-00
	670-2384-00		CKT CARD ASSY:MEMORY DATA REGISTER	80009	670-2384-00
C01	290-0519-00		CAP.,FXD,ELCTLT:100UF,20%,20V	56289	196D107X0020MA3
C02	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C03	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C04	283-0077-00		CAP.,FXD,CER DI:330PF,5%,500V	56289	40C94A3
C11	290-0527-00		CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M020FL
C12	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C13	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C21	290-0527-00		CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M020FL
C22	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C23	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C32	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C33	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C41	290-0527-00		CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M020FL
C42	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C43	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C52	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C53	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C61	290-0527-00		CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M020FL
C62	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C63	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C72	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C73	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C81	290-0527-00		CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M020FL
C82	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C83	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C92	283-0000-00		CAP.,FXD,CER DI:0.001UF,+100-0%,500V	56289	40C626
C93	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	56289	20C205A1
C101	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C103	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C105	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C107	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C109	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C110	290-0524-00		CAP.,FXD,ELCTLT:4.7UF,20%,10V	90201	TDC475M010EL
C111	283-0080-00		CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C112	283-0080-00		CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C113	290-0531-00		CAP.,FXD,ELCTLT:100UF,20%,10V	90201	TDC107M010CL
C115	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C117	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C119	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C121	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C123	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C125	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C127	290-0531-00		CAP.,FXD,ELCTLT:100UF,20%,10V	90201	TDC107M010CL
C129	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C131	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C133	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C135	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C137	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C139	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365
C141	283-0023-00		CAP.,FXD,CER DI:0.1UF,+80-20%,10V	56289	20C365

Electrical Parts List—672-0057-00

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
C143	283-0023-00		CAP., FXD, CER DI:0.1UF, +80-20%, 10V	56289	20C365
C145	283-0023-00		CAP., FXD, CER DI:0.1UF, +80-20%, 10V	56289	20C365
CR02	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR03	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR12	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR13	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR22	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR23	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR32	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR33	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR42	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR43	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR52	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR53	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR62	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR63	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR72	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR73	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR82	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR83	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR92	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
CR93	152-0333-00		SEMICON D DEVICE: SILICON, 55V, 200MA	07263	FDH6012
Q01	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q02	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q11	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q12	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q21	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q22	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q31	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q32	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q41	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q42	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q51	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q52	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q61	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q62	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q71	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q72	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q81	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q82	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
Q91	151-0260-00		TRANSISTOR: SILICON, NPN	02735	2N5189
Q92	151-0188-00		TRANSISTOR: SILICON, PNP	04713	2N3906
R01	308-0763-00		RES., FXD, WW:13.7 OHM, 1%, 5W	91637	NS-5-K13R70F
R02	315-0101-00		RES., FXD, COMP:100 OHM, 5%, 0.25W	01121	CB1015
R03	315-0101-00		RES., FXD, COMP:100 OHM, 5%, 0.25W	01121	CB1015
R04	315-0750-00		RES., FXD, COMP:75 OHM, 5%, 0.25W	01121	CB7505
R05	315-0911-00		RES., FXD, COMP:910 OHM, 5%, 0.25W	01121	CB9115
R07	315-0201-00		RES., FXD, COMP:200 OHM, 5%, 0.25W	01121	CB2015
R08	315-0391-00		RES., FXD, COMP:390 OHM, 5%, 0.25W	01121	CB3915
R11	308-0763-00		RES., FXD, WW:13.7 OHM, 1%, 5W	91637	NS-5-K13R70F
R12	315-0101-00		RES., FXD, COMP:100 OHM, 5%, 0.25W	01121	CB1015
R13	315-0101-00		RES., FXD, COMP:100 OHM, 5%, 0.25W	01121	CB1015
R14	315-0750-00		RES., FXD, COMP:75 OHM, 5%, 0.25W	01121	CB7505
R15	315-0911-00		RES., FXD, COMP:910 OHM, 5%, 0.25W	01121	CB9115
R17	315-0201-00		RES., FXD, COMP:200 OHM, 5%, 0.25W	01121	CB2015
R18	315-0391-00		RES., FXD, COMP:390 OHM, 5%, 0.25W	01121	CB3915
R21	308-0763-00		RES., FXD, WW:13.7 OHM, 1%, 5W	91637	NS-5-K13R70F
R22	315-0101-00		RES., FXD, COMP:100 OHM, 5%, 0.25W	01121	CB1015
R23	315-0101-00		RES., FXD, COMP:100 OHM, 5%, 0.25W	01121	CB1015

