Service Manual

SONY
Tektronix

370A
Programmable Curve Tracer

070-7780-06

Warning
The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to the Safety Summary prior to performing service.

CE

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WARRANTY

Tektronix warrants that this product will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If any such product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, with shipping charges prepaid. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; or c) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

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SONY Tektronix

EC Declaration of Conformity

We

Tektronix Holland N.V.
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8444 AB Heerenveen
The Netherlands

declare under sole responsibility that the

370A Programmable Curve Tracer

meets the intent of Directive 89/336/EEC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the official Journal of the European Communities:

EN 55011 Class B Radiated and Conducted Emissions

EN 50081-1 Emissions:

EN 60555-2 AC Power Line Harmonic Emissions

EN 50082-1 Immunity:

IEC 801-2 Electrostatic Discharge Immunity
IEC 801-3 RF Electromagnetic Field Immunity
IEC 801-4 Electrical Fast Transient/Burst Immunity
IEC 801-5 Power Line Surge Immunity

Safety Summary

The Safety Summary is a listing of all safety precautions in the manual. These precautions are gathered here in a single place for convenient review of all precautions, and each also appears at a place in the manual where the reader receives the most benefit from the precaution.

TERMS

IN THIS MANUAL

CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

AS MARKED ON EQUIPMENT

CAUTION indicates a personal injury hazard not immediately accessible as one reads the marking, or a hazard to property including the equipment itself.

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

SYMBOLS

IN THIS MANUAL

This symbol indicates where applicable cautionary or other information is to be found.

AS MARKED ON EQUIPMENT

DANGER—High voltage

Protective ground (earth) terminal

ATTENTION—refer to manual

WARNING

This instrument operates from a single-phase power source, and has a detachable three-wire power cord with a two-pole, three-terminal grounding-type plug. The voltage to ground (earth) from either pole of the power source must not exceed the maximum rated operating voltage (250 volts rms).

Before making connection to the power source, make sure that the instrument is set for the power source voltage, and is equipped with a suitable plug (two-pole, three-terminal, grounding type).

This instrument is safety class 1 equipment (IEC* designation). All accessible conductive parts are directly connected through the grounding conductor of the power cord to the grounding contact of the power plug. Therefore, the power plug must only be inserted in a mating receptacle with a grounding contact. Do not defeat the grounding connection. Any interruption of the grounding connection can create an electric shock hazard.

For electric shock protection, connect the instrument to ground before connecting to the instrument input or output terminals.

***International Electrotechnical Commission.**

WARNING

Following use of the 370A at high power settings, the device, fixture, or protective cover may be hot enough to cause injury. Avoid touching any of these items until cooled.

Dangerous voltage may appear at the front-panel collector and base terminals. To avoid injury or equipment damage, do not remove the protective cover.

If a deviceto be tested does not fit under the plastic protective cover, external test fixturing may be required. Refer construction of external test fixturing to a qualified service technician. Refer also to the service manual for information.

The 370A weighs more than 75 lbs. To avoid personal injury, use care when lifting the instrument, and where required, seek help in lifting and positioning the instrument in the rack. Once the 370A is installed in a rack, use care that the extended 370A does not tip the rack forward, causing personal injury or instrument damage.

CAUTION

CAUTION is used where, if ignored, damage to the instrument or instrument software could result.

To prevent damage to the instrument, always check the settings of the LINE VOLTAGE SELECTOR switches located on the rear panel of the 370A before connecting the instrument to the line-voltage source.

Double-wide test adapters are designed to fit in the left set of adapter connectors. If you try to forcibly install a double-wide test adapter in the right side, you might damage the connector. The connectors are identified by the following numbers:

A1006
A1007
A1008
A1009
A1010
A1023

Formatting a disk destroys all data stored on the disk. Make sure you no longer need this data before you format the disk.

Do not remove a disk while the disk drive indicator is on. The light indicates that the disk is currently in operation. Removing a disk halts the operation in progress, and could damage or destroy data on the disk.

Use particular care when displaying a spot. A high-intensity spot may burn the CRT phosphor and cause permanent damage to the CRT.

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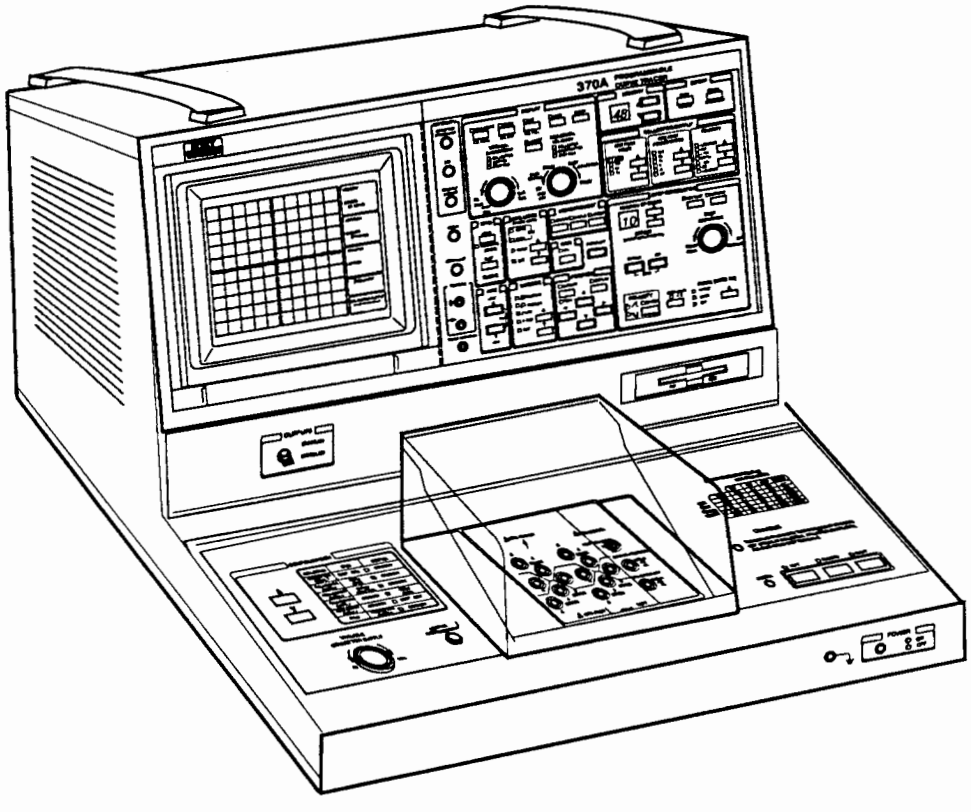
Performance Check and Adjustment



General Information

1 General Information

DESCRIPTION

The 370A is a high-performance, GPIB-programmable digital-storage curve tracer that provides static and dynamic semiconductor device testing. This versatile instrument stimulates, measures, and displays the semiconductor characteristics of a variety of two-, three-, and four-terminal devices; including bipolar transistors, field effect transistors, silicon-controlled rectifiers, diodes, thyristors, optoisolators, wafers, integrated circuits, etc. A variety of measurements can be performed using either grounded-emitter or grounded-base configurations.

The side, top, and bottom cabinet panels provide protection to personnel from operating potentials present within the instrument. In addition, they reduce radiation of electromagnetic interference from the instrument. The cabinet panels are held in place by screws and four plastic panel retainers. To remove the panels, remove the four plastic retainers and three additional securing screws at the rear of the instrument. Pull each panel back to release the front edge, then lift the panels away from the instrument. Operate the instrument with the panels in place to protect the interior from dust, and to maintain cooling airflow.

The collector supply produces ac, rectified ac, or dc voltages ranging from 0 to ±2000 volts. This high voltage, combined with a current sensitivity of 100 pA/div, permits extended breakdown measurements of a device under test. A step generator produces voltage or current steps of either polarity for application to the base or emitter terminal. The step generator may also be operated in a pulsed mode to control the power dissipated by the DUT.

In addition to conventional curve tracer performance, the 370A includes the following features:

- Digital storage capability that allows bright and stable display and useful cursor measurements. The 370A has a mass storage system consists of non-volatile IC memory and 3.5-inch floppy disk drive. Up to 64 families of characteristic curves and front-panel setups can be stored in a floppy disk. Up to16 families of characteristic curves and front-panel setups can also be stored in non-volatile IC memory. The stored characteristic curves can be recalled for additional analysis and comparison.

- Two extended acquisition modes, called Averaging and Envelope. Averaging reduces display noise in high sensitivity ranges. Envelope mode displays only the maximum and minimum vertical or horizontal excursion of each curve, which is useful for detecting long-term variations such as thermal drift.

- Almost all of the 370A front-panel settings can be controlled by GPIB commands. (Exceptions are those controls intended only for manual operation, such as INTENSITY, FOCUS, GRAT ILLUM, etc.) Also, curve data can be sent to or received from an external controller through the GPIB.

- The plotter interface permits sending displayed curve data and digital on-screen readouts to a digital plotter without an external controller.

- Other features include an auxiliary voltage supply, cursor measurement readout, and diagnostic routines.

RELATED DOCUMENTATION

In addition to this service manual,the 370A Operators Manual will also help you understand and operate the 370A.

INSTALLATION AND INITIAL INSPECTION

This instrument was inspected both mechanically and electrically before shipment. It should be free of mars or scratches and meet or exceed all electrical specifications. To confirm this, inspect the instrument for physical damage incurred in transit and test the electrical performance by following the procedures in Section 4, Performance Check and Adjustment. If there is damage or discrepancy, contact your local Tektronix Field Office or representative.

POWER SOURCE INFORMATION

This instrument is designed for operation from a power source having a neutral or near ground (earth) potential. It is not intended for operation from two phases of a multi-phase system, or across legs of a single-phase, three wire system. Table 1-1 shows the 370A Line Voltage, Line Frequency, and Power consumption information.

Operating Voltage Selection

WARNING
Disconnect the 370A from the AC power source before changing operating voltages.

The LINE VOLTAGE SELECTOR switches (NOMINAL and RANGE, located on the rear panel) allow selection of the operating line voltage. To select the correct operating line voltage, first set the NOMINAL switch to the nominal AC power source voltage, then set the RANGE switch to the operating line voltage.

A power cord with the appropriate plug configuration is supplied with each instrument. The color-coding of the power cord conductors is given in Table 1-2. Also, should you require a power-cord plug other than that supplied, refer to Section 5, Table 5-1, Option A1 - A5.

Table 1-1
Line voltage ranges

RANGE switch	NOMINAL switch	
	115VAC	230VAC
HIGH	107VAC-132VAC	214VAC-250VAC
LOW	90VAC-110VAC	180VAC-220VAC
Power consumption		
Max.	400W, 3.5A at 132V 60 Hz	
Typical	120W, 1.3A at 115V 50 Hz	

Table 1-2
Power-Cord Color Conductor Identification

Conductor	Color	Alternate
Ungrounded (Line)	Brown	Black
Grounded (Neutral)	Light Blue	White
Grounded (Protective Ground)	Green/Yellow	Green/Yellow

WARNING

This instrument operates from a single-phase power source, and has a detachable three-wire power cord with a two-pole, three-terminal grounding-type power plug. The voltage to ground (earth) from either pole of the power source must not exceed the 250-volt maximum-rated operating voltage.

Before making connection to the power source, determine that the instrument is set for the power source voltage, and has a suitable plug (two-pole, three-terminal, grounding type).

This instrument is safety class 1 equipment (IEC designation) receptacle with a grounding contact. Do not defeat the grounding connection. Any interruption of the grounding connection can create an electric shock hazard.

OPERATING TEMPERATURE

The 370A can be operated where the ambient air temperature is between +10° C and +40° C and stored in ambient temperatures from –22° C to +60° C. After storage at temperatures outside the operating limits, allow the instrument temperature to reach a safe operating limit before applying power.

The 370A is cooled by air drawn in through the fan from the rear and blown out though holes on the side panels. To ensure proper cooling of the instrument, maintain the proper clearance at the top, sides, and rear of the instrument.

OPERATION MODE SELECTIONS

Several instrument features can be modified by changing internal jumpers, as described below.

Collector Supply Limit

For the user who does not need the high-voltage collector supply, the 2000-volt, 400-volt and 80-volt modes can be disabled by jumpers J101 and J102 on the A10 SENSE BOARD. See Adjustment Locations 2 in Section 7 for the location of the jumper. The selections are:

J101	at pins 1-2	2000 V disabled
	at pins 2-3	2000 V enabled (factory-set)
J102	at pins 1-2	400 V and 80 V disabled
	at pins 2-3	400 V and 80 V enabled (factory-set)

Jumper connector J34 on the A3 A/D board is provided to select step transition polarity and to generate steps one at a time. See Adjustment Locations 1 in Section 7 for the location of the jumper. The selections are:

J34	at pins 1-2	Step transition occurs at the zero crossing of the collector supply sweep (factory set).
	at pins 2-3	Step transition occurs at the peak of the collector supply sweep.
	at pins 2-4	One step occurs each time SINGLE is pressed. STORE mode is disabled.

REPACKING FOR SHIPMENT

If the 370A is to be shipped long distances, we recommend that the instrument be repackaged the same as when it arrived. The cartons and packaging material in which your instrument was shipped should be saved and used for this purpose.

If your instrument is to be shipped to a Tektronix Service Center for service or repair, attach a tag to the instrument showing the following:

Owner of the instrument (with address),

Name of a person at your firm to contact,

Instrument type,

Instrument serial number,

Description of the service required.

If the original packaging is unfit for use or not available, package the instrument as follows:

1. Obtain a corrugated cardboard shipping carton with a 375-pound test strength that has inside dimensions at least six inches greater than the instrument dimensions.

2. Surround the instrument with polyethylene sheeting to protect the finish.

3. Cushion the instrument on all sides by tightly packing dunnage or urethane foam between the carton and the instrument, allowing three inches on all sides.

4. Seal the carton with shipping tape or with an industrial stapler.

5. Write the address of the Tektronix Service Center and your return address on the carton in one or more prominent locations.

ACCESSORIES

Standard Accessories

Operators Manual
Fuse, 250V, 2A, medium-blow
125V, 4A, medium-blow
Protective Cover
Floppy Disk
Power Cord

Test Adapters

Blank adapter	A1001
In line adapter	A1002
Axial Lead Adapter	A1005
4 & 6 Lead Transistor Adapter	A1007

Optional Accessories

TO-3/TO-66 Adapter	A1003
Offset Lead/Power Adapter	A1004
Long Lead Transistor Adapter	A1006
Long Lead FET Adapter	A1008
4 and 6-Lead FET Adapter	A1009
IC Adapter	A1010

Service Manual
Camera Adapter for C59A Camera, for C5C Camera, or for C7 Camera.

For part numbers of all accessories, please refer to the Accessories page in the Replaceable Mechanical Parts List at the back of this manual.

Theory of Operation

2
Theory of Operation

This section describes the operation of the 370A circuits. The section is divided into two parts: Block Diagram Description and Detailed Circuit Operation. When reading this section, refer to the foldout schematic diagrams located in the rear of the manual. The diagrams have corresponding titles and numbers to the titles and numbers used in this section.

BLOCK DIAGRAM DESCRIPTION

The following description is an overview of the 370A operation. Figure 2-1 is an overall block diagram of the 370A. The numbers enclosed in diamonds within each block in Figure 2-1 indicate the schematic diagrams associated with the block.

The 370A is a static and dynamic semiconductor tester that displays and allows measurement of static and dynamic semiconductor characteristics obtained under simulated operating conditions.

The 370A consists of five major functional sections:

1. Collector Supply
2. Data Acquisition and Display
3. Control and Processing
4. Interface
5. Power Supply

Stimulus Generators

The Stimulus Generators simulate operating conditions for the DUT by producing voltages and currents that are applied to the DUT. They include the Collector Supply, the Step Generator, the Aux Supply, and the PLL and Clock Circuits.

The Collector Supply produces sine-wave ac, full-wave rectified sine waves (positive and negative), and positive and negative DC voltages. The amplitude of the output can be varied from 0 to 2000 volts. The Collector Supply output is applied to either the collector or the base (or equivalent) terminal of the device under test.