Ckt No.	Tektronix Part No.	Serial/Model No.		Name & Description	Mfr	
		Eff	Dscont		Code	Mfr Part Number
R24	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R25	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R27	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R28	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R31	308-0763-00			RES.,FXD,WW:13.7 OHM,1%,5W	91637	NS-5-K13R70F
R32	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R33	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R34	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R35	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R37	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R38	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R41	308-0763-00			RES.,FXD,WW:13.7 OHM,1%,5W	91637	NS-5-K13R70F
R42	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R43	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R44	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R45	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R47	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R48	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R51	308-0763-00			RES.,FXD,WW:13.7 OHM,1%,5W	91637	NS-5-K13R70F
R52	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R53	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R54	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R55	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R57	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R58	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R61	308-0763-00			RES.,FXD,WW:13.7 OHM,1%,5W	91637	NS-5-K13R70F
R62	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R63	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R64	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R65	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R67	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R68	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R71	308-0763-00			RES.,FXD,WW:13.7 OHM,1%,5W	91637	NS-5-K13R70F
R72	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R73	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R74	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R75	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R77	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R78	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R81	308-0763-00			RES.,FXD,WW:13.7 OHM,1%,5W	91637	NS-5-K13R70F
R82	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R83	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R84	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R85	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R87	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R88	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R91	308-0763-00			RES.,FXD,WW:13.7 OHM,1%,5W	91637	NS-5-K13R70F
R92	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R93	315-0101-00			RES.,FXD,COMP:100 OHM,5%,0.25W	01121	CB1015
R94	315-0750-00			RES.,FXD,COMP:75 OHM,5%,0.25W	01121	CB7505
R95	315-0911-00			RES.,FXD,COMP:910 OHM,5%,0.25W	01121	CB9115
R97	315-0201-00			RES.,FXD,COMP:200 OHM,5%,0.25W	01121	CB2015
R98	315-0391-00			RES.,FXD,COMP:390 OHM,5%,0.25W	01121	CB3915
R101	321-0266-00			RES.,FXD,FILM:5.76K OHM,1%,0.125W	75042	CEAT0-5761F
R102	315-0151-00			RES.,FXD,COMP:150 OHM,5%,0.25W	01121	CB1515
R103	311-1226-00			RES.,VAR, NONWIR:2.5K OHM,20%,0.50W	80294	3389F-P31-252
R104	315-0102-00			RES.,FXD,COMP:1K OHM,5%,0.25W	01121	CB1025
R105	321-0293-00			RES.,FXD,FILM:11K OHM,1%,0.125W	75042	CEAT0-1102F
R106	315-0102-00			RES.,FXD,COMP:1K OHM,5%,0.25W	01121	CB1025
R107	321-0265-00			RES.,FXD,FILM:5.62K OHM,1%,0.125W	75042	CEAT0-5621F