The Step Generator Circuit produces ascending or descending steps of current or voltage at a normal rate of one step for each half-sine wave of the Collector Supply. The amount of current or voltage per step, total number of steps and offset voltage and current can be controlled. This Step Generator output may be applied to either the base or the emitter (or equivalent) terminals of the device under test.

The Auxiliary Supply produces auxiliary power for the DUT. The output voltage range is ± 0 to 40 volts. This output can be applied to any terminal of the DUT.

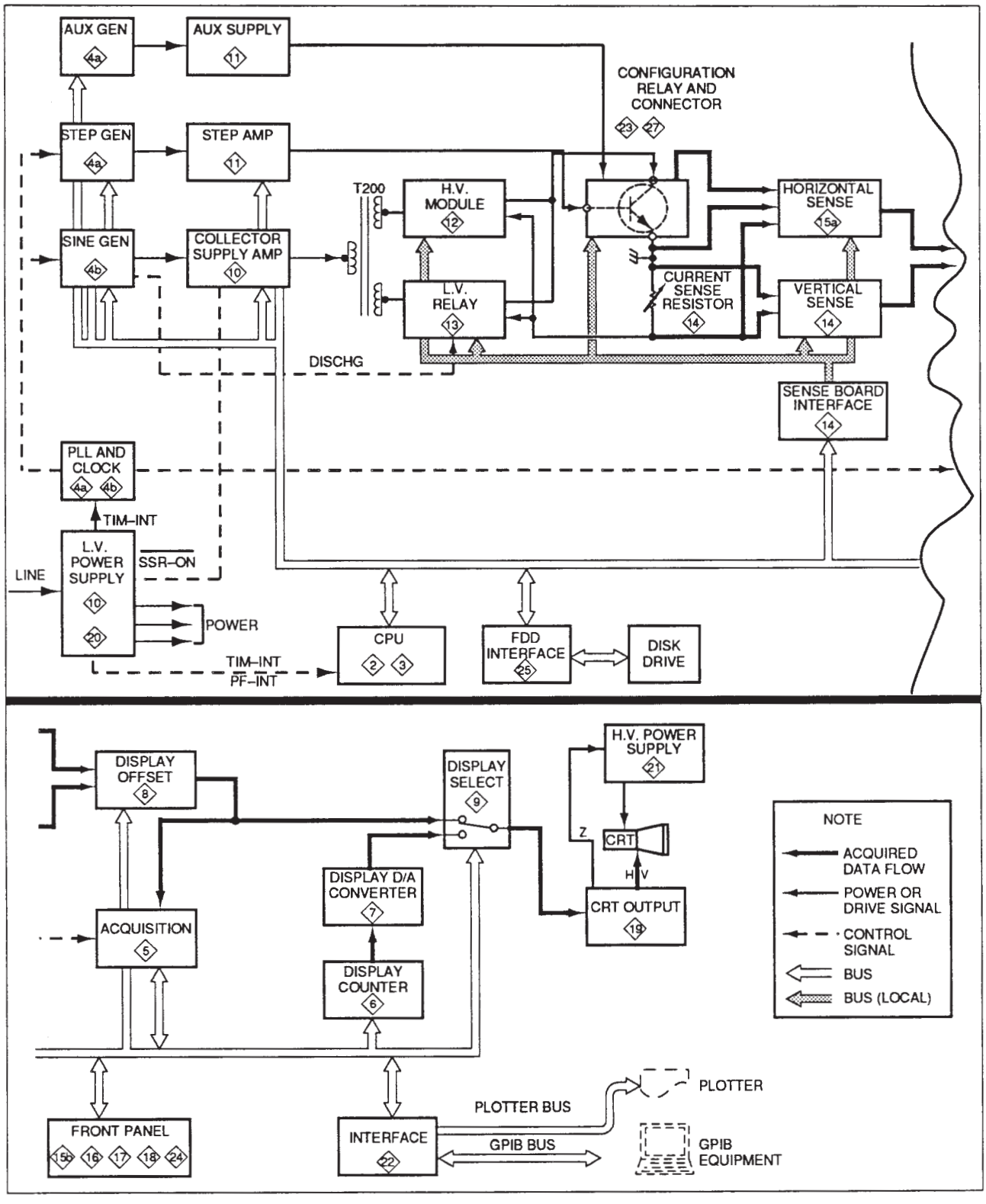


Figure 2-1. 370A Block Diagram.

The PLL and Clock Circuit generates a synchronous signal for the Step Generator and the Sine Wave generator. This Circuit also generates synchronous signals for the Acquisition Circuits.

This block consists of the following circuits.

AUX GEN Circuit, Diagram 4a
STEP GEN Circuit, Diagram 4a
SIN GEN Circuit, Diagram 4b
PLL and CLOCK Circuit, Diagram 4a
AUX SUPPLY Circuit, Diagram 11
Collector Supply Amp Circuit, Diagram 10
Step Amp Circuit, Diagram 11
H.V. Module Circuit, Diagram 12
L.V. Relay Circuit, Diagram 13
Collector Terminal Circuit, Diagram 27

Data Acquisition and Display

These circuits sense, acquire, and display the effect of the Collector Supply and Step Generator on the DUT. The block consists mainly of the Sense Circuit, the Acquisition Circuit, the Digital Display Circuit, and the Display Circuit.

The Sense Circuit senses and amplifies voltages and currents of each terminal of the DUT. This circuit also compensates for errors produced by IR drops between the DUT terminals and the supply. The amplifier sensitivity is controllable.

The Acquisition Circuit converts sensed analog data into digital data, that is, the fetch and A/D convert functions. This acquired data is sent to the CPU Circuit.

The Digital Display Circuit converts digital data into analog display signals. This digital data includes stored curve and operating information.

The Display Circuit selects store or non-store data and displays curves and 370A operating information.

The Data Acquisition and Display Circuits consist of the following:

Acquisition Circuit, Diagram 5
Display Counter Circuit, Diagram 6
Display D/A Converter Circuit, Diagram 7
Display Offset Circuit, Diagram 8
Display Select Circuit, Diagram 9
Vertical Sense Circuit, Diagram 14
Sense Board Interface Circuit, Diagram 14
Horizontal Sense Circuit, Diagram 15
CRT Output Circuit, Diagram 19
H.V. Power Supply Circuit, Diagram 21

Control and Processing

These circuits control the 370A and process acquired data. They include the CPU Circuit, the Front Panel Circuit, and Floppy Disk Circuit.

The CPU Circuit controls all operations of the 370A, including Collector Supply and Step Generator Control, Sense Circuit Control, CRT Display Control, Front Panel Control, Floppy Disk Control, etc. The circuit also processes the acquired data from the device under test. These operations are controlled by the microprocessor and its operating programs through the Address, Data, and Control Bus lines.

The Front Panel Circuit interfaces the operator to the 370A. This circuit reads keys, switches and rotary encoder information to set the 370A to the desired measurement condition. This also displays these settings to the operator by LED and numerical displays.

The Floppy Disk Circuit memorizes acquired data from the device under test and the 370A setting information. The data and information are stored in the 3.5-inch floppy disk.

The Control and Processing Circuits consist of the following:

CPU Circuit, Diagram 2 and 3
Front Panel Circuit, Diagram 15b, 16, 17, 18 and 24
Floppy Disk Circuit, Diagram 25

Interface

These circuits interface the microprocessor data with the plotter and the peripheral equipment. The circuit consists of the GPIB (General Purpose Interface Bus) interface Circuit and the Plotter Control Circuit. The circuit is depicted on Diagram 22.

Power Supply

These circuits supply low-voltage operating power to the 370A. These voltages in turn are used to generate the high voltages, such as that used on the CRT. There are two major circuits, the Power Supply and the Interrupt Signal Generator.

The Power Supply converts the AC line voltages into DC voltages that supply power for 370A operation.

The Interrupt Signal Generator generates timer interrupt and power fail interrupt signals. These signals synchronize the 370A circuits, and provide a harmless shutdown when power fails. The circuits are depicted on Diagrams 10 and 20, the L.V. Power Supply Circuits.

DETAILED CIRCUIT OPERATION

This part of the Theory of Operation provides a detailed description of the electrical operation of the 370A. Complete schematic diagrams are provided in Section 7, Diagrams and Circuit Board Illustrations. The number enclosed in a diamond preceding a portion of text denotes the schematic diagram under discussion.

1 INTERCONNECTION

This circuit is located on the A1 Mother Board. The circuit connects inter-board signals of the 370A. These signals include control signals, drive signals, data signals, reference signals, sense signals, ground lines, and power supply lines.

2 MPU

The MPU circuitry is located on the A2 CPU board. It consists of a 68000 Microprocessor, Power-Up Reset Circuit, Clock Generator, Buffers, Wait Timing Generator, and Interrupt Control Logic Circuit.

Microprocessor

The 68000 is a 16-data bit, 23-address bit microprocessor. The input and output signals can be grouped in eight categories. The following paragraphs describe each group and the signals in that group.

Address Bus (A1 through A23). The Address Bus is a uni-directional, three-state 23-bit bus, providing address information for all on and off board functions requiring address control.

Data Bus (D0 through D15). The Data Bus is a 16-bit, bi-directional, three-state bus which is the general purpose data path. It can transfer data in either byte (8-bit) or word (16-bit) lengths.

Address Strobe (AS). This signal indicates that there is a valid address on the Address Bus.

Read/Write (R/W). This signal defines the Data Bus transfer as a read cycle (logic high) or a write cycle (logic low). The R/W signal also works in conjunction with the upper and lower data strobes as explained in the next paragraph.

Upper and Lower Data Strobes (UDS and LDS). These signals control the data on the Data Bus, as shown in Table 2-1. When the R/W line is high, the microprocessor will read from the Data Bus as indicated. When the R/W line is low, the microprocessor will write to the Data Bus as shown.

Data Transfer Acknowledge (DTACK). This input indicates that a data transfer is completed. When the microprocessor recognizes DTACK during a read cycle, data is latched and the bus cycle is terminated. When DTACK is recognized during a write cycle, the bus cycle is terminated.

Interrupt Control (IPL0, IPL1, IPL2). These input pins indicate the encoded priority level of the device requesting the interrupt. Seven levels are possible using these three pins, with level zero (no pins active) meaning no interrupt is requested.

System Control. The system control inputs, HALT and RESET, reset the microprocessor at power on. When the HALT and RESET inputs are driven simultaneously, the microprocessor enters the reset cycle starting at the address pointed by the reset vector.

Valid Peripheral Address (VPA). This input indicates that the microprocessor should use automatic vectoring for an interrupt.

Processor Status (FC0, FC1, FC2). These function outputs indicate the cycle type currently being executed. When the cycle type is theinterrupt acknowledge cycle, all three outputs go high.

Clock (CLK). This is the clock input. The clock signal is derived from U100 and divided by two in U120A, resulting in an 8-MHz clock signal applied to the microprocessor.

Table 2-1
Data Strobe Control of Data Bus

UDS	LDS	R/W	D8-D15	D0-D7
High	High	——	No Valid data	No valid data
Low	Low	High	Valid data bits 8-15	Valid data bits 0-7
High	Low	High	No valid data	Valid data bits 0-7
Low	High	High	Valid data bits 8-15	No valid data
Low	Low	Low	Valid data bits 8-15	Valid data bits 0-7
High	Low	Low	Valid data bits 0-7	Valid data bits 0-7
Low	High	Low	Valid data bits 8-15	Valid data bits 8-15

Power-Up Reset

The Power-Up Reset Circuit consists of reset controller U400, transistor Q400, resistor R409, and capacitors C400,C404. When theinstrument is first powered up, the reset controller's RESET(L) output (pin 5) is low, holding the microprocessor reset. The reset controller then monitors the power supply voltage at its SENSE input at pin 7. When the supply voltage at this input reaches operating tolerance, the reset controller allows an internal current source to begin charging C400 at pin 3. After the time determined by C400, the voltage on C400 triggers an internal comparator in the reset controller and pin 5 of reset controller goes high to enable normal execution to begin, and the microprocessor is directed to the starting address of the power-up routine, which it then performs.

The reset controller continues to monitor the power supply voltage at its SENSE input (pin 7). This voltage is divided by an internal voltage divider and continuously compared against an internal voltage reference. If the power supply drops below operating limits for some reason, the reset controller drives RESET(L) low to reset the microprocessor, and, at the same time, it discharges C400. The normal power-up sequence previously described can then occur when and if the power supply comes back within limits.

Clock Generator

The Clock Generator consists of 16-MHz oscillator U100 and divider U120A. This circuit generates the 8-MHz clock signal for the microprocessor.

Address Bus Buffer

Buffers U450 and U452 isolate the Address Bus (A1-A16) for the A3 A/D board, A4 Digital Display board, A5 Display Control board, A10 Sense board, A11 Main Key board, A14 Lower Key board, A22 GPIB Interface board and A23 FDD Interface board.

Data Bus Buffer

Buffers U454 and U456 isolate the Data Bus when the microprocessor is transceiving data to and from circuits off the CPU board. The CRD(L) line selects which direction data is transmitted through the buffer; the line is high when data is sent from the microprocessor off the CPU board. The N-10(L) line enables or disables the data output.

Control Bus Buffer

Buffer U458 isolates the Control Bus.

Silent Bus Buffer

Buffer U462 isolates the Address Bus (SA1-SA7) and data line SD0 for A6 Collector Supply Output board, A7 Step Generator board, and A10 Sense board.

Wait Timing Generator

The Wait Timing Generator consists of U120B, U300A, U300B, U300D, U310A, U310B, U340A and U340B. This circuit inserts wait cycles by controlling the DTACK(L) input to ensure that I/O devices have time to read or write the data on the bus.

In the following discussion, note that the WAIT(L) line is activated only when the microprocessor communicates with the A4 Digital Display board.

When the microprocessor communicates with the CPU board memories, no wait cycle is required. In this case, the microprocessor sets address line CA19 low, which sets pin 5 of U310A high. Pin 8 of U320B goes low at the next clock, enabling the DTACK(L) input.

When the microprocessor communicates with I/O devices (except the A4 Digital Display board), two wait cycles are required. In this case, the microprocessor sets address line CA19 high, disabling the preset inputs of latches U120B and U310A. When the microprocessor sets the CAS(L) (address strobe) line low, the clear inputs of the latches U120B and U310A are disabled, which enables the latches to be clocked by the 8-MHz clock. Three clock cycles following the activation of the CAS(L) line, pin 8 of U320B goes low and enables the DTACK(L) input.

When the microprocessor communicates with the A4 Digital Display board, the DTACK(L) input is controlled by the WAIT(L) signal. The A4 Digital Display board sets the WAIT(L) line low when the microprocessor accesses it. This low sets pin 13 of U320B low, which sets pin 8 of U320B high, disabling the DTACK(L) signal. When the A4 Digital Display board sets the WAIT(L) line high, pin 8 of U320B goes low at the next clock, activating the DTACK signal.

Counters U340A and U340B prevent the microprocessor from waiting for longer than 128 clock cycles (16 us). When the WAIT(L) line goes low, the counters begin to count. When the count reaches 128, pin 8 of U340 goes high and cancels the WAIT(L) signal on pin 5 of U300B. The output of U340B is also sent to pin 11 of U240B as TIME OUT-INT interrupt signal.

Interrupt Control

The Interrupt Control Circuit consists of Interrupt Signal Latches U240A, U240B, U250A, and U250B, Interrupt Priority Encoder U260, and Interrupt Acknowledge Logic U200, U210, and U270.

Interrupts inform the microprocessor that something needs attention. There are six interrupt signals; power fail (PF-INT) and timer (TIM-INT) from the A19 L.V. Supply board, time-out (TIME OUT-INT) from the wait control circuit, acquisition-done (DONE-INT) from the A3 A/D Board, and interrupts from GPIB and Plotter Interface (GPIB-INT and PLOT-INT(L)). Each interrupt has its own priority level, as shown in Table 2-2.

When an interrupt occurs, the interrupt signal is latched into U240 or U250 and fed to Priority Encoder U260. U260 encodes the level of the interrupt to the 3-bit binary code onto the IPL0(L), IPL1(L) and IPL2(L) lines. For example, assume that all lines are set low on PF-INT. If the interrupt level is higher than that of the current process, the microprocessor enters the interrupt acknowledge cycle after the completion of the current instruction. It outputs the interrupt level on address lines CA1, CA2 and CA3, asserts CAS(L), and sets the function code lines CFC0, CFC1 and CFC2 high. U210 decodes the address lines CA1, CA2 and CA3, and outputs a clear signal to the interrupt latch. The high on the function code lines set pin 7 of U200 low, causing the microprocessor to enter into auto vector mode.

Table 2-2
Interrupt Priority

Priority	Interrupt Inputs	Function
1 (level 7)	PF-INT	Power failure (Non maskable)
2 (level 6)	Future use	
3 (level 5)	TIM-INT	(line frequency)
4 (level 4)	TIME OUT-INT	Time out
5 (level 3)	GPIB-INT	GPIB request
6 (level 2)	DONE-INT	Acquisition completed
7 (level 1)	PLOT-INT(L)	Plotter request

3 MEMORY

The Memory circuit consists of the ROM, RAM, Battery Backup, address selector, and buffers.

ROM

The 370A firmware is located in two 128K BYTE EPROMs (U600 and U610). The EPROMs are paired to form 16-bit words.

RAM

RAMs U800 and U810 provide temporary of data used in execution of the various control functions of the CPU. In addition, long-term power-off storage of front-panel settings and characteristic curves is provided. U800 provides lower byte storage and U810 provides upper byte storage. Address strobe signals LCS1(L) and UCS1(L) select addressing for either the lower byte or the upper byte.

Data Bus Buffer

Buffers U484 and U486 isolate the Data Bus. CRD(L) input selects which direction data is transmitted through the buffer. A high on CRD(L) transmits data from the microprocessor to the memories.

Address Bus Buffer

Buffers U480 and U482 isolate the Address Bus. U480 isolates the lower address and U482 isolates the upper address.

Address Selector

Decoders U500A, U520, U540, U720A, U720C, and U720D decode address lines A15 - A20 and select addressing for memory or devices on and off the CPU board. See Table 2-3 for the address assignments.

Table 2-3
Decoder Address Assignment

A20	A19	A18	A17	A16	A15	A14-A1	SELECTION
0	0	0	X	X	X	X	ROM (U600&U610)
0	0	1	X	X	X	X	RAM (U800&U810)
0	1	0	0	0	0	X	not used (A2 board)
0	1	0	0	0	1	X	AD(L) (A3 board)
0	1	0	0	1	0	X	DSP-RAM(L) (A4 board)
0	1	0	0	1	1	X	DSP-IO(L) (A5 board)
0	1	0	1	0	0	X	KEY(L) (A11 board)
0	1	0	1	0	1	X	L-KEY(L) (A10 board)
0	1	0	1	1	0	X	IF-CS(L) (A22 board)
0	1	0	1	1	1	X	FDC(L) (A23 board)
0	1	1	0	0	0	X	COLLECT(L) (A6 board)
0	1	1	0	0	1	X	SG(L) (A7 board)
0	1	1	0	1	0	X	SENSE(L) (A10 board)

Battery Backup

The battery backup circuit consists of voltage detector U740, transistor Q747, 3-state bus buffer U770 and associated components. This circuit provides a standby power source used to maintain the contents of the RAMs (U800 and U810) when instrument poweris off.

During normal instrument operation, the +5VM3 power line will be operating within its tolerance limits. This initially pulls the voltage detector's VTH sensing input (pin 3) to approximately +1.25 volts through resistive divider R740,R741, and R742. This level is compared to an internal voltage reference of +1.15 volts and switches the Vo control output (pin 4) low, indicating that the normal power supply is operational.

When the pin4 of U740 goes low, an internal transistor turns on and switches the VHYS output (pin 2) to the +5 volt supply level, raising the VTH input level to about +1.3 volts. This hysteresis provides positive, noise-free switching of the output control level. The Low on U740 pin 4 also turns on transistor switch Q747 and the +5VB1 through +5VB6 supply lines are connected to the normal +5VM3 supply line. Battery BT740 charges through R744, R745, CR742 as long as normal instrument power is on.

When instrument power is turned off, the +5VM3 supply line voltage will drop as power is drawn from its storage capacitors. When the voltage level reaches approximately +4.3 volts, the level at the VTH input drops below the internal +1.15 volt level and pin 4 of U740 goes high. This high disables U770 before the power supplies decay to the point where data and enable levels go out of tolerance. Disabling U770 also disables RAMs U800, U810 and prevents erroneous data from being written into the RAMs as the power goes down. When the power supplies finish decaying, power to U770 is removed and the pullup resistor R770 keeps the RAMs disabled.

This high on U740 pin4 also turns Q747 off and battery BT740 begins supplying a positive voltage to the +5VB1, +5VB2 and +5VB5 inputs through R744. This is the positive standby voltage and it is used to maintain the contents of the RAMs when normal power is off.

4a GENERATOR

The Generator Circuit is located on the A3 A/D Board.

This circuit is roughly divided into three parts; PLL (Phase Lock Loop), Clock Generator, and Signal Generator. The PLL provides clocks synchronized with the line frequency for the Clock Generator. The Clock Generator provides clocks for the Signal Generator and the Acquisition Clock for the A/D Converter. The Signal Generator generates Step Amplifier signal for the Step Amplifier Circuit, and the AUX signal for the AUX Signal Amplifier Circuit.

Control Latch and Decoder

Latches U270 and U280 and decoder U430 provide control signals for the on-board circuits. Control signals are set by the microprocessor on the MPU circuit as determined by the front panel controls. See Table 2-4 for the function of these signals.

PLL

The PLL (Phase Lock Loop) Circuit consists of U100, U110, U140A, U140B,and associated circuitry.

U100 contains an internal phase comparator and VCO (Voltage Controlled Oscillator). The VCO produces an output signal on pin 4, the frequency of which is determined by the pin 9 input voltage, set by R100, R104 and C104. The center frequency is approximately 250 kHz (4096 x line frequency). The maximum and minimum frequency is determined by R100 and R104 respectively. This VCO output is counted down to 1/4096 by frequency divider U110, and applied to pin 3 of U100. U100 compares the phase of this signal with that of the incoming TIME-INT signal (the frequency of which is the same as the line frequency), and produces an error signal on pin 13. The error signal is applied to pin 9 through low pass filter R106-R108-C102, and controls the VCO.

U140A and U140B form a window comparator that detects the unlock state. When the PLL is unlocked, pin 1 of U140A goes low.

Table 2-4
Microprocessor Control Signals

Signal	Front-panel Setting
S0 - S4	Indicates number of steps
POSI	STEP POLARITY: Positive (+)
.1X	STEP MULTI .1X: ON
CSTOP(L)	Low when collector supply relays switch
AC	COLLECTOR SUPPLY POLARITY: AC
LONG	PULSE: LONG
PULSE(L)	PULSE: LONG or SHORT
AUX	AUX SUPPLY is enabled
SINGLE	MEASUREMENT: SINGLE
+OFFSET	STEP GENERATOR OFFSET: Positive
VIEW	VIEW DISPLAY mode
CURVE	Curve acquisition mode PULSE: OFF & COLLECTOR SUPPLY POLARITY: +, -, AC
AD0(L)	
AD1(L)	
AD2(L)	
AUX(L)	Low while pressing AUX SUPPLY switch
VAR(L)	Low while COLLECTOR SUPPLY VARIABLE control is rotated
OFFSET(L)	Low while STEP GENERATOR OFFSET switch is pressed
DISCHG(L)	Low when VARIOABLE COLLECTOR SUPPLY control is rotated counterclockwise with the Collector Supply in DC mode
DC(L)	Low when Collector Supply is in DC mode.

Step Generator Clock

The Step Generator Clock Circuit consists of U120, U160, U170, U180, U190A, U190B, U200B and U410A. This circuit generates clocks for the Step Generator, and the Acquisition Start Signal for the Acquisition Clock Circuit.

Data selector U120 selects clock signals for step counter U160-U170, and acquisition clock counter U400. When the COLLECTOR SUPPLY POLARITY is set to AC, the line frequency clock is supplied to the step counter, and the 1024 x line frequency clock is supplied to the acquisition clock counter. When the COLLECTOR SUPPLY POLARITY control is set other than the 2048 x line frequency clock is supplied to the acquisition clock counter.

Data selector U180 switches the signal path according to the measurement mode of the 370A.

Presettable counters U160 and U170 form a step counter. U170 provides binary data of each step for the step generator, and U160 resets U170 at the end of the step family. The preset count is loaded when the LOAD(L) input is pulled low. The value of the preset count is the same as the number of steps. Counting begins when the LOAD(L) input is pulled high.

Latches U190A, U190B and U200B generate the START signal for data acquisition. In addition, this circuit controls the LOAD(L) input signal when the 370A is in Single mode. DATA acquisition is initiated by the FIRE(L) signal. When the FIRE(L) signal is activated, U200B is cleared, and pin 5 of U190A is set high at the rising edge of the FIRE(L) signal. At the next clock from U410, pin 9 of U190B is set high, activating the START signal.

Jumper J34 sets the step transition phase to occur either at the zero crossing or at the peak of collector supply output: pins 1 and 2 should be shorted for zero, pins 2 and 3 should be shorted for peak. Pin 4 is provided for calibration purpose. When pins 2 and 4 are shorted, a family of steps can be generated step by step by repeatedly pressing the REPEAT switch.

Collector Supply Enable

The Collector Supply Enable Circuit consists of U200A, U250A, U250B, U250C, U260B, U260C and U260E. This circuit disables the collector supply output when one of the following conditions occur.

1. MAX PEAK VOLTS switch selection
2. LEFT-RIGHT-STANDBY switch selection
3. Energizing relays
4. VIEW display mode of operation
5. PLL unlock
6. CPU reset

The ARC(L) signal is generated by the Arc Killer Circuit on the A10 Sense board, when the LEFT-RIGHT-STANDBY switch is selected. The CSTOP(L) signal is activated when relays on the Collector Supply Circuit is energized. These two signals are provided to suppress the switching arc. When one of these signals is activated, the NST-UNBLK signal is pulled low to prevent a bright spot from appearing on the CRT.

Pulse Generator

The Pulse Generator Circuit consists of U130A, U130B, U150, U180B, U260A, U290B, U860B, U860D and associated components. U150 is a monostable multivibrator whose time constant is determined by R150, R151, R156 and C151. The LONG (L) signal sets the time constant of U150 to either 300 µs or 800 µs. When the PULSE(L) signal is low, and the SINGLE signal is high, if pin 5 of U220A is high, the output of U150 is passed through U860B and U180B and is fed to pin 10 of U310C. However, if pin 5 of U220A is low, pin 10 of U310C goes low. Therefore, in the SINGLE mode, in the ready condition, an aiding offset signal is prevented from being output from the step generator. The output of U150 is supplied to the A5 Display Control board as the P-INTEN signal to increase the brightness of the display. The pulse signal is also supplied to U250D as the acquisition clock in the Dot Display mode.the Dot Display mode.

Acquisition Clock Generator

The Acquisition Clock Generator consists of U210, U220A, U220B, U230B, U240D, U250D, U400, U860A and U860C. This circuit generates the start signal for data acquisition, acquisition clock, and the DONE-INT signal. The DONE-INT signal is an interrupt signal to inform the microprocessor that acquisition is completed.

Presettable counter U400 generates the acquisition clock for the A/D Timing circuit. The frequency of the acquisition clock is:

(Number of steps +1) / clock frequency

The preset count is loaded by a low on the LOAD(L) input. The preset value equals 1 - (number of steps). The clock frequency is 2048 x line frequency, except for the AC mode, where the frequency is 1024 x line frequency.

Data selector U210 switches the source of the acquisition clock and end of acquisition signal as determined by the setting of the COLLECTOR SUPPLY POLARITY and STEP GENERATOR PULSE switches.

The Acquisition Clock Generator is initiated by the START signal from U190B pin 9. The START signal sets U220A pin 6 low. A low on U220A pin 6 enables U400 to be clocked, generating an acquisition clock.

When the Acquisition RAM is filled with data, the A11 signal on pin 3 of U210 is activated. This signal asserts the DONE-INT signal. The ABT(L) signal, which is activated by switching the MEASUREMENT switch between REPEAT, SWEEP and SINGLE, also asserts the DONE-INT signal.

Step Generator

The Step Generator Circuit consists of U300, U310, U320A, U320C, U330, U350, U360, U370, U390A, U440 and U450. This circuit generates the step signal that is applied to the Step Amplifier.

U300 converts the 4-bit digital step data from U170 into an analog step signal. U310A and U310B controls the polarity of steps with the POSI signal. U320A selects the input resistor of U370 and changes the amplitude of steps. When the 370A is in 0.1 x mode, step amplitude is divided by ten.

U350 is a 12-bit D/A converter. The offset value, which is controlled by the STEP GENERATOR OFFSET control, is supplied to data lines D0 - D11. The data is latched internally by a low on the WR(L) and OFFSET(L) lines. The polarity of the offset, positive or negative, is determined by the voltage on VREF Input (pin 19). This voltage is controlled by the +OFFSET signal from U280.

U370 is a summing operational amplifier, providing at the output a signal representing the sum of the step signal and the offset signal. The output voltage per step is 0.2 volts in all settings of the STEP AMPLITUDE switch.

When the 370A is in the PULSE (LONG orSHORT) mode, a pulse signal fromU130 switches the analog switch U310C, which in turn generates the pulse steps as described below. With the POSI signal low, if the +OFFSETsignal is high, or with the POSI signal high, if the +OFFSET signal is low, pin 2 of U310C is connected to ground through U440C and U440A or U440C and U440B. Since the step signal and offset signal are constantly added at pin 1 of U310C, a pulse step which includes the offset level with respect to the ground level as a reference appears at pin 15 of U310C. Stated differently, the pulse step signal has the pulse offset signal added to it. If however, both the POSI signal and the +OFFSET signal are low, or both are high, pin 2 of U310C is connected to pin 5 of U450 through either U440C and U440A or U440C and U440B. Therefore, the offset signal is fed to pin 2 of U310C, and the pulse step signal which includes the offset level with respect to the offset level as a reference appears at pin 15 of U310. Stated differently, the pulse step signal has the DC offset signal added to it.

Aux Signal Generator

The Aux Signal Generator consists of U320B, U340, U380 and U390B. This circuit generates the auxiliary supply signal.

U340 is a 12-bit D/A converter. The signal level, which is controlled by the AUX control, is supplied to the data lines D0 - D11. The data is latched internally with the low on WR(L) and AUX(L) lines. The polarity of the auxiliary supply is controlled by the +AUX signal from U280.

4b COLLECTOR SUPPLY GENERATOR

The Collector Supply Generator Circuit, located on the A3 A/D board, consists of a Sine Wave Timing Generator, Sine Wave Generator, Collector Level Control Circuit and High Voltage Sine Wave Attenuator Circuit. These circuits generate a sine wave synchronized to the line frequency, which is the source of the Collector signal.

Sine Wave Timing Generator

This circuit consists of PLL (Phase-Locked Loop) U470, counter U480 and window comparator U490.

U470 is synchronized with line frequency. It supplies the clock signal for U480, which generates signals 16f, 8f, 4f, 2f and f.

U490A and U490B check the input voltage of the VCO (Voltage Controlled Oscillator) and determine whether the PLL is locked.

Sine Wave Generator

The Sine Wave Generator Circuit consists of U500, U510A, U510B, U540, U560B, U560C, U560D and U840C. From the 16f, 8f, 4f and 2f signals U500 generates the switching signal for the 1-to-8 line switch U540.

U510A, U510B, U540, U560C, U560D and U840C are an integrating-type ramp signal generator. U540 and U840C control the slope of the ramp waveform. Feedback from U560B generates a sine wave with a fixed amplitude.

Collector Level Control

The Collector Level Control Circuit controls the amplitude of the Collector Supply.

U550 and U560A convert a digital value set by the VARIABLE COLLECTOR SUPPLY control on the front panel to a DC signal in the range from 0V to –2V.

This DC signal is supplied to the Sine Wave Attenuator Circuit through the Discharge Control Circuit to control the amplitude of the Sine signal, thereby controlling the output level of the collector supply.