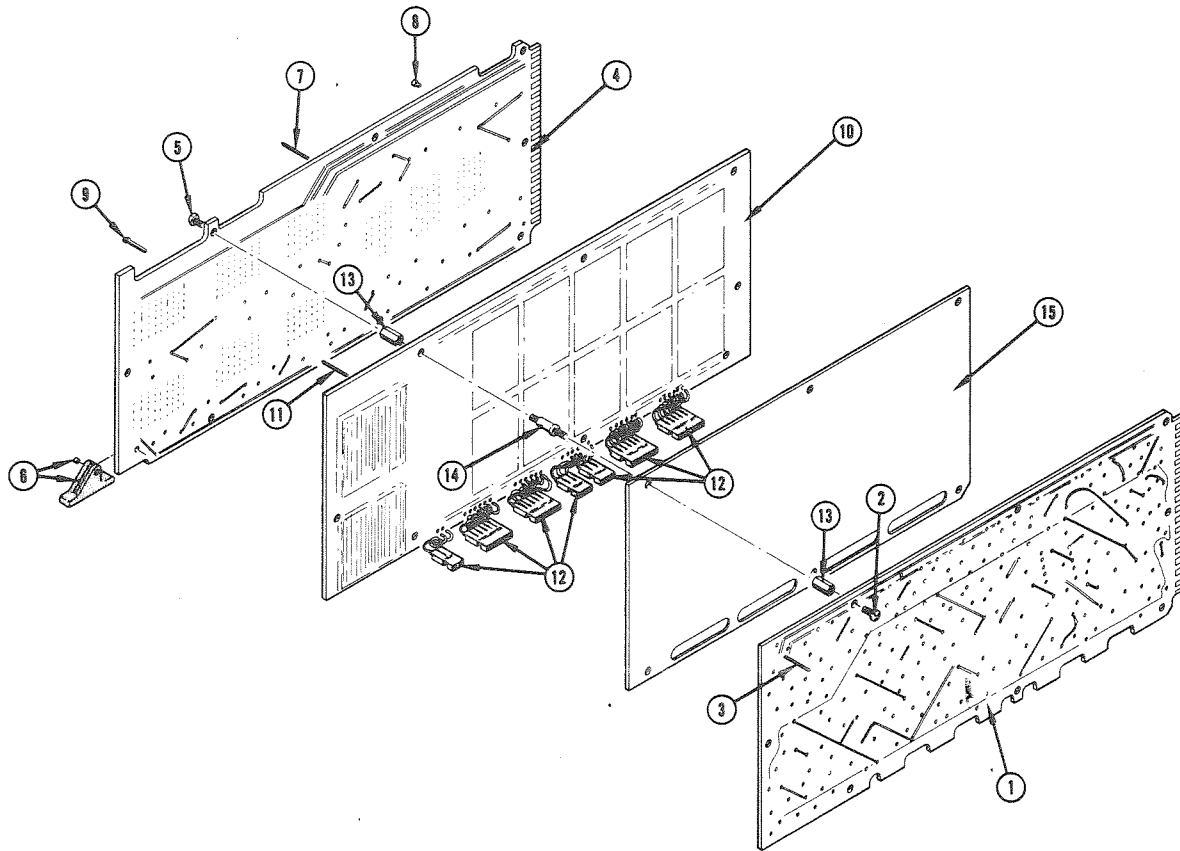
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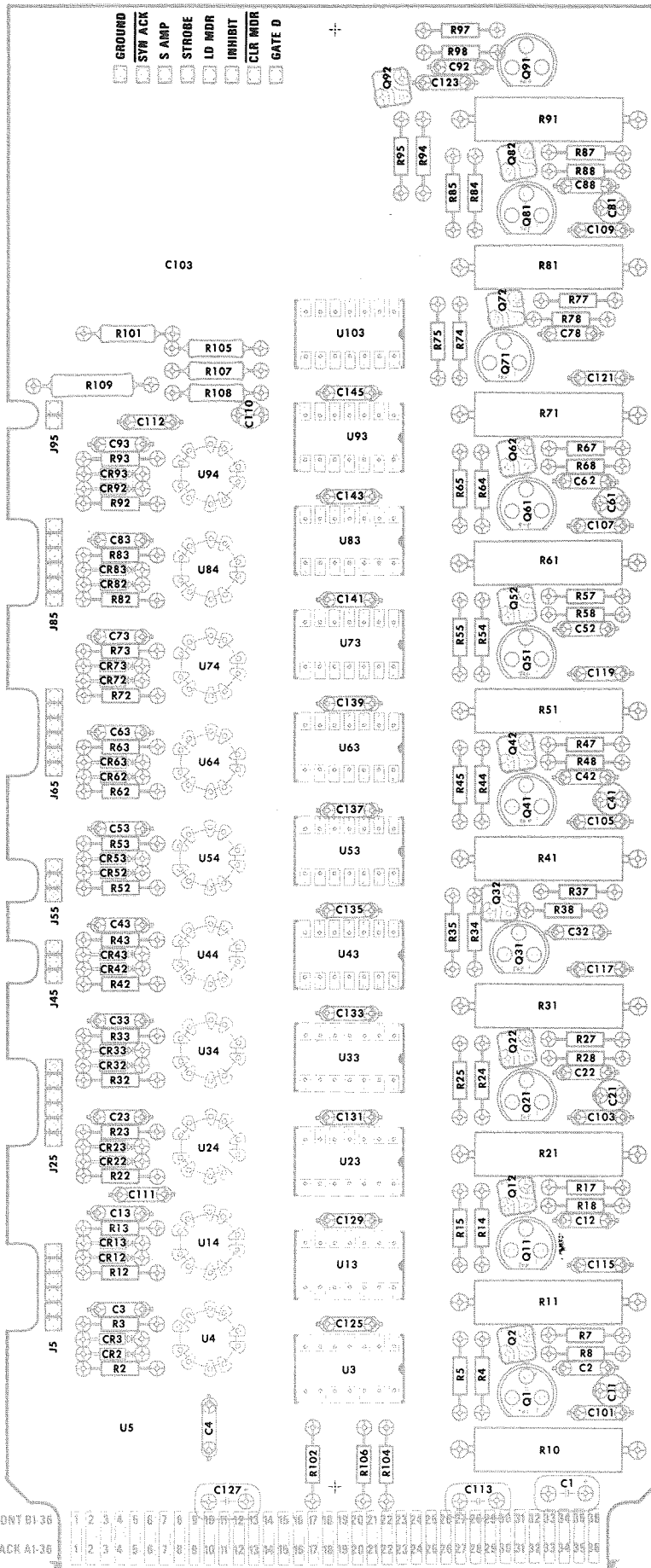
Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
R108	315-0100-00			RES.,FXD,COMP:10 OHM,5%,0.25W	01121	CB1005
U03	156-0145-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND BFR	01295	SN7438N
U04	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U05	156-0150-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND BFR	01295	SN7437N
U13	156-0041-00			MICROCIRCUIT,DI:DUAL D-TYPE FLIP-FLOP	27014	DM7474N
U14	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U23	156-0112-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND GATE	01295	SN7426N
U24	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U33	156-0041-00			MICROCIRCUIT,DI:DUAL D-TYPE FLIP-FLOP	27014	DM7474N
U34	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U43	156-0145-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND BFR	01295	SN7438N
U44	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U53	156-0041-00			MICROCIRCUIT,DI:DUAL D-TYPE FLIP-FLOP	27014	DM7474N
U54	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U63	156-0112-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND GATE	01295	SN7426N
U64	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U73	156-0041-00			MICROCIRCUIT,DI:DUAL D-TYPE FLIP-FLOP	27014	DM7474N
U74	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U83	156-0145-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND BFR	01295	SN7438N
U84	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U93	156-0041-00			MICROCIRCUIT,DI:DUAL D-TYPE FLIP-FLOP	27014	DM7474N
U94	156-0207-00			MICROCIRCUIT,DI:SGL CORE MEM SENS AMPL	04713	MC1440G
U103	156-0112-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND GATE	01295	SN7426N
	670-2386-00			CKT CARD ASSY:MEMORY CONTROL/ADDRESS DRIVER	80009	670-2386-00