Discharge Control

This circuit consists of analog switches U530B and U530C, monostable multivibrator U790A, comparator U800, operational amplifier U810, resistor R810, capacitor C810 and associated components. When the Collector Supply is in DC mode, and the VARIABLE CORRECTOR SUPPLY control is used to lower the output voltage of the Collector Supply, this circuit generates a control signal which forces the smoothing capacitors on the secondary side of transformer T200 to discharge, so that the output reaches the desired value in a short period of time. Therefore, even if the Collector Supply output voltage is reduced by a large amount, this circuit causes the output to reach the desired value quite quickly.

If the VARIABLE COLLECTOR SUPPLY control is not turned on, the DISCHG(L) signal will remain high, with pin 13 of U790A low. Pin 13 of U790A is connected to the Discharging Circuit (located on diagram 13) as the discharge control signal DISCHG, and is also connected to the control inputs of U530B and U530C. Thus, in this case, the Discharging Circuit is disabled, and the DC signal from the Collector Level Control Circuit passes through U530B, R810 and U810, and is connected to the Sinewave Attenuator Circuit. See Figure 2-2.

If the VARIABLE COLLECTOR SUPPLY control is turned counterclockwise however, a microprocessor generates a discharge trigger signal DISCHG(L) (negative pulse), pin 13 of U790A goes high, and the smoothing capacitors start to discharge through the Discharging Circuit. Simultaneously, U530B and U530C are switched, the DC signal from the Collector Level Control Circuit is applied to inverting input of the comparator U800, and one end of R810 is connected to ground. When one end of R810 is connected to ground, C810, which had been charged to a voltage equal to the DC signal from the Collector Level Control circuit begins to discharge through R810. The time constant of the RC circuit formed by R810 and C810 is approximately the same as the time constant when the smoothing capacitors discharge through the Discharging Circuit. Therefore, it operates as a simulator of the smoothing capacitor discharge.

The voltage on C810 is compared by U800 to the voltage of DC signal from the Collector Level Control Circuit corresponding to the output of the Collector Supply, and when the C810 voltage is equal to the DC signal voltage (i.e., when the voltage on the smoothing capacitors is approximately equal to the desired voltage), pin 7 of U800 goes low, which resets U790A, the DISCHG signal goes low, and the discharge of the smoothing capacitor through the Discharging Circuit stops. After this, the output voltage from the Collector Supply reaches the desired voltage in a very short period of time.

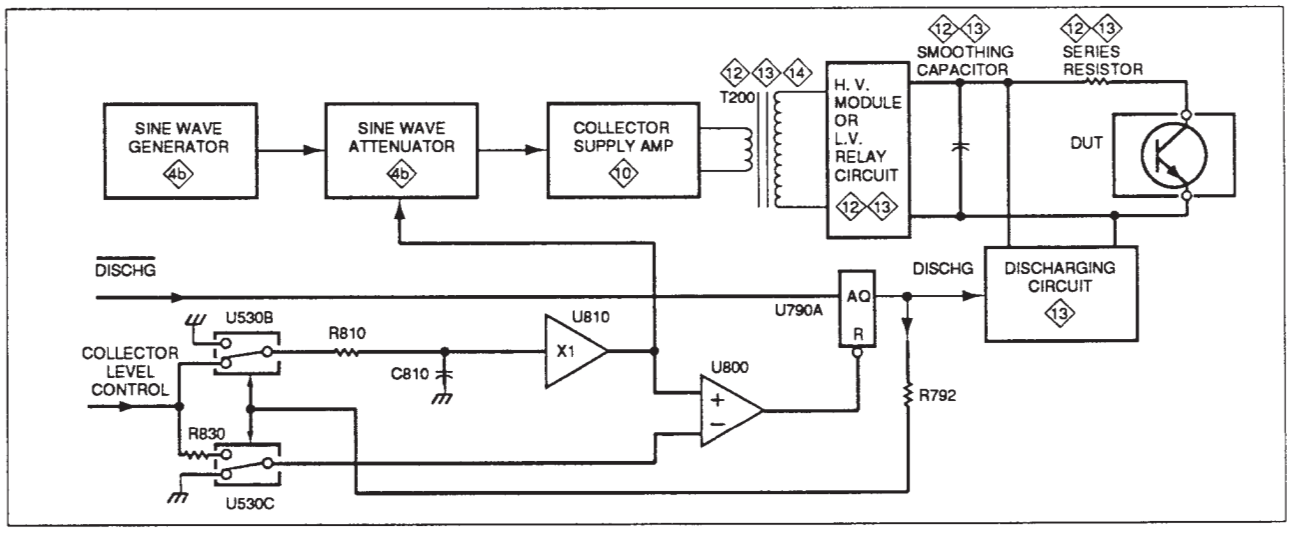


Figure 2-2. Discharge Control Circuit.

The discharge trigger signal is generated even in the case in which the VARIABLE COLLECTOR SUPPLY control is reset to 0% by a change in front-panel settings. It is not generated, however, when the Collector Supply output voltage is increased.

Sine Wave Attenuator

The Sine Wave Attenuator circuit consists of analog multiplier U570, operational amplifier U565A and U565B, D-flip flop U230A and analog switch U530A.

The analog multiplier attenuates the amplitude of a 4 Vp-p sine signal supplied from the Sine Wave Generator Circuit by means of a DC signal supplied from the Collector Level Control Circuit, and outputs the result to the A6 Collector Supply Output Board. Figure 2-3 shows the characteristic of the analog multiplier.

Selector U530A switches its output to ground level with the signal from U250A (located on diagram 4a), disabling the Collector Supply output. When the signal from U250A is changed, the f(L) signal is controlled by U230A to switch U530A at a zero-crossing point of the power-line signal.

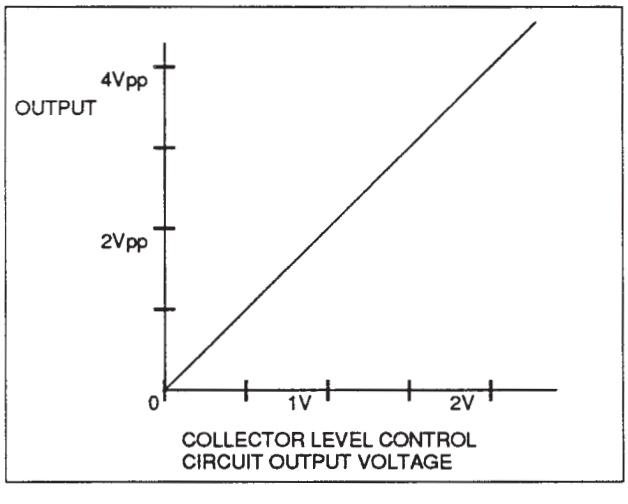


Figure 2-3. Analog Multiplier Characteristic.

5 ACQUISITION

The Acquisition Circuit, located on the A3 A/D Board, consists of an S/H (Sample and Hold) and Select Circuit, A/D Circuit, A/D Timing Circuit, Acquisition Memory Control Circuit, Acquisition Memory Circuit and Bus Interface Circuit.

These circuits perform A/D conversion of the HD and VD signals from the A5 Display Control Board, write them into Acquisition memory, and transfer data to the CPU.

S/H and Select

The S/H (Sample and Hold) and Select circuit consists of U580A, U580B, U590, U600 and U610. U590 and U600 sample and hold the HD and VD signals respectively, acting on control signals from the A/D Timing Circuit. The VD and HD signals, after being sampled, held and converted to DC, are selected by 4-to-1 line switch U610 and supplied to the A/D Circuit. Operational amplifier U580, diodes CR580, CR581 and resistors R580, R581, R582, R583 make up two diode function generators and limit the input voltage of U590 pin3 between –1 volt and +1 volt. This circuit compares the voltage of the HD signal with the positive and negative limits, which are set by R580, R581, R582 and R583. If the voltage of the HD signal exceed these limits, one of two diode generators U580A or U580B is turned on and the voltage is clamped within upper or lower limits.

A/D Converter

The A/D Circuit consists of U620, U630 and U650. U620 is an operational amplifier that converts the output signal from U610, which has been converted to–1V to +1V, to the 0 to 5V signal required by A/D converter U630.

A/D Timing

The A/D Timing Circuit controls the timing of operations from sample-and-hold of the analog signal through storage in memory. This circuit operates on a 2.5MHz clock from pin 18 of A/D converter U630. The following description should be read with reference to the timing chart in Figure 2-4.

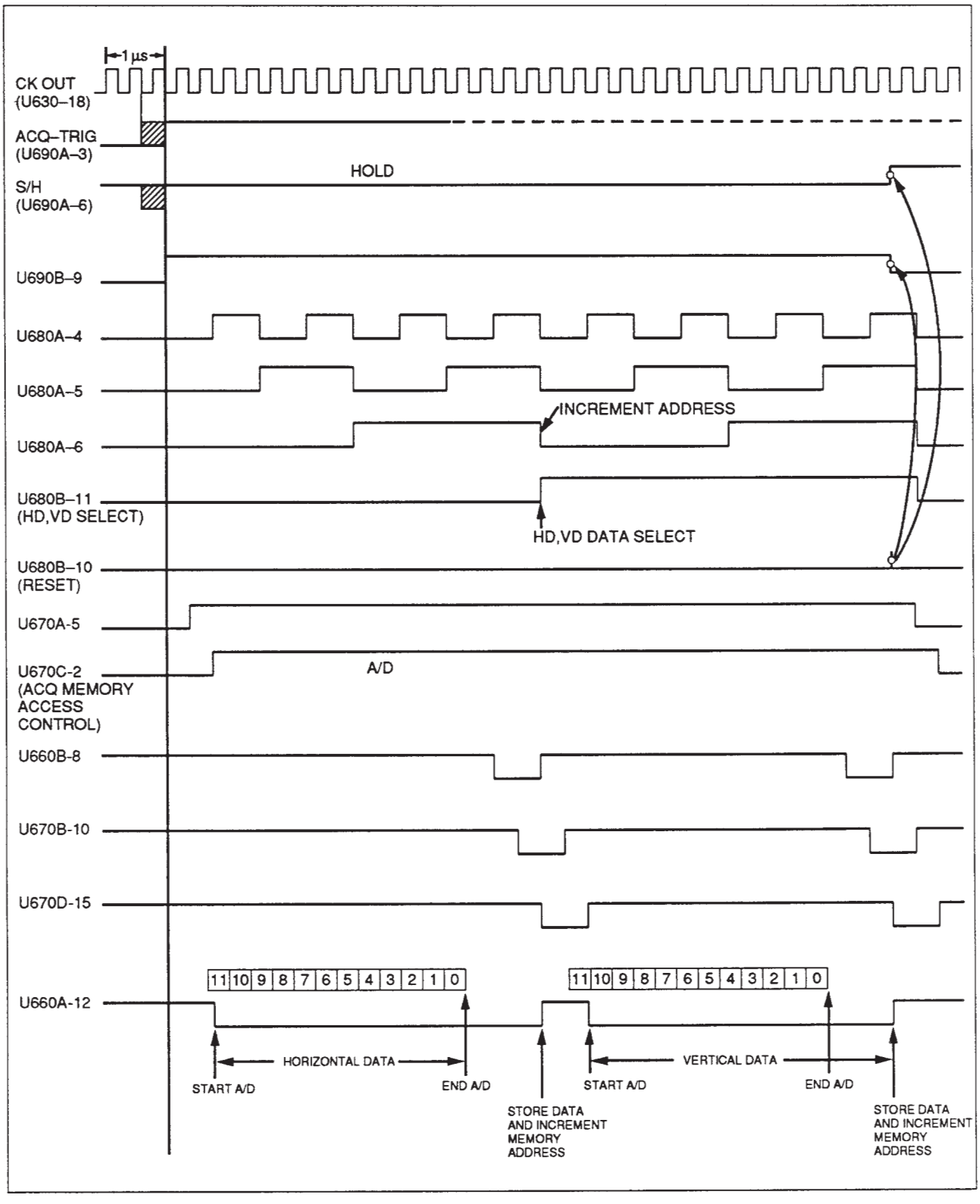


Figure 2-4. Acquisition timing.

The A/D Timing Circuit begins operation on the rising edge of the ACQCLK signal from the Acquisition Clock Generator Circuit. When the ACQCLK signal sets D flip-flop U690A, U590 and U600 go into the hold state. Two clock cycles later pin 12 of U660A goes low and A/D conversion starts.

Fourteen clock cycles after the start of A/D conversion, pin 12 of U660A goes high and the data are latched in Acquisition Memory U760 and U770. At the same time pin 6 of U680A goes low, address counter U750 increments by 1, counter U680B increments by 1, and U610 switches over to the Vertical signal (VD).

After the Vertical signal has been stored in memory in the same way as the Horizontal signal, U680B increments by 1 and pin 10 of U680B goes high. This resets U690A and U690B, and U590 and U600 begin sampling data again while U690A waits for the next ACQCLK signal.

Acquisition Memory Control

This circuit consists of U700C, U710 and U750. U710 switches Acquisition Memory access between the microprocessor on the A2 CPU Board and the A/D Circuit. Switching is controlled by the output from pin 5 of U670C. (See Figure 2-4.)

U750 is a 12-bit counter that generates the address signals supplied toAcquisition Memory.

Acquisition Memory

The Acquisition Memory Circuit consists of U760 and U770. It stores 10-bit data from the A/D Circuit under control of the Acquisition Memory Control Circuit, and is accessed by the CPU. U760 stores five MSBs of data and U770 stores five LSBs of data.

Bus Interface

The Bus Interface Circuit consists of U290C, U290D, U420C, U720, U730and U740.

Buffers U770 and U780 are located between the Acquisition Memory Data Bus and CPU Bus and perform control functions to prevent collisions between the two buses. Decoder U720 and gates U290C, U290D and U420C supply the other circuits on this board with control signals from the CPU on the A2 CPU board. The functions of these control signals are as follows:

ABT(L:	Erases the contents of acquisition memory and generates the DONE-INT signal
ACQ(L):	The CPU is accessing acquisition memory
FIRE(L):	Starts data acquisition
RST(L):	Sets the acquisition memory counter to 0 at every data acquisition

6 DISPLAY COUNTER CIRCUIT

The Display Counter Circuit is located on the A4 Digital Display Board. The Display Counter Circuit consists of the Bus Buffer, the 4.5-MHz Oscillator, Display Counter, Address Switch & CPU Control, Display RAM, Bus Transceiver, Dot Cursor Generator, Character & Latch Controller. These circuits determine whether the CPU accesses the Display RAM, or whether the Display Counter reads out the Display RAM contents to control signals for the digital display. For the display timing, see Figure 2-5.

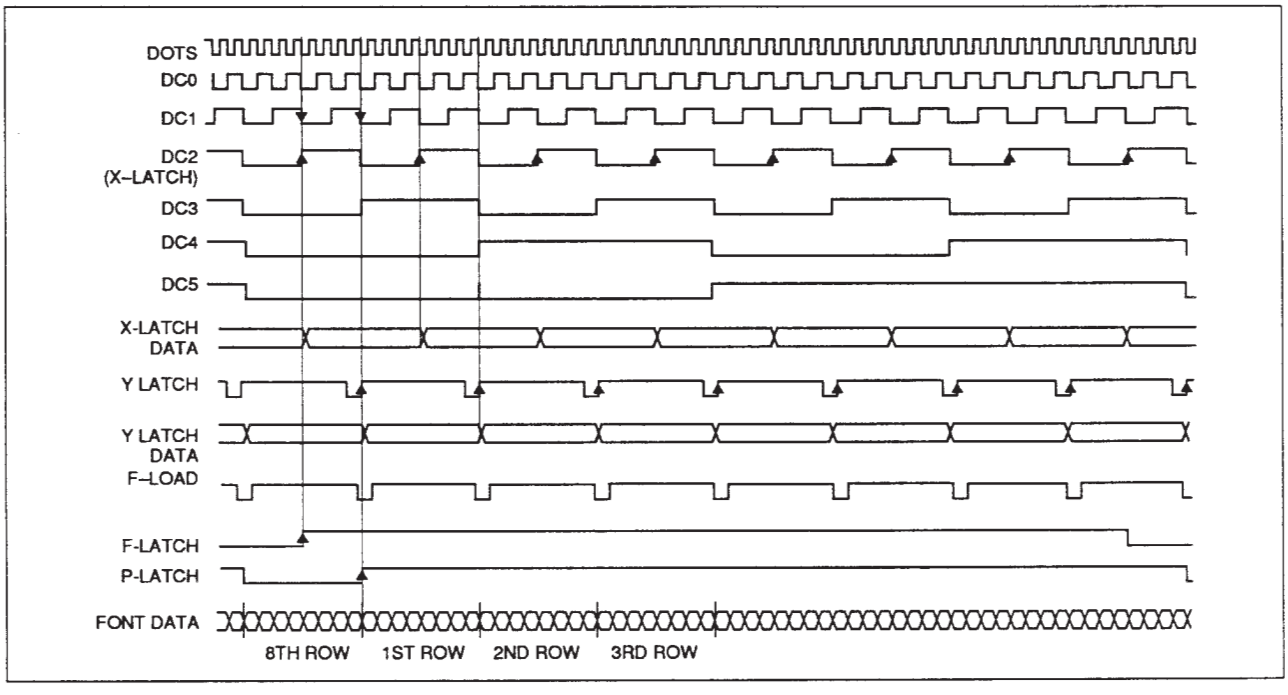


Figure 2-5. Display Timing.