C11	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C12	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C13	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C14	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C15	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C16	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C17	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C18	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C19	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C20	290-0531-00			CAP.,FXD,ELCTLT:100UF,20%,10V	90201	TDC107M010CL
C24	283-0630-00			CAP.,FXD,MICA D:110PF,1%,100V	00853	D15-1E111F0
C25	283-0680-00			CAP.,FXD,MICA D:330PF,1%,500V	00853	D15-5E331F0
C33	283-0630-00			CAP.,FXD,MICA D:110PF,1%,100V	00853	D15-1E111F0
C34	283-0648-00			CAP.,FXD,MICA D:10PF,5%,100V	00853	D15-1C100D0
C36	283-0103-00	B010100	B020145	CAP.,FXD,CER DI:180PF,5%,500V	56289	40C393A1
C36	283-0047-00	B020146		CAP.,FXD,CER DI:47UF,20%,50V	72982	861-000Z5D0270J
C41	283-0067-00			CAP.,FXD,CER DI:0.001UF,10%,200V	72982	835-515Z5D-102M
C42	283-0067-00			CAP.,FXD,CER DI:0.001UF,10%,200V	72982	835-515Z5D-102M
C43	283-0150-00			CAP.,FXD,CER DI:650PF,5%,200V	72982	835-515B651J
C44	283-0028-00			CAP.,FXD,CER DI:0.0022UF,20%,50V	56289	55C144
C45	283-0028-00			CAP.,FXD,CER DI:0.0022UF,20%,50V	56289	55C144
C46	283-0067-00			CAP.,FXD,CER DI:0.001UF,10%,200V	72982	835-515Z5D-102M
C54	283-0142-00			CAP.,FXD,CER DI:0.0027UF,5%,200V	72982	875-030Y5D0272J
C55	283-0060-00			CAP.,FXD,CER DI:100PF,5%,200V	72982	855-535U2J101J
C61	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C62	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C63	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C64	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C65	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C66	283-0080-00			CAP.,FXD,CER DI:0.022UF,+80-20%,25V	72982	5835-515E223Z
C71	283-0111-00			CAP.,FXD,CER DI:0.1UF,20%,50V	72982	8131-050651104M
C72	290-0519-00			CAP.,FXD,ELCTLT:100UF,20%,20V	56289	196D107X0020MA3

Ckt No.	Tektronix	Serial/Model No.		Name & Description	Mfr	Mfr Part Number
	Part No.	Eff	Dscont		Code	
C73	283-0116-00			CAP.,FXD,CER DI:820PF,5%,500V	72982	801-547B821J
C74	283-0111-00			CAP.,FXD,CER DI:0.1UF,20%,50V	72982	8131-050651104M
C75	290-0519-00			CAP.,FXD,ELCTLT:100UF,20%,20V	56289	196D107X0020MA3
C76	283-0116-00			CAP.,FXD,CER DI:820PF,5%,500V	72982	801-547B821J
CR35	152-0141-02			SEMICONV DEVICE:SILICON,30V,150MA	07910	CD8220
Q50	151-0301-00			TRANSISTOR:SILICON,PNP	04713	2N2907A
Q51	151-0302-00			TRANSISTOR:SILICON,NPN	04713	2N2222A
R22	315-0102-00			RES.,FXD,COMP:1K OHM,5%,0.25W	01121	CB1025
R23	315-0102-00			RES.,FXD,COMP:1K OHM,5%,0.25W	01121	CB1025
R24	321-0277-00			RES.,FXD,FILM:7.5K OHM,1%,0.125W	75042	CEAT0-7501F
R25	321-0261-00			RES.,FXD,FILM:5.11K OHM,1%,0.125W	75042	CEAT0-5111F
R33	321-0277-00			RES.,FXD,FILM:7.5K OHM,1%,0.125W	75042	CEAT0-7501F
R34	311-1238-00			RES.,VAR,NONWIR:5K OHM,10%,0.50W	80294	3386X-T07-502
R35	315-0181-00			RES.,FXD,COMP:180 OHM,5%,0.25W	01121	CB1815
R37	315-0512-00			RES.,FXD,COMP:5.1K OHM,5%,0.25W	01121	CB5125
R43	315-0510-00			RES.,FXD,COMP:51 OHM,5%,0.25W	01121	CB5105
R44	315-0561-00			RES.,FXD,COMP:560 OHM,5%,0.25W	01121	CB5615
R51	302-0221-00			RES.,FXD,COMP:220 OHM,10%,0.50W	01121	EB2211
R52	302-0221-00			RES.,FXD,COMP:220 OHM,10%,0.50W	01121	EB2211
R53	315-0181-00			RES.,FXD,COMP:180 OHM,5%,0.25W	01121	CB1815
R54	315-0222-00			RES.,FXD,COMP:2.2K OHM,5%,0.25W	01121	CB2225
R55	315-0223-00			RES.,FXD,COMP:22K OHM,5%,0.25W	01121	CB2235
R71	315-0132-00			RES.,FXD,COMP:1.3K OHM,5%,0.25W	01121	CB1325
R72	308-0723-00			RES.,FXD,WW:27.4 OHM,1%,5W	91637	NS-5B-K28R00F
R73	315-0100-00			RES.,FXD,COMP:10 OHM,5%,0.25W	01121	CB1005
R75	308-0723-00			RES.,FXD,WW:27.4 OHM,1%,5W	91637	NS-5B-K28R00F
R76	315-0100-00			RES.,FXD,COMP:10 OHM,5%,0.25W	01121	CB1005
U00	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U01	156-0030-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND GATE	01295	SN7400N
U02	156-0041-00			MICROCIRCUIT,DI:DUAL D-TYPE FLIP-FLOP	27014	DM7474N
U10	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U11	156-0043-00			MICROCIRCUIT,DI:2-INPUT NOR GATE	01295	SN7402N
U12	156-0172-00			MICROCIRCUIT,DI:DUAL MONOSTABLE MV	01295	SN74123N
U20	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U30	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U31	156-0163-00			MICROCIRCUIT,DI:TPL 3-INPUT POS AND GATE	18324	N7411A
U32	156-0172-00			MICROCIRCUIT,DI:DUAL MONOSTABLE MV	01295	SN74123N
U40	156-0061-00			MICROCIRCUIT,DI:SGL BCD TO DECIMAL DCDR	01295	SN7442N
U41	156-0047-00			MICROCIRCUIT,DI:3-INPUT NAND GATE	01295	SN7410N
U42	156-0058-00			MICROCIRCUIT,DI:HEX. INVERTER	04713	MC7404P
U50	156-0041-00			MICROCIRCUIT,DI:DUAL D-TYPE FLIP-FLOP	27014	DM7474N
U51	156-0150-00			MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND BFR	01295	SN7437N
U52	156-0371-00			MICROCIRCUIT,DI:QUAD 2-INPUT NAND ST	01295	SN74132N
U60	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U61	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U62	156-0250-00			MICROCIRCUIT,DI:10 BIT BUFFER REG	18324	N8202N
U70	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U71	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U80	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U81	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U82	156-0061-00			MICROCIRCUIT,DI:SGL BCD TO DECIMAL DCDR	01295	SN7442N
U90	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U91	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U92	156-0061-00			MICROCIRCUIT,DI:SGL BCD TO DECIMAL DCDR	01295	SN7442N
U100	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U101	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U102	156-0061-00			MICROCIRCUIT,DI:SGL BCD TO DECIMAL DCDR	01295	SN7442N
U110	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N
U111	156-0206-00			MICROCIRCUIT,DI:DUAL SCE/SINK MEM DRVR PR	01295	SN75325N