Bus Buffer

The Bus Buffer Circuit consists of U200, U210 and U220; it isolates address bus A1-A14 and control signals (UDS(L), LDS(L), RD(L), WR(L), DISP-RAM(L), RESET(L), WAIT(L), STATUS-0 and STATUS-1).

4.5-MHz Oscillator

C-MOS oscillator U100 provides the 4.5-MHz clock for the Display Counter.

Display Counter

Dual 4-bit binary counters U110 and U120 make up the 16-bit Display Counter. This circuit counts the output of U100, producing the DC0 through DC14 signals. U110A is clocked by the Dot Cursor Generator output. The DC2 through DC14 signals are supplied to the Address Switch & CPU Control Circuit and become display RAM address inputs.

Address Switch & CPU Control

This circuit consists of data selector/multiplexer U130, U140, U150, U160, D-flip flop U350B, gates U310A, U310D, U320B, U320C, U330B, and inverter U340F. The circuit provides address inputs and control signals for the Display RAM. The Address Switch, composed of data selector U130 through U160, is controlled by D-flip flop U350B. When U350B pin 9 is high and U280 pin 4 is low, the read/write access of the Display RAM by the CPU is enabled. When U350 pin 9 is low, the Address switch selects the Display counter outputs DC2 through DC14 for Display RAM address inputs to display the Display RAM contents on the CRT. In this case, when U280 pin 4 is low, U330B and U320B supplies CPU control signal WAIT(L) for the CPU until pin 9 of U350B returns high. Table 2-5 shows the relationship between the pin 9 output of U350B and the pin 4 output of U280.

Table 2-5
Display RAM States

U350B pin 9	U280 pin 4	WAIT(L)	Display RAM address	Display RAM status
1	0	1	CPU address	CPU accesses Display RAM
1	1	1	CPU address	Display RAM not accessed
0	0	0	Display counter	Counter accesses Display RAM
0	1	1	Display counter	Counter accesses Display RAM

Display RAM

The Display RAM consists of 8-Kbyte static RAM devices U230 and U240. It stores the display data. Figure 2-6 shows the Display RAM memory map.

Bus Transceiver

The Bus Transceiver consists of octal bus transceiver U250, U260 and gate U320A. When the pin 9 output of U350B is high and the pin 4 output of U280 is low, the Bus Transceiver is enabled and the Display RAM Bus is connected to the CPU Bus.

Dot Cursor Generator

The Dot Cursor Generator consists of dual 4-bit counter U170, gate U310C, U330A, U330C, U330D and inverter U340C, U340D. The circuit generates the dot cursor signal by stopping the Display Counter Clock. When both the STATUS-1 signal and pin 12 of U330D are high, the clock input for U110A is inhibited during the U170A and U170B count for 128 cycles of the the pin 8 output of U110B.

Character & Latch Controller

This circuit consists of D-flip flops U350A, U360A & B, U370A & B, and U380; plus gates U300A & C, U320D, and U340A, B, & E. This circuit provides necessary control signals to the Display D/A Converter Circuit. STATUS-0 and STATUS-1 signals that determine the display cycle are also produced by this circuit. The display cycle is shown in Figure 2-7. If the RECALL/DIRECTORY button is pressed while holding down the FAST/SHIFT button to put the 370A in the Directory mode, pin 4 of U270 goes high. This forces the STATUS-0 and STATUS-1 signals low, causing the characteristics curve to be replaced by characters representing the directory. U280 generates a chip select signal for U270.

The STATUS-1 signal provides a display refresh rate of 68.7 Hz (68.5 Hz if the Dot cursor is enabled). The F-LATCH signal latches the character font data. The P-LATCH signal latches the character position data. The F-LOAD signal latches the output of character ROM U620. DC2 latches the curve X data and attributes data (X-LATCH). Y-LATCH latches the curve X,Y data and attributes data. R-SEL selects Z-SEL and DZ(L) signals. DCL3-DCL5 generates Y readout position data.

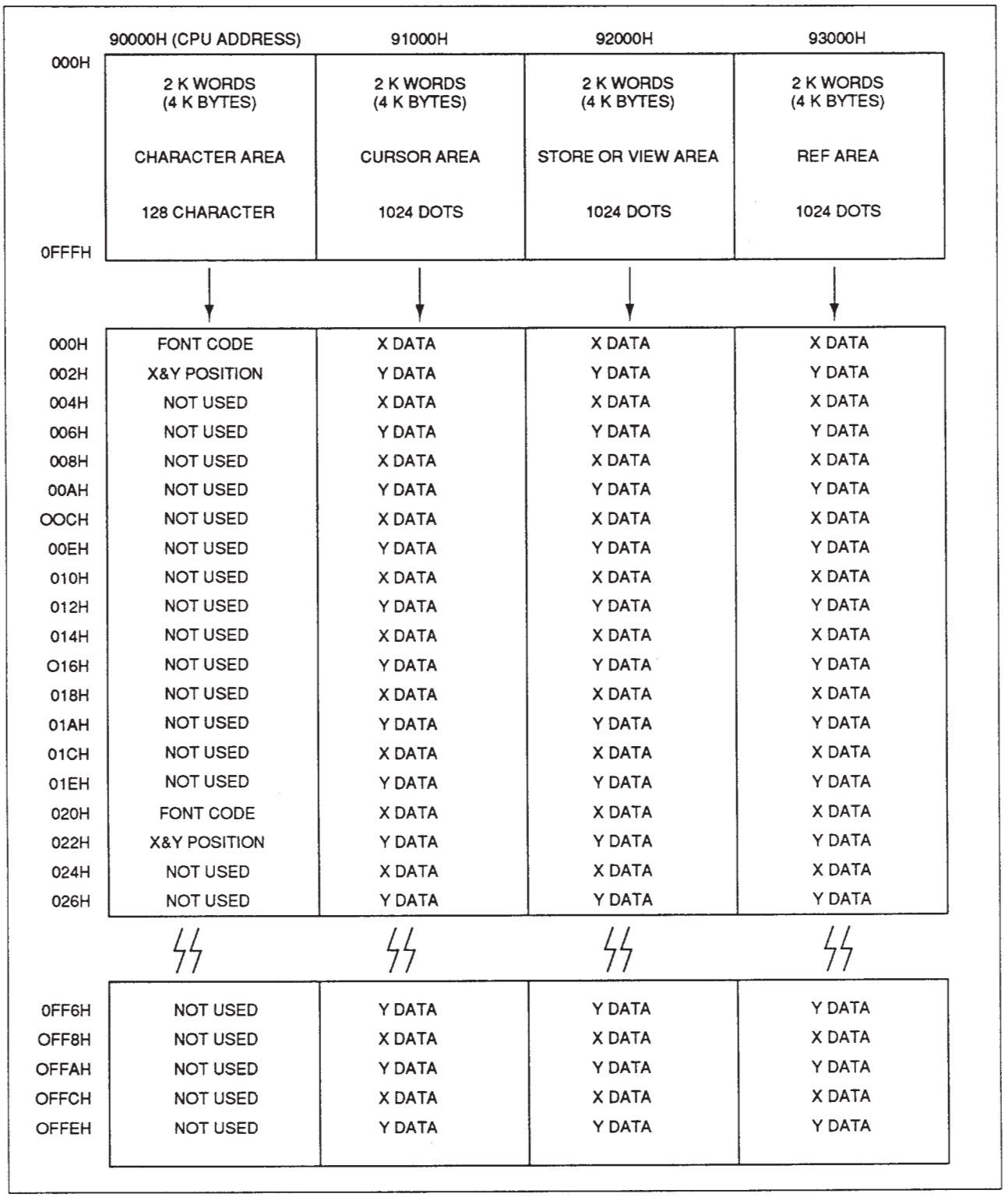


Figure 2-6. Display RAM Memory Map.

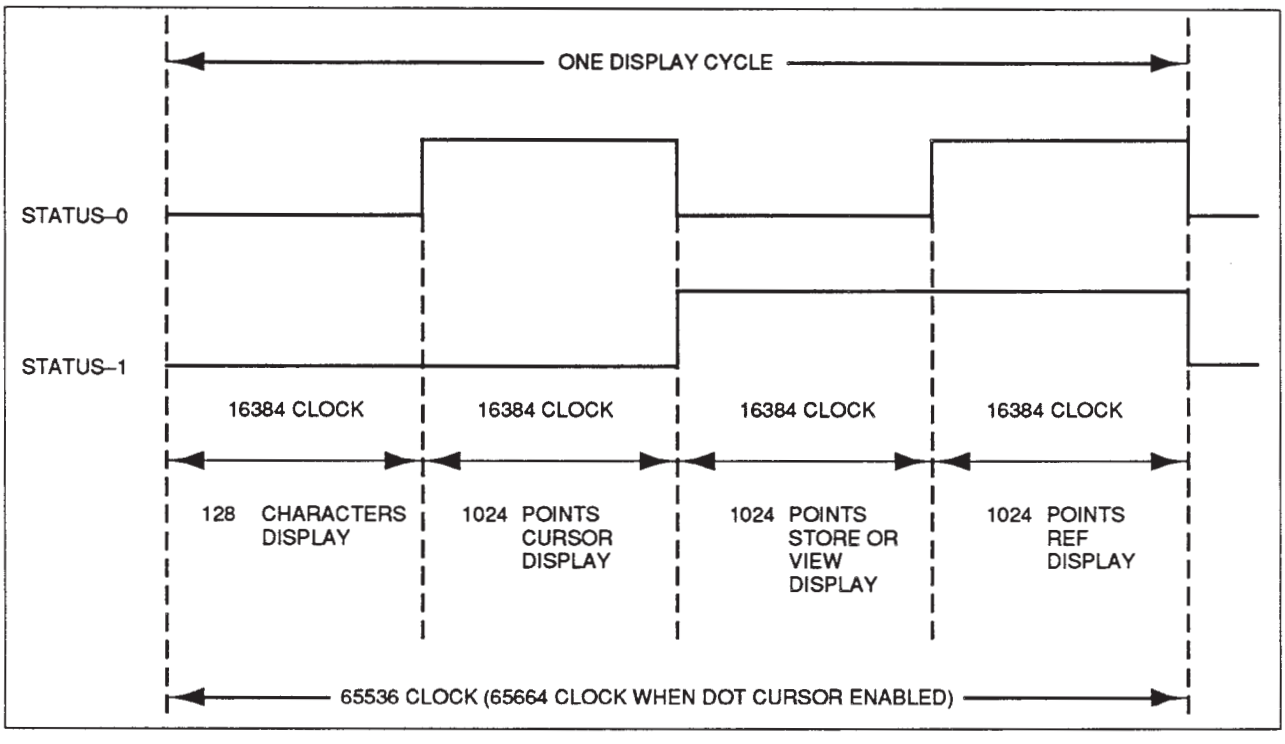


Figure 2-7. Display Cycle.

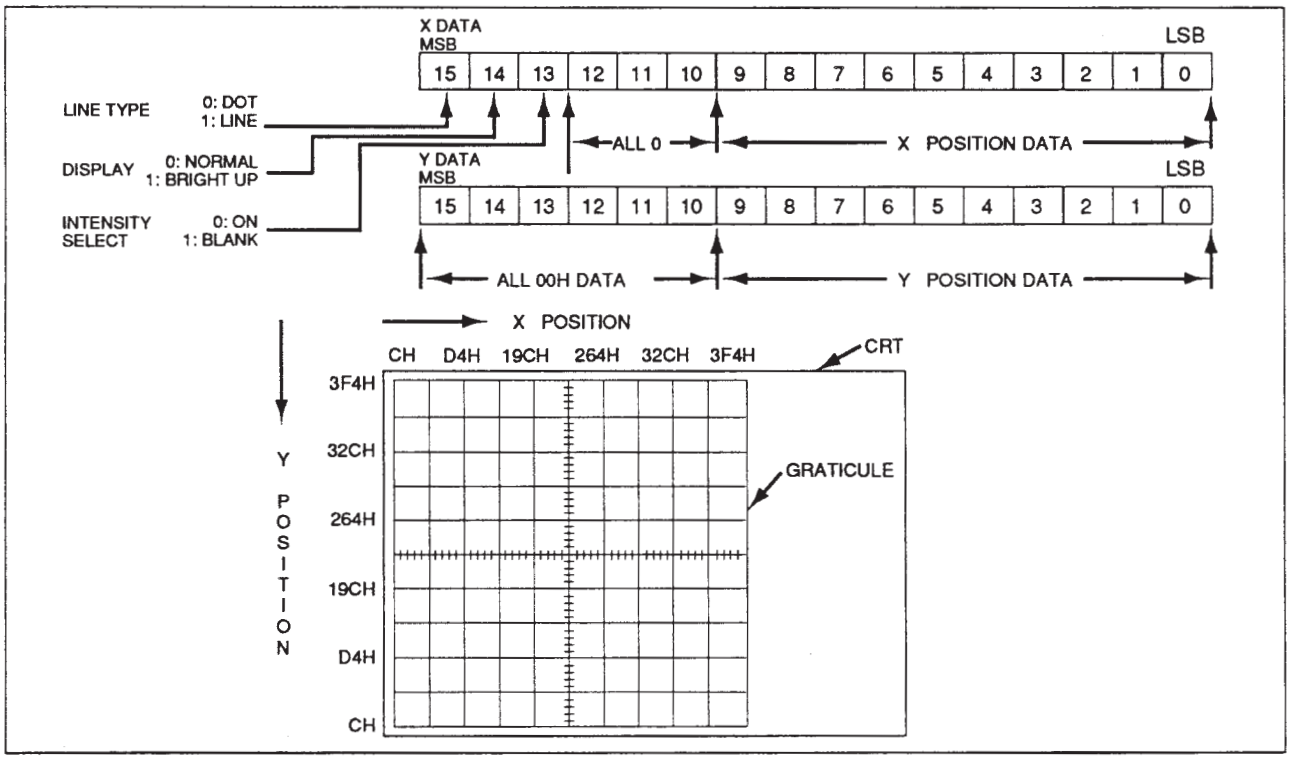


Figure 2-8. X and Y data organization.

7 DISPLAY D/A CONVERTER CIRCUIT

The Display D/A Converter Circuit is located on A4 Digital Display Board. The Display D/A Converter Circuit consists of:

1. X data & Attribute Prefetch Latch.
2. X-Y Data & Attribute Load Latch.
3. X 10-bit DAC & Y 10-bit DAC.
4. X & Y Low-pass Filter
5. Font Latch.
6. Character ROM & Shift Register.
7. X & Y Readout Position Latch.
8. Readout Attribute Latch.
9. 8-bit Adder.
10. X Readout Step Generator.
11. X Readout DAC and Y Readout DAC.

These circuits convert the digitized waveform data, readout data and cursor data from the Display RAM into an analog signal and generate the z-axis signal.

X Data & Attribute Prefetch Latch

The X Data & Attribute Prefetch Latch consists of octal D flip flops U400 and U420. Because X coordinate data comes prior to Y coordinate data from the Display RAM, and the X and Y curve data must simultaneously be latched into the X-Y Data & Attribute Load Latch (attribute data is included in X data), temporary storage of the X curve data is needed. X data is latched by the positive edge of DC2.