Mechanical Parts List—672-0057-00

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Model No. Dscont	Qty	Name & Description					Mfr Code	Mfr Part Number
					1	2	3	4	5		
1-	672-0057-00			1	CKT CARD ASSY:MEMORY					80009	672-0057-00
-1	-----			1	. CKT CARD ASSY:MEMORY DATA REGISTER (ATTACHING PARTS)						
-2	211-0008-00			6	. SCREW,MACHINE:4-40 X 0.25 INCH,PNH STL					83385	OBD
-3	131-0608-00			32	. . CONTACT,ELEC:0.365 INCH LONG					22526	47357
	131-0589-00			10	. . CONTACT,ELEC:0.46 INCH LONG					22526	47350
-4	-----			1	. CKT CARD ASSY:CONTROLLER ADDRESS DRIVERS (ATTACHING PARTS)						
-5	211-0008-00			6	. SCREW,MACHINE:4-40 X 0.25 INCH,PNH STL					83385	OBD
-6	105-0144-00			1	. . EJECTOR,CKT CRD:W/PIN					18677	S203
-7	131-0589-00			5	. . CONTACT,ELEC:0.46 INCH LONG					22526	47350
-8	136-0252-04			30	. . SOCKET,PIN CONN:0.188 INCH LONG					11526	75060-001
-9	214-0579-00			5	. . TERM.,TEST PT:0.40 INCH LONG					80009	214-0579-00
-10	119-0290-00			1	. MEMORY CORE:					80009	119-0290-00
-11	131-0608-00			50	. . CONTACT,ELEC:0.365 INCH LONG					22526	47357
-12	175-1341-00			1	. CABLE,ELEC:					80009	175-1341-00
-13	129-0353-00			12	. . POST,METALLIC:4-40 X 0.188 HEX.X0.385" L					80009	129-0353-00
-14	129-0341-00			6	. . POST,METALLIC:4-40 X 0.188OD X 0.45" L					80009	129-0341-00
-15	337-1559-00			1	. . SHIELD,CKT BD:					80009	337-1559-00