X-Y Data & Attribute Load Latch

This circuit consists of octal D flipflops U440, U460 and U480. The Y-latch signal latches X curve data and Y curve data and provides the data to the X and Y 10 bit DAC. Attribute data included in the X data are also latched. Figure 2-8 shows the X and Y data organization.

X 10-Bit DAC & Y 10-Bit DAC

The X 10-bit DAC consists of 12-bit DAC U500, operational amplifier U502A and associated components. This circuit converts 10-bit X digital signals (X curve data) from the X-Y Data & Attribute Load Latch circuit into a ± 1 volt analog signal.

The Y 10-bit DAC consists of 12-bit DAC U520, operational amplifier U502B and associated components. Operation of this circuit is the same as the X 10 bit DAC and ±1 volts Y analog signal is generated.

X Low-pass Filter & Y Low-pass Filter

The X Low-pass Filter consists of operational amplifier U522A, analog switch U540B, resistors R512, R514 and capacitors C508, C510, C512, C528. This circuit is enabled when the pin 17 output of U440 is high, reducing the high frequency elements of the X analog signal so that the dots displayed on the CRT seem to be a line.

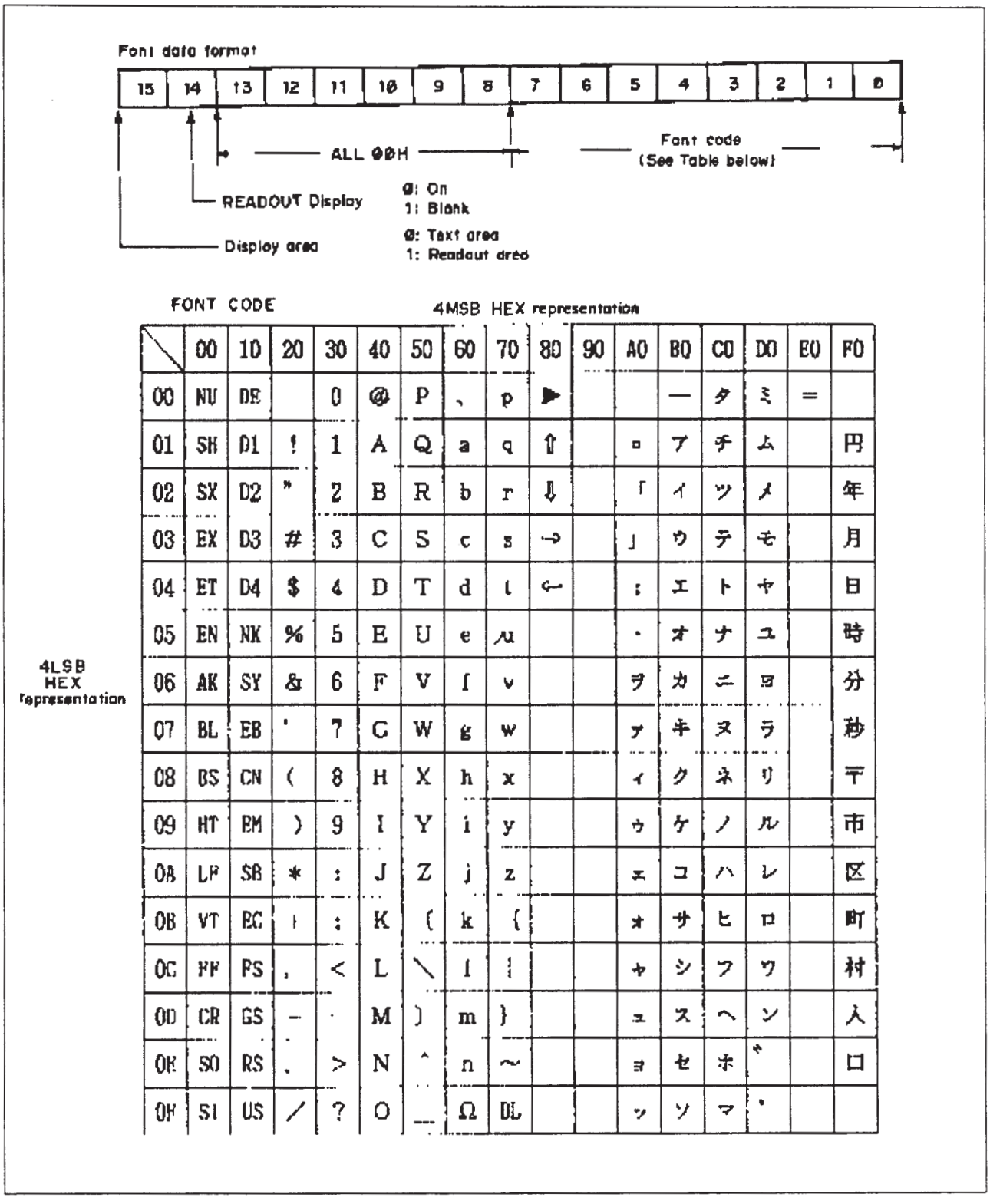
The Y Low-pass Filter consists of operational amplifier U522B, analog switch U540C, resistors R532, R534 and capacitors C530, C532. This circuit acts just like the X Low-pass Filter.

Font Latch

The Font Latch consists of octal D flipflops U600 and stores the font data of the readout character by the F-LATCH signal. Figure 2-9 shows the data format of the font data word.

Character ROM & Shift Register

This circuit consists of Character ROM U620, shift register U640 and NAND gate U310B. This circuit generates Z signals for the readout character. When the F-load signal is low, the output of Character ROM U620 are loaded into shift register U640 by DOTS(L) signal. When the F-load signal returns to high, loaded data are shifted by the DOTS(L) signal to become the serial readout Z signal. U310B is provided to shorten the readout Z signal active duration.



	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NU	DE		0	@	P	、	p	▶			—	タ	ミ	=	
01	SH	D1	!	1	A	Q	a	q	⇧		▫	ア	チ	ム		円
02	SX	D2	"	2	B	R	b	r	⇩		「	イ	ツ	メ		年
03	EX	D3	#	3	C	S	c	s	→		」	ウ	テ	モ		月
04	ET	D4	$	4	D	T	d	t	←		;	エ	ト	ヤ		日
05	EN	NK	%	5	E	U	e	ﾊu			・	オ	ナ	ユ		時
06	AK	SY	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		分
07	BL	EB	'	7	G	W	g	w			ァ	キ	ヌ	ラ		秒
08	BS	CN	(	8	H	X	h	x			ィ	ク	ネ	リ		千
09	HT	EM	)	9	I	Y	i	y			ゥ	ケ	ノ	ル		市
0A	LF	SB	*	:	J	Z	j	z			ェ	コ	ハ	レ		区
0B	VT	EC	+	;	K	[	k	{			ォ	サ	ヒ	ロ		町
0C	FF	FS	,	<	L	¥	l	¦			ャ	シ	フ	ワ		村
0D	CR	GS	-	=	M	]	m	}			ュ	ス	ヘ	ン		人
0E	SO	RS	.	>	N	^	n	~			ョ	セ	ホ	ﾞ		口
0F	SI	US	/	?	O	_	Ω	DL			ッ	ソ	マ	ﾟ		

Figure 2-9. Font data word data format.

X & Y Readout Position Latch

The X & Y Readout Position Latch consists of octal D flipflops U700 and U710. This circuit stores the X and Y position data for the readout character. The position data are latched by the P-LATCH signal. Figure 2-10 shows the readout position data format.

Readout Attribute Latch

Dual D-type flipflop U660 is the Attribute Latch; it stores readout attribute data prefetched in the X data & attribute prefetch latch. The readout attribute data are latched by the P-LATCH signal.

8-Bit Adder

The 8-bit Adder consists of adder U760 and U770. It adds DCL3 through DCL5 to Y readout position data PY0 through PY7. The RY0 through RY7 output of this circuit are supplied to the Y readout DAC as the Y readout data.

X Readout Step Generator

The X Readout Step Generator consists of U720B, C, D and resistors R700, R702, R704, R710, R712, R714, R716, R718, R720. This circuit generates the X step signal from DC0 through DC2 signals and provides this step signal with the X readout DAC output as the X readout signal.

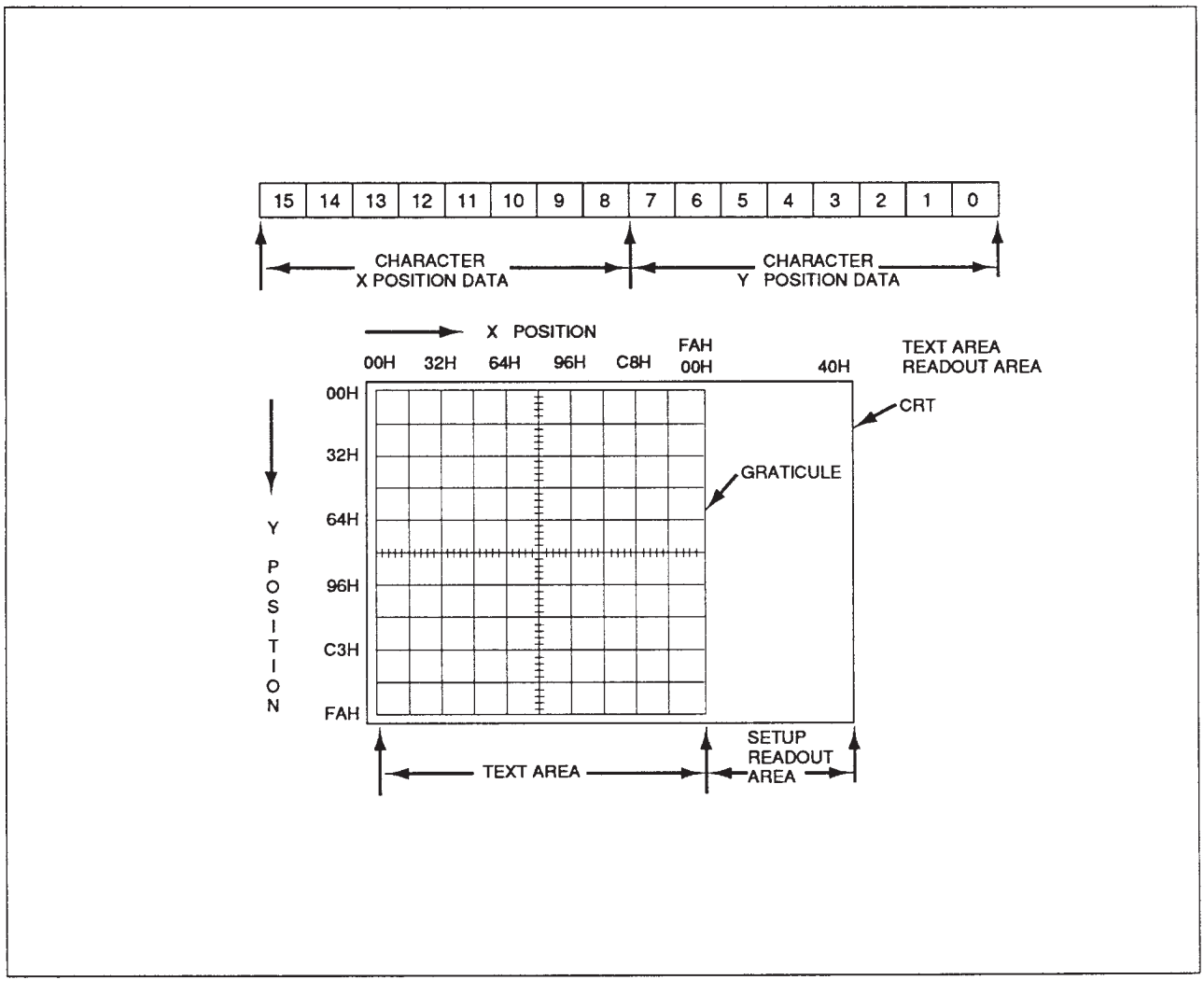


Figure 2-10. Readout character position data format.

X & Y Readout DAC

The X Readout DAC consists of 8-bit DAC U800, operational amplifier U802A, B, analog switch U540A and their associated components. This circuit converts the X position data output PX0 through PX7 from the X & Y Readout Position Latch into an X analog signal and adds the output of the X Readout Step Generator to the converted output. If pin 5 of the Readout Attribute Latch U660A is high, U540A switches to offset the U802B by the U822B reference voltage so that the readout can be written in the SETUP readout area. The output of U802B provides the X readout signal, RX.

The Y Readout DAC consists of 8 bit DAC U820, operational amplifierU822A and associated components. This circuit converts the RY0 through RY7 outputs of the 8-bit adder into the Y readout signal, RY.

8 DISPLAY OFFSET CIRCUIT

The Display Offset Circuit is located on the A5 Display Control Board. The Display Offset Circuit consists of the Control Logic Circuit, Offset D/A Converter, Polarity Select Circuit, Source Select Circuit, Zero & Invert Select Circuit and Gain Select Circuit. These circuits select the horizontal and vertical source inputs for the CRT display and provide them with calibrated offset voltages to execute display functions such as DISPLAY OFFSET, MAG, CRT CAL, DISPLAY INVERT and COLLECTOR SUPPLY POLARITY.

Control Logic

U100, U120 and U140 are 8-bit addressable latches and U160 form a 3-line to 8-line decoder/multiplexer. These components form the Control Logic stage. This circuit decodes the address A1 through A6 from the CPU. D0 data from the CPU determines the display functions. Table 2-6 shows the display functions that are controlled by the address A1 through A6 and data D0.

Offset D/A Converter

The Offset D/A Converter consists of dual D/A converter U670, operational amplifiers U662A, U662B, U674, U677 and analog switches U640B, U650B. This circuit generates display offset voltages selected by the front panel Position Control buttons. The DO0 through DO6 output of the Control Logic circuit determines the display offset. This offset output is supplied to the Polarity Select circuit.

Polarity Select

The Polarity Select Circuit consists of analog switches U680, U685, operational amplifiers U690, U695 and their associated components. This circuit provides display offset resulting from the setting of the front panel COLLECTOR SUPPLY POLARITY switch.

U685 (or U680) pins 9 and 10 provide the display offset when the COLLECTOR SUPPLY POLARITY switch is set to +(NPN), AC or –(PNP).

Table 2-6
Display Function

Address									Display function
A6	A5	A4	A3	A2	A1	(A0)	HEX	Signal	determined by D0
0	0	0	0	0	0	x	00	DO0	vertical offset
0	0	0	0	0	1	x	02	DO1	vertical offset
0	0	0	0	1	0	x	04	DO2	vertical offset
0	0	0	0	1	1	x	06	DO3	vertical offset
0	0	0	1	0	0	x	08	DO4	vertical offset
0	0	0	1	0	1	x	0A	DO5	vertical offset
0	0	0	1	1	0	x	0C	DO6	vertical offset
0	0	0	1	1	1	x	0E	X-Y	D/A select
0	0	1	0	0	0	x	10	VO0	1 for NPN mode
0	0	1	0	0	1	x	12	VO1	1 for AC mode
0	0	1	0	1	0	x	14	HO0	1 for NPN mode
0	0	1	0	1	1	x	16	HO1	1 for AC mode
0	0	1	1	0	0	x	18	VSRC	1 for SG sig
0	0	1	1	0	1	x	1A	HSRC	1 for SG sig
0	0	1	1	1	0	x	1C	MOV	
0	0	1	1	1	1	x	1E	MOH	
0	1	0	0	0	0	x	20	CAL	0 for cal
0	1	0	0	0	1	x	22	ZERO	1 for zero
0	1	0	0	1	0	x	24 I	NV	1 for invert
0	1	0	0	1	1	x	26	VMAG	1 for mag
0	1	0	1	0	0	x	28	HMAG	1 for mag
0	1	0	1	0	1	x	2A	NON-ST	1 for non-store
0	1	0	1	1	0	x	2C	VOPOL	vertical offset polarity
0	1	0	1	1	1	x	2E	HOPOL	horizontal offset polarity
0	1	1	0	0	0	x	30	DO0	horizontal offset
0	1	1	0	0	1	x	32	DO1	horizontal offset
0	1	1	0	1	0	x	34	DO2	horizontal offset
0	1	1	0	1	1	x	36	DO3	horizontal offset
0	1	1	1	0	0	x	38	DO4	horizontal offset
0	1	1	1	0	1	x	3A	DO5	horizontal offset
0	1	1	1	1	0	x	3C	DO6	horizontal offset
0	1	1	1	1	1	x	3E	X-Y	D/A select
1	0	0	x	x	x	x	40	LATCH	D/A latch

Source Select

The Source Select Circuit consists of analog switches U600 and U610. U610 selects the horizontal source input from the (NPN or PNP) CAL voltages, SG-SIG signal or H OUT signal. U600 selects the vertical source input from the (NPN or PNP) CAL voltages, SG-SIG signal or V-OUT signal.