GROUND
 SYN ACK
 S AMP
 STROBE
 LD MDR
 INHIBIT
 CLR MDR
 GATE D

+

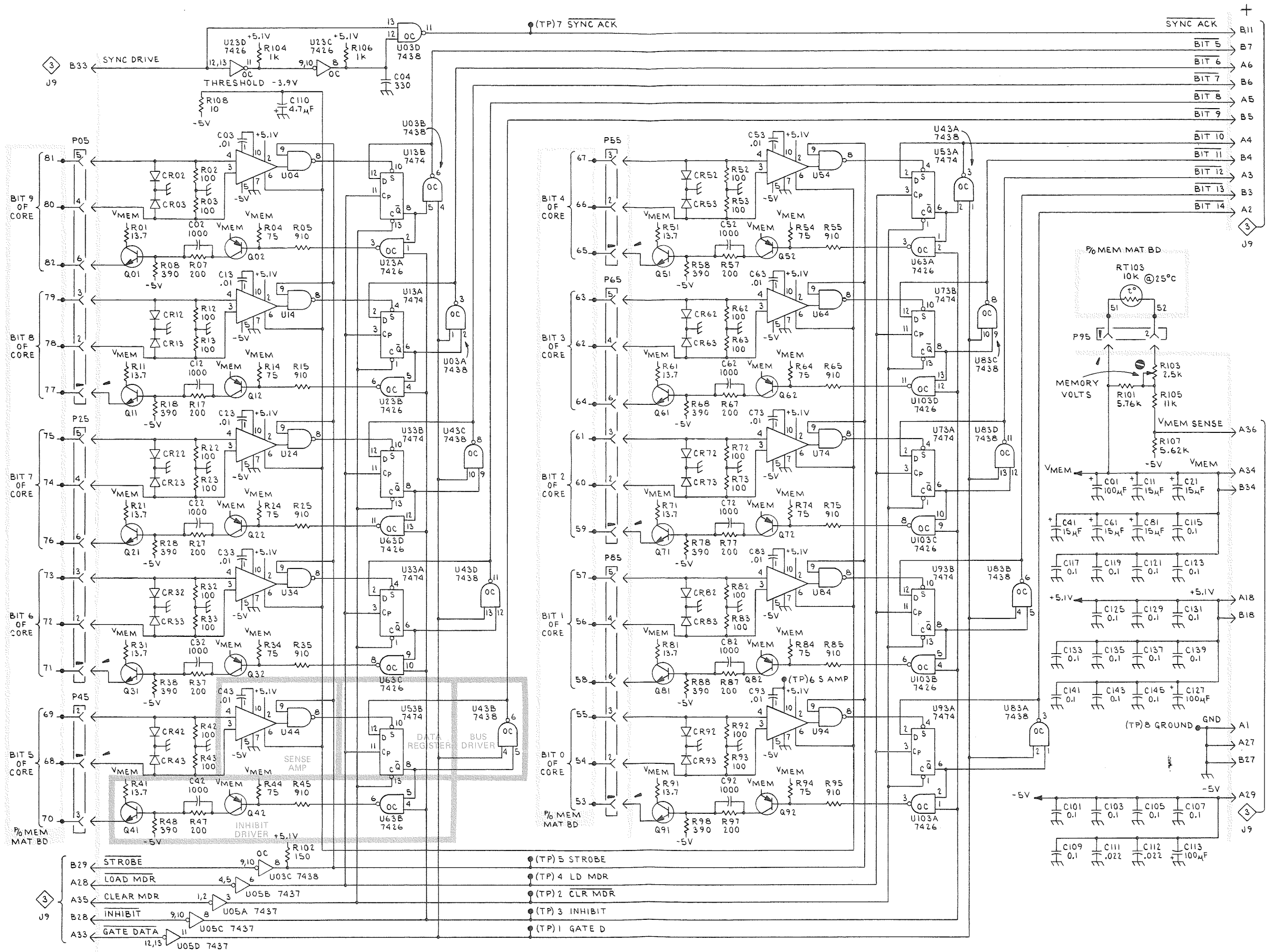
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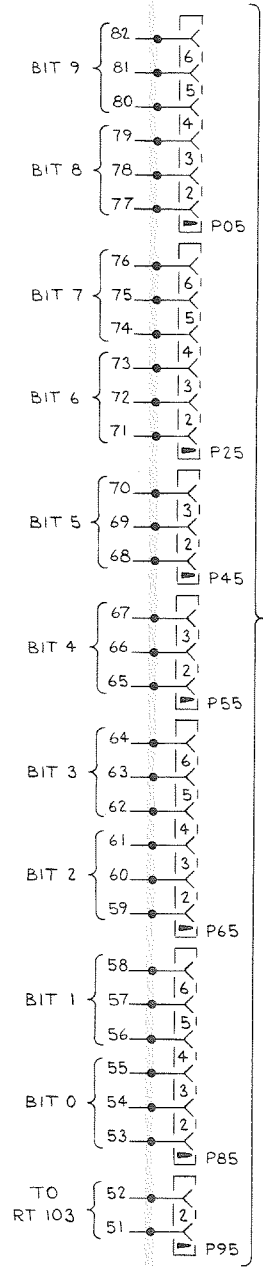
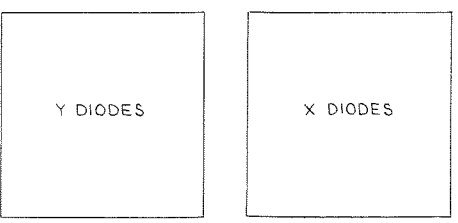
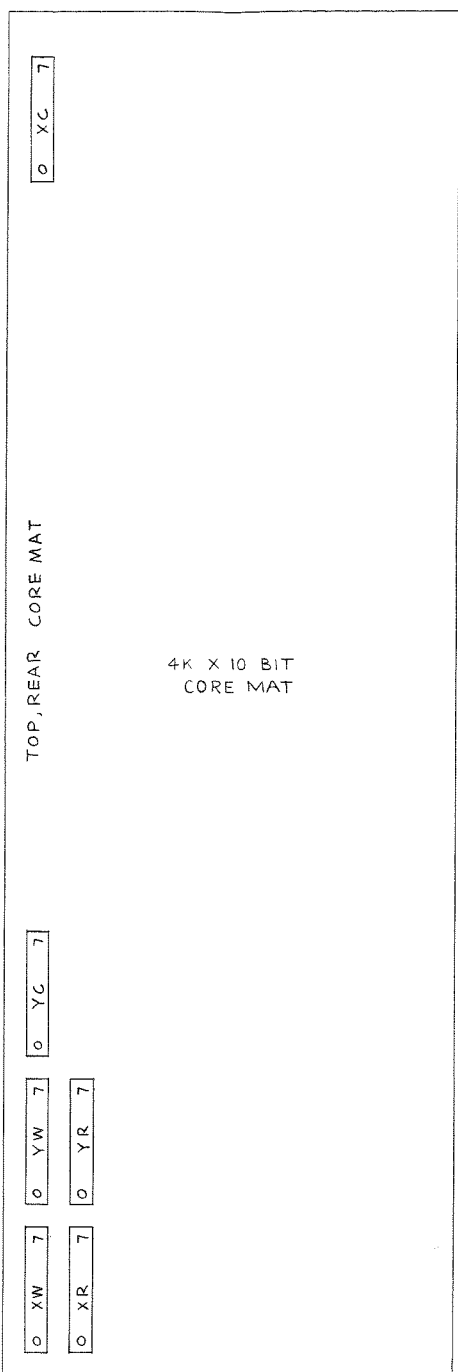
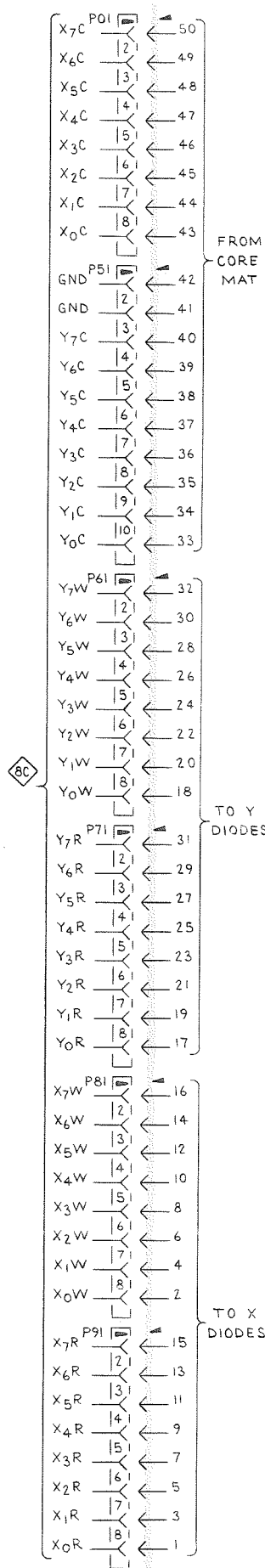
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BACK A1-30