Zero & Invert Select

The Zero & Invert Select circuit consists of analog switches U605 and U615. This circuit determines if the ZERO offset voltages (0 volt) is used for the source input and if the source input is inverted. Display offset selected by the Polarity Offset Circuit is applied to this circuit.

X Gain Select

The X Gain Select circuit consists of operational amplifier U630, U635, U655, analog switches U650A, U650C and associated components. This circuit determines the gain of the selected X source input as set by the HMAG signal from the Control Logic. When the HMAG signal is high, analog switches U650A and U650C switch so that the X source input is magnified 10 times.

Y Gain Select

The Y Gain Select Circuit consists of operational amplifier U620, U625, U645, analog switch U640A, U640C and their associated components. This circuit operates the same as the X Gain Select Circuit. The output of this circuit is supplied to the Display Select Circuit and Acquisition Circuit (part of A3 A/D BOARD).

9 DISPLAY SELECT

The Display Select circuit is located on the A5 Display Control board. The circuit consists of the Signal Select Logic Circuit, Unblank & Z Select Circuit, and the Horizontal & Vertical Preamp. This circuit block selects and amplifies the source inputs that are displayed on the CRT. Selection of the source inputs are performed by the Signal Select Logic Circuit. The Z signal for the source inputs is controlled by the Unblank & Z Select Circuit. Figure 2-11 and Figure 2-12 show the display select timing.

Signal Select Logic

The Signal Select Logic Circuit consists of decoder U800B, data selector U810, operational amplifier U820A, NAND gate U850A, B, C, D, U860A, inverter U840A, C, F and associated components. This circuit generates two kinds of select signals: AS (AS0, AS1)

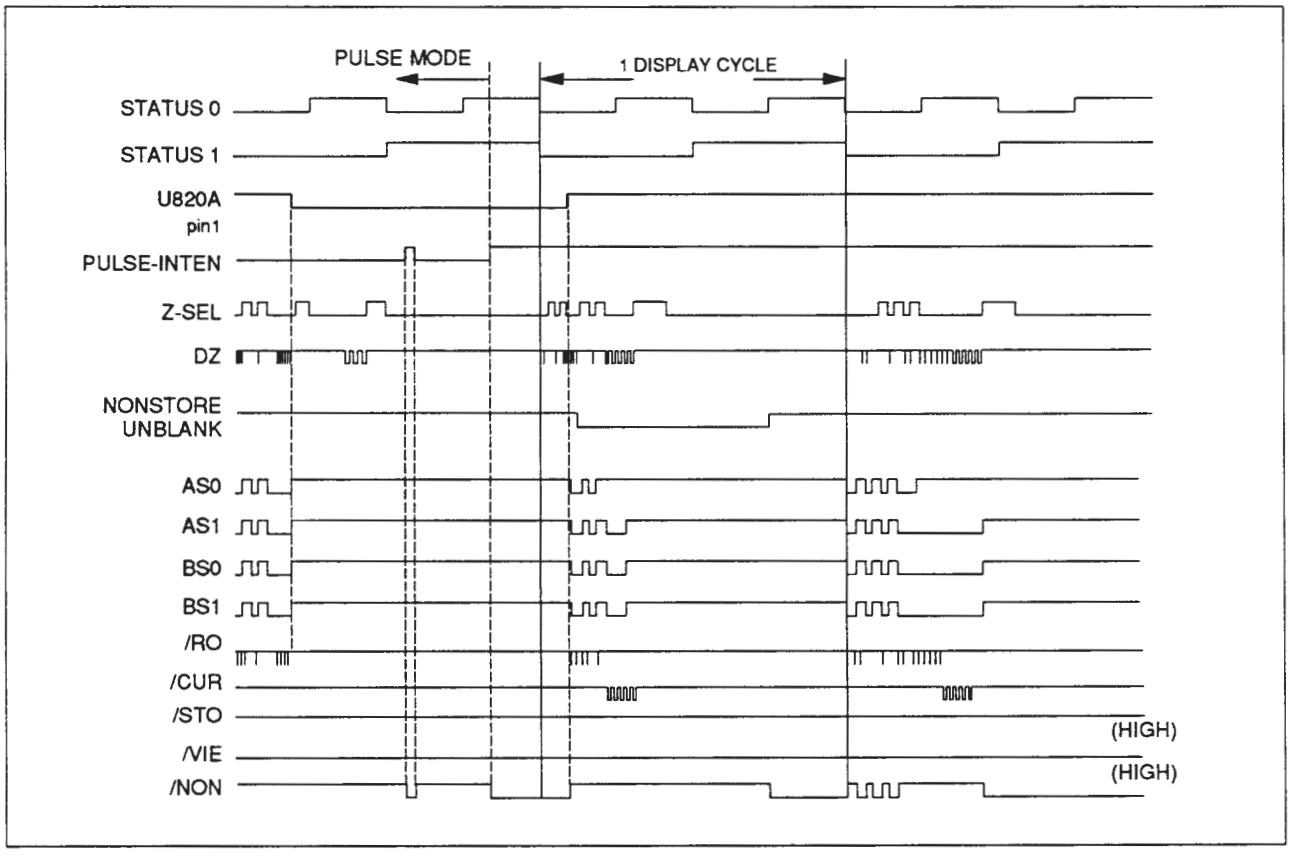


Figure 2-11. Display select timing (with NON-ST high).

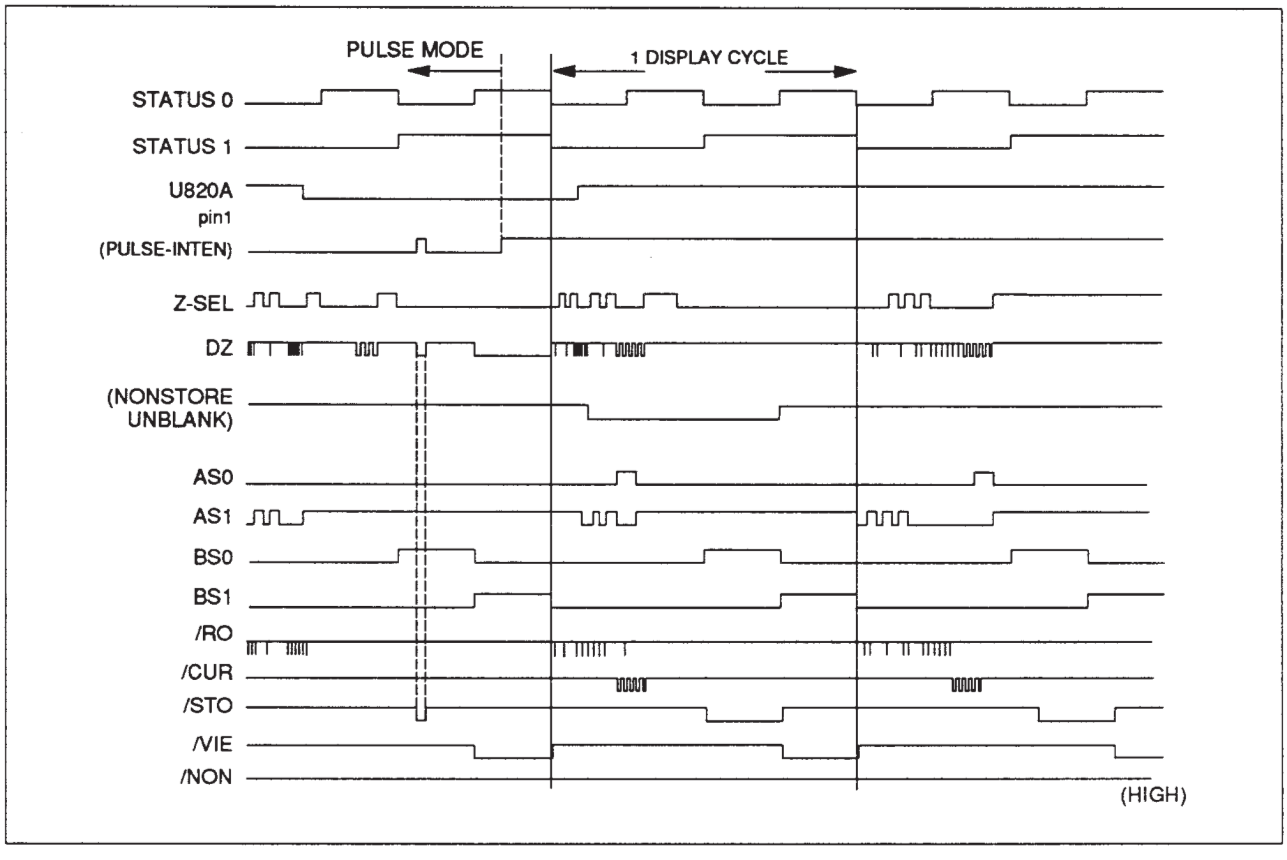


Figure 2-12. Display select timing (with NON-ST low).

and BS (BS0, BS1). Decoder U800B and NAND gate U850B, C, D generate the BS0 and BS1 select signals as follows:

Display cycle signals STATUS-0 and STATUS-1 are applied to decoder U800B, so when the pin 6 output of U850B is high, outputs of U800B are inverted by NAND gate U850C and U850D, becoming the BS0 and BS1 signals. When the pin 6 output of the NAND gate U850B is low, the BS0 and BS1signals are both high.

The two input signals to NAND gate U850B (NON-ST and AS1) determine the non-store display cycle. When NON-ST is high, the active AS1 signal provides the non-store waveform display cycle. This AS1 signal goes active (high) in one of the following conditions:

1. STATUS-1 is high
2. Z-sel is high
3. Output of comparator U820A is low (this occurs if the front panel READOUT/CURSUR INTENSITY control is adjusted counterclockwise to lower the voltage level of the A-INTEN below 2.5 volts).

The AS1 signal determines the AS0 signal. AS1 signal is applied to the select input (pin 2) of data selector U810 and provides either the NON-ST signal or STATUS-0 signal to its output as AS0.

Unblank & Z Select

This circuit consists of transistors Q850, Q852, Q860, Q862, Q870, the upper half of data selector U810, demultiplexer U800A, U830B, gate U860C, U860D, U870A and associated components. The unblank logic consists of U810, U860C, U860D and U870A. This circuit is provided to cut off the Z signal when the front-panel switches are changed. When the display mode is NON STORE, U810 selects the pin 3 input. This input is controlled by the P-INTEN and NST-UNBLK signals. When either of these signals turns low, pin 3 input of U810 turns to high, and the pin 7 output of U810 turns all outputs of demultiplexer U800A and U830B high, so that the Z signal is disabled. The Z select circuit outputs the Z signal that corresponds with the display cycle. The Z signal is selected by the AS0, AS1, BS0 and BS1 signals.

Horizontal & Vertical Preamp

The Horizontal and Vertical Preamp Circuit consists of data selector U500, U520, decoder U830A, transistor Q540A,Q540B, Q542A, Q542B, Q556, Q576, nand gate U860B, inverter U840B, D and their associated components. This circuit selects the horizontal and vertical signals, and amplifies the selected signals. The horizontal signal is selected in data selector U500. AS0 and AS1 signals are decoded by U830A, U840B, U840D, and U860B into signals RON, SON and NON to provide the select input of U500. The selected horizontal signal is applied to the base of Q540A and the H-POS level is applied to the base of Q540B. Transistors Q540A and Q540B are configured as an emitter-coupled, paraphase amplifier, with Q556 acting as a constant-current emitter source. The Vertical Preamp operates the same as the Horizontal preamp but has a different amplification factor.

10 COLLECTOR SUPPLY AMPLIFIER

This circuit is located on the A6 Collector Supply board and the A19 L.V. Supply board. The circuit consists of the Collector Supply Amplifier Circuit, the Voltage Limiter Circuit, the Current Limiter Circuit, the Limit Detector Circuit, the Power Supply and Control Circuit and the Control Signal Decoder Circuit. These circuits amplify signals from the Sine Wave Generator (located on the A3 A/D board) and provide driving voltage for collector supply transformer T200.

Collector Supply Amplifier

This circuit consists of operational amplifier U400, transistors Q424 and Q524, FETs Q438, Q440, Q538 and Q540 and diodes CR402 and CR404. This circuit amplifies the signal from the Sine Wave Attenuator Circuit (A3 A/D Board) into the driving voltage for collector supply transformer T200. U400B and associated components form a low pass filter, and U400A is an inverter. Q424, Q524, Q438, Q538, Q440 and Q540 form a differential output, capacitorless single-ended push-pull circuit. Resistor R412 adjusts final stage offset.

Voltage Limiter

This circuit consists of operational amplifiers U210 and U212, analog switch U200 and diodes CR210 and CR212. The circuit limits the board output voltage to 100%, 50%, 25% and 5%, under the control of the A2 CPU board. Analog switch U200 selects the output voltage limit. Operational amplifier U212A is a voltage follower and U212B is an inverter. U210 and diodes CR210 and CR212 make up two diode function generators. This circuit compares the output voltage of U400B with the positive and negative limits of the output voltage, which are set by U200. If the output voltage of U400B exceeds these limits, one of two diode generators U210A or U210B is turned on and the output voltage is clamped within upper or lower limits.

Current Limiter

This circuit consists of transistors Q444 and Q544, resistor pairs R444-R544, R446-R546 and R448-R548, relay drivers U102 and U103, relays K448, K548, K446 and K546 and associated components. This circuit limits the output current of this board to 200 mA, 1.2 A and 2.0 A under the control of relays (K446-K548). When the output current swing exceeds the limit, the voltage drop of each resistor pair turns Q444 or Q544 on and the emitter currents of Q424 and Q524 correspondingly decrease. This in turn decreases the gate-source voltages of Q438 and Q440 or Q538 and Q540 and as a result, output current of this circuit is clamped within the current limit. These limits are set by the A2 CPU board.

Limit Detector

This circuit consists of operational amplifiers U302A, U302B, U310A and U310B. U302A senses output voltage of this circuit and U302B senses driving voltage of the final stage. These signals are of opposite phase. They are added together and led to window comparator U310A-U310B. If the input voltage exceeds limits, the window comparator transfers the LMTR(L) signal. This LMTR(L) signal is used by the A14 LOR Key board to notify the operator that the current limiter is controlling Collector Supply output.

Power Supply and Control

This circuit consists of operational amplifier U330A, solid-state relay (SSR) U700, diode CR316, CR710, CR712, CR720, CR722, CR730, transformer T100, capacitor C336, C710, C720, and associated components. The circuit supplies and controls voltages applied to the final stage of the Collector Supply amplifier. To meet various output voltage requirements for the Collector Supply Circuit, this circuit provides two different voltages. If the output voltage of the Collector Supply Amplifier exceeds 60 volts, U330A transfers the SSR-ON(L) signal to U700 and U700 is turned on. This inserts an additional winding of T100 into the
supply circuit, increasing the VCC and VDD supply voltages from ±70 volts to ±115 volts.

Control Signal Decoder

This circuit consists of 8-bit addressable latch U100. The circuit decodes control signals (SA1-SA3) and generates corresponding control signals (HL0, HL1, VL0 and VL1). These control signals control the voltage limiter and current limiter.

11 STEP AMPLIFIER

The Step Amplifier circuits are located on the A7 Step Generator board. This circuit transforms the output of the Step Generator on the A/D Board into current or voltage steps of various amplitudes to be applied to the device under test. The STEP AMPLITUDE switch determines the amplitude of the steps. The circuit consists of the Control Signal Latches, Relay Drivers, 0.5-1-2 Ranging Circuit, and Step Amplifier. This circuit also includes the Auxiliary Supply Circuit.

Control Signal Latches

Latches U120, U140 and U160 latch the control signals from the microprocessor on the CPU board. Decoder U100 decodes address signals for the latches.