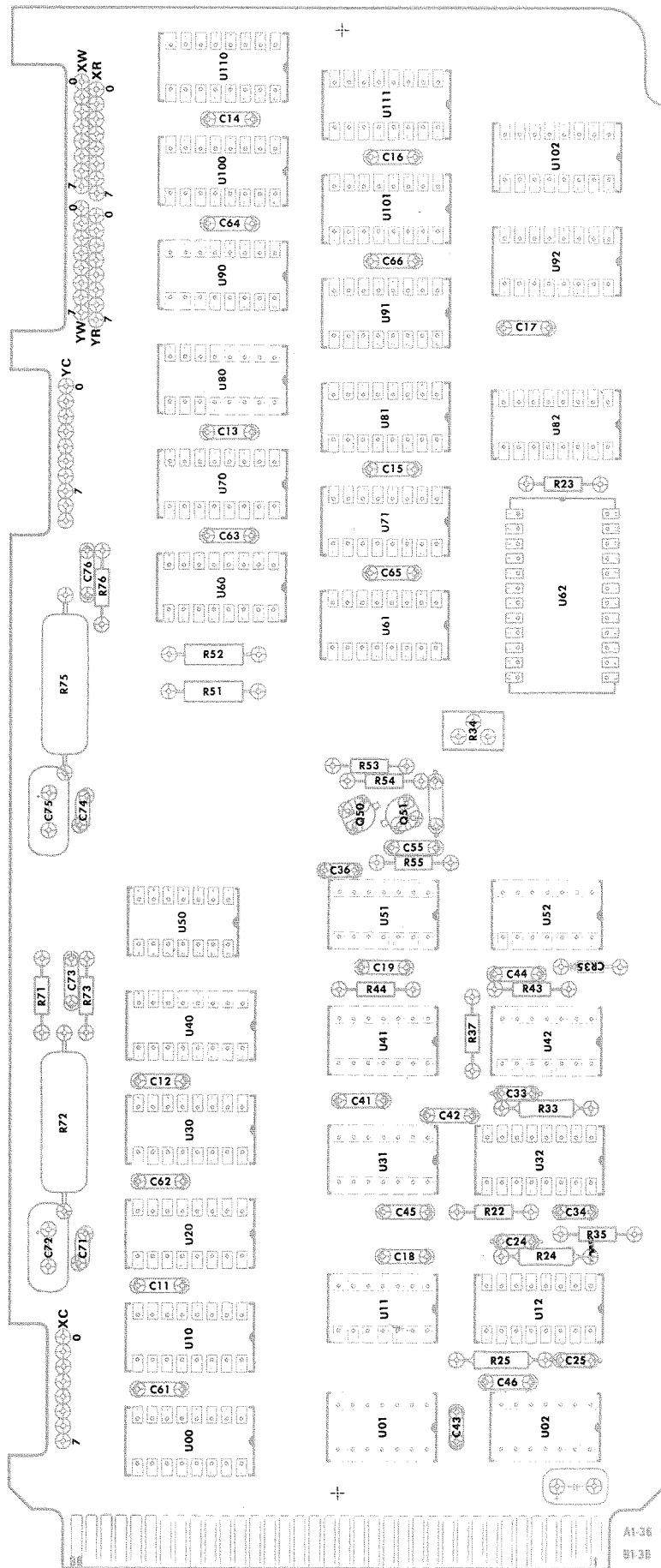
MEMORY DATA REGISTER COMPONENT LOCATION

D P O

A







CONTROLLER & ADDRESS DRIVE COMPONENT LOCATION

(A)