Relay Driver

Transistor array U180-U190 drives relays K500-K571 to switch the operation mode of the Mode Control Circuit, Current Ranging Circuit and the Current Limiter Circuit. The drive signal is fed from the control signal latches. When the input signal of the driver is high, the corresponding relay is energized.

0.5-1-2 Ranging

The 0.5-1-2 Ranging Circuit consists of U200, U300, U310, R300, R302, R304 and associated components. See Table 2-7. This circuit attenuates the output of the Step Generator by a factor of 1, 2, or 4, as determined by the STEP AMPLITUDE switch. Control signals SR0 and SR1 are fed from U120.

Table 2-7
Ranging Circuit Steps

Attenuation	SR0	SR1	Output
4	0	0	50 mV/step
2	0	1	0.1 V/step
1	1	1	0.2 V/step

This ranging circuit is used for both the current mode and the voltage step mode.

Step Amplifier

The Step Amplifier Circuit has two modes of operation, current step mode and voltage step mode.

Current Step Mode. When the current step mode is selected by the CURRENT switch, the V/I signal from U120 pin 4 goes low. This causes U330C and U370C to provide a signal path through R340, U330C, U340, R370, U370C, and U380. The low of the V/I signal also de-energizes relays K570 and K571. The step signal from the 0.5-1-2 Ranging Circuit is attenuated and inverted by the first amplifier stage, consisting of U340, R340 and R344. Voltage gain of this stage is 0.1, as determined by R340 and R344. The output is then amplified and inverted again by the second amplifier stage, composed of U380, Q400-Q495, R370, R372, R410, R412 and associated circuitry. Voltage gain of this stage is 10, as determined by R370 and R372. U380 is an precision inverting amplifier. Q400-Q495 form a power amplifier with a voltage gain of 11, which is determined by resistors R410 and R412. Q400 and Q450 form a gain cell. Q460 and Q490 form a booster for positive output current. Q480 and Q495 form a booster for negative output current.

The output voltage of the second amplifier stage is transmitted through one of the current setting resistors to the device under test. These resistors determine the current to the device under test. The voltage output of the current-setting resistor is fed back through R342 and U600 to the negative input of U340. The current of the current setting resistor is obtained by the following equation:

$$I_{out} = V_{in}/R_s$$

where
I_{out} is the current to the device under test
V_{in} is the input from the 0.5-1-2 Ranging Circuit
R_s is the value of the current-setting resistor.

Current to the device under test can be varied in seven steps for each voltage by selecting one of the seven resistors.

U330A, CR340 and CR342 limit the voltage that can be applied to the device under test in the reverse direction when using opposing offset. If, for example, positive-going steps are to be applied to the device under test, the output of U340 is connected to its negative input through U330A and CR340. If negative offset is applied by pushing the OPPOSE button, the output of U340 is limited to the forward threshold level of CR340, approximately +0.6 volts. Because the second amplifier stage inverts this voltage and multiplies it by 10, the output to the device under test will be limited to about –6 volts.

CR402 and CR482 are provided to supply current if more than 0.4 Amps is needed. When the output current increases until the collector voltage of Q490 reaches 11.4 volts (due to the voltage drop across R490), CR402 conducts to supply additional current.

Voltage Step Mode. When the voltage step mode is selected by the VOLTAGE switch, the V/I signal goes high. U330C provides a signal path through R330, U330C and U340. U370C and U330B provide a signal path through R350 or R352, U330B, U370C and U380. Relays K570 and K571 are energized.

The step signal from the 0.5-1-2 Ranging Circuit is amplified by U380 and Q400-Q495, and fed to the device under test. U380 is an precision inverting amplifier. Q400-Q495 form a power amplifier with a voltage gain of 11, set by resistors R410 and R412. Q400 and Q450 form a gain cell. Q460 and Q490 form a booster for positive output current. Q480 and Q495 form a booster for negative output current. At the lower voltage ranges (50 mV, 100 mV and 200 mV per step), the overall voltage gain of the amplifier is 1, as determined by resistance ratio between R352 and R356-R357. At the higher voltage ranges (500 mV, 1 V and 2 V per step), the overall voltage gain of the amplifier is 10, asdetermined by resistance ratio between R350 and R354-R355.

Voltage on the ground sense terminal is fed back through inverter U360 to the negative input of U380. This ensures exact voltage between base and emitter terminal by compensating voltage drop on the emitter terminal.

R520, R522, R524, R536, Q560, and Q562 form a current limiter. When using voltage steps, the current conducted at the step generator input to the device under test may increase rapidly and possibly damage the device under test (especially when testing transistors). The Current Limiter Circuit limits this current in the voltage mode. If, for example, K520S, K522S and K524S are all disconnected, the current to the device under test flows through R536. When the current increases to 20 mA,the voltage across R536 reaches 0.6 V. If positive-going steps are being produced, this voltage forward-biases the base-emitter junction of Q560 and turns it on. When Q560 turns on, the voltage on the output side of R536 becomes 1.4 volts below the base voltage of Q460. As this voltage is almost the same as the the emitter voltage of Q490, output current through R536 is disabled. CR450 and CR452 clamp the base-emitter voltage of Q450 to limit current through Q450, CR560 and Q560.

If negative-going steps are being produced, voltage across R536 forward-biases the base-emitter junction of Q562 and turns it on. When Q562 turns on, it supplies the current demanded by CR480. This reduces the base current of Q480 which reduces the drive to Q495 and limits current through R536. Current through Q562 and CR562 is limited by CR480.

In the 370A relays K520 and K522 are always ON and relay K524 always OFF, so the current limit value is fixed at 0.5 A.

R526 and CR526 limit reverse current from the base-emitter junction of the device under test.

12 H.V. MODULE

This circuit consists of Transformer T200, H.V. Module U800, Relay Control Signal Decoder Circuit and LOR Relay Circuit and is active when the MAX PEAK VOLTS is set to 2000. These circuits provide the sine-wave ac, the full-wave rectified sine wave and the DC voltage that range from 0 volts to 2000 volts peak. These voltages are applied to the collector of the device under test via the A34 LOR Relay board.

Transformer

This circuit consists of transformer T200 and associated components. The circuit supplies AC high voltage. The input of T200 is a swept AC sine-wave voltage that ranges from 0 volts to 100 volts from the A6 Collector Supply Output board; the voltage is applied to the primary windings. The range of induced voltage on the secondary windings of T200 is from 0 volts to 2000 volts.

H.V. Module

H.V. Module consists of Full-wave Rectifier Circuit, Output Power Limiter Circuit and Relay Circuit.

Full-wave Rectifier. This circuit consists of diodes CR200, CR202, CR204 and CR206 and forms a full-wave bridge rectifier. They rectify applied voltages ranging from 0 volts to 2000 volts. The output of the circuit is a full-wave rectified sine wave ranging from 0 volts to 2000 volts peak.

Output Power Limiter. This circuit consists of resistors R402, R403, R404, R405, R406, R407 and R408. These resistors are selected by the Relay Circuit. The selected resistors are inserted into the output circuit of this module in series to limit the output current. The resulting output power of this circuit is limited to the MAX PEAK POWER control setting. The selectable power limits are 50 watts, 10 watts, 2 watts, 0.4 watts and 0.08 watts.

Relay. The Relay Circuit consists of K202, K210, K211, K212, K213, K214, K215, K300, K302, K304, K306, K400, K410, K500, K510 and K600. The Relay Circuit is controlled by the Control Signal

Decoder Circuit, providing the desired output set by the POLARITY switches, MAX PEAK POWER switches and LEFT-RIGHT-STANDBY switch. As a result, the Collector Supply High Voltage Circuit provides five different outputs (+dc, +full wave rectified sine, ac, –full wave rectified sine and –dc), each ranging from 0.08 watts to 50 watts, to the LEFT and RIGHT connectors. The combinations of the activated relays for each setting are described in Table 2-8. When the ARC signal from U820 goes high, the voltage which had been applied to K600 is removed, and the output is cut off.

Table 2-8
Activated Relays for High Voltage

Front-panel Setting		
Function	**Position**	**Activated Relays**
POLARITY	+	K211 and K214
	–	K212 and K213
	AC	K210 and K215
	DC	K400 and K410
	⌓	K202
MAX PEAK POWER WATTS	50	K300
	10	K302
	2	K304
	0.4	K306
	0.08	——
LEFT-RIGHT-STANDBY	LEFT	K500
	STANDBY	——
	RIGHT	K510

Relay Control Signal Decoder

This circuit consists of 8 bit addressable latch U700 and U800 and relay drivers U710, U810 and U820. The circuit decodes control signals from the A2 CPU board and drives corresponding relays. The relay drive signals are transferred to corresponding relays.

LOR Relay

The LOR Relay Circuit consists of relays K920, K930 and K940 and diodes CR920, CR930 and CR940. This circuit is controlled by the Control Signal Decoder Circuit, and provides the output from the Collector Supply Low Voltage Circuit to the desired adapter connector selected by the LEFT-RIGHT-STANDBY switch. When the LEFT-RIGHT-STANDBY switch is set to LEFT, a voltage is applied to K940, and when it is set to RIGHT a voltage is applied to relay K930. In the STANDBY position, voltage is applied to neither K940 nor K930. When the ARC signal goes high, the voltage which had been applied to K920 is removed, and the output of theCollector Low Voltage Circuit is cut off.

13 COLLECTOR SUPPLY LOW VOLTAGE

This circuit is located on the A9 L.V. Relay board and the A35 Looping board. The circuit consists of Transformer T200, Full-wave Rectifier Circuit, Smoothing Circuit, Output Power Limiter Circuit, Looping Compensator Circuit, Relay Control Signal Decoder Circuit, Relay Circuit and Discharging Circuit. These circuits provide the sine-wave ac, the full-wave rectified sine wave and the DC voltages. These voltages are supplied in three ranges, from 0 volts to 16 volts, from 0 volts to 80 volts and from 0 volts to 400 volts. These voltages are applied to the collector or base of the device under test via the A34 LOR Relay board, the A10 Sense board and the A33 Configuration Relay Board.

Transformer

This circuit consists of Transformer T200, which supplies low AC voltages. The input of this circuit is a swept AC sine-wave voltage ranging from 0 volts to 100 volts from the A6 Collector Supply Output board; this voltage is applied to the primary windings of T200. The ranges of induced voltages on the three secondary windings of T200 are from 0 volts to 16 volts, from 0 volts to 80 volts and from 0 volts to 400 volts. Depending on the output voltage, waveform and current desired, the output voltages of this circuit are switched to the corresponding processing circuit of the board.

Full-wave Rectifier

This circuit is actually two full-wave bridge rectifiers. The first bridge rectifier consists of diode pairs CR200, CR202 and CR204, which produce the voltages from which the 0 volts to 16 volts are derived. The second bridge rectifier consists of diode bridge CR300, which produces the voltages from which the 0 volts to 80 volts and 0 volts to 400 volts are derived.

Smoothing

This circuit comprises three sets of smoothing circuits. The first set consists of resistor R208 and capacitor C209. The second set consists of resistor R319 and capacitor C319. The third set consists of resistors R306 and R307 and capacitors C306 and C307. Each input of the circuit is a full-wave rectified sine wave; the voltage range is from 0 volts to 16 volts, 0 volts to 80 volts and 0 volts to 400 volts, respectively. When this circuit is selected, the ripple component of each input voltage is shunted to ground.

Output Power Limiter

This circuit consists of resistors R400A, R416, R417, R418 and R419. The resistors are selected by the Relay Circuit. The selected resistors are inserted into the output circuit of this board in series to limit the output current. The resulting output power is limited to the setting of the MAX PEAK POWER WATTS switch, located on the A12 Sub Key board. Output power settings are 220 watts, 50 watts, 10 watts, 2 watts, 0.4 watts and 0.08 watts.

Looping Compensator

This circuit consists of variable resistors R500, R501, R502, R503 and R504 and capacitors C500, C501, C502, C510, C512, C520 and C522. The circuit neutralizes the effect of stray capacitance by applying reverse voltage to the sensing circuit. This neutralization is adjusted by variable resistors R500, R501, R502, R503 and R504.

NOTE

To cancel the stray capacitance effect, the 370A uses two different circuits. The first circuit is a neutralizing circuit, and the second is a canceling circuit. The neutralizing circuit reduces the stray capacitance effect before sensing. This circuit is the circuit mentioned in this section. The cancel circuit cancels stray capacitance effect on the sensed signal by a subtraction technique applied after sensing. This circuit is located on the A10 Sense board and is controlled by the LOOPING COMPENSATION control on the370A front panel.

Relay Control Signal Decoder

This circuit consists of 3-to-8 demultiplexer U100, 8-bit addressable latches U102, U106 and U110 and relay drivers U104, U108, U109 and U112. This circuit decodes control signals from SA1 to SA7 from the A2 CPU board via the A10 Sense board and generates corresponding relay drive signals.

Relay

The Relay Circuit consists of K204-K215, K300-K314 K400-K416 and K500-K510. These relays are controlled by the relay address decoder to provide the desired output, set up by the MAX PEAK VOLTS switch (S314 and S315), POLARITY switch (S324 and S325), and MAX PEAK POWER WATTS switch (S322 and S323) on the A12 Sub Key board. This circuit provides five different outputs (+dc, +full wave rectified sine, ac, –full wave rectified sine and –dc), with a range of 0.08 watts to 220 watts. The combinations of the activated relays for each setting are listed in Table 2-9.

Discharging

The Discharging Circuit consists of photo couplers U210, U220 and U230, gate U300, FETs Q200, Q210, Q220, Q310, Q320 and Q330, transistors Q340, Q350 and Q360, transformer T300, diodes CR315, CR316, CR317 and CR318, resistor R400A, capacitor C302 and associated components.

This circuit, in response to the control signal (DISCHG) from the Discharge Control Circuit (located on diagram 4b), forces the smoothing capacitors connected to the secondary side of transformer T200 to discharge. The DISCHG signal from the Discharge Control Circuit is inverted by U109, and becomes DIS(L), which is fed to pin 2 of U210, U220 and U230. When the DISCHG signal goes high, the gate voltages of Q310, Q320 and Q330 increase, turning on these FETs. This way, the charge on the smoothing capacitors is discharged quickly through the resistor R400A or R330.

The DISCHG signal from the Discharge Control Circuit is also connected to pin 8 of U300C, so that when the DISCHG signal goes high, the oscillator formed by U300A, U300B, R320, R322, and C304 begins to oscillate, thereby generating a voltage across C302 of approximately 12 volts. This voltage is divided by R222 and R224, and applied to Q220. This turns Q220 on, causing the charge of the smoothing capacitor C206 to quickly discharge through the resistor R400A.

Table 2-9
Activated Relays for Low Voltage

A12 Sub Key board setting			
COLLECTOR SUPPLY setting	**Position**	**Voltage**	**Activated Relays**
POLARITY	+	16 80 400	K210 and K211 K314 K314
	–	16 80 400	K212 and K213 K312 K312
	AC	16 80 400	K214 and K215 K310 K310
	DC	16 80 400	K204 K308 K308
	Full-wave	16 80 400	K500 K300, K302 and K510 K304 and K306
MAX PEAK POWER WATTS	220	16 80 400	K400 K404 K408
	50	16 80 400	K402 K406 K410
	10	16 80 400	K404 K408 K412
	0.4	16 80 400	K408 K412 K416 and K414

14 VERTICAL SENSE

This circuit is located on the A10 Sense board, and consists of the Sense Board Interlock Circuit, the Interface Circuit, and the Vertical Sense Circuit. The Interlock Circuit protects this board from generating arcs, overheating, and operation when the cover is open. The Sense Board Interface Circuit interfaces this board with the A2 CPU board. The Vertical Sense Circuit compensates for looping, senses and amplifies collector, emitter and base current.

Interlock

This circuit consists of the Interlock Circuit and the Arc Killer Circuit, which protect the 370A operator and the 370A from harm. The circuit consists of cover switches S400 and S402, thermal switches S90 and S92 (located on diagram 13 and 10), and relay K700. This circuit prevents potentially dangerous voltages from appearing at the terminals when the protective cover is open. When the protective cover is open, interlock switches S400 and S402 open the relay drive line for K700 and in turn, open the primary input line

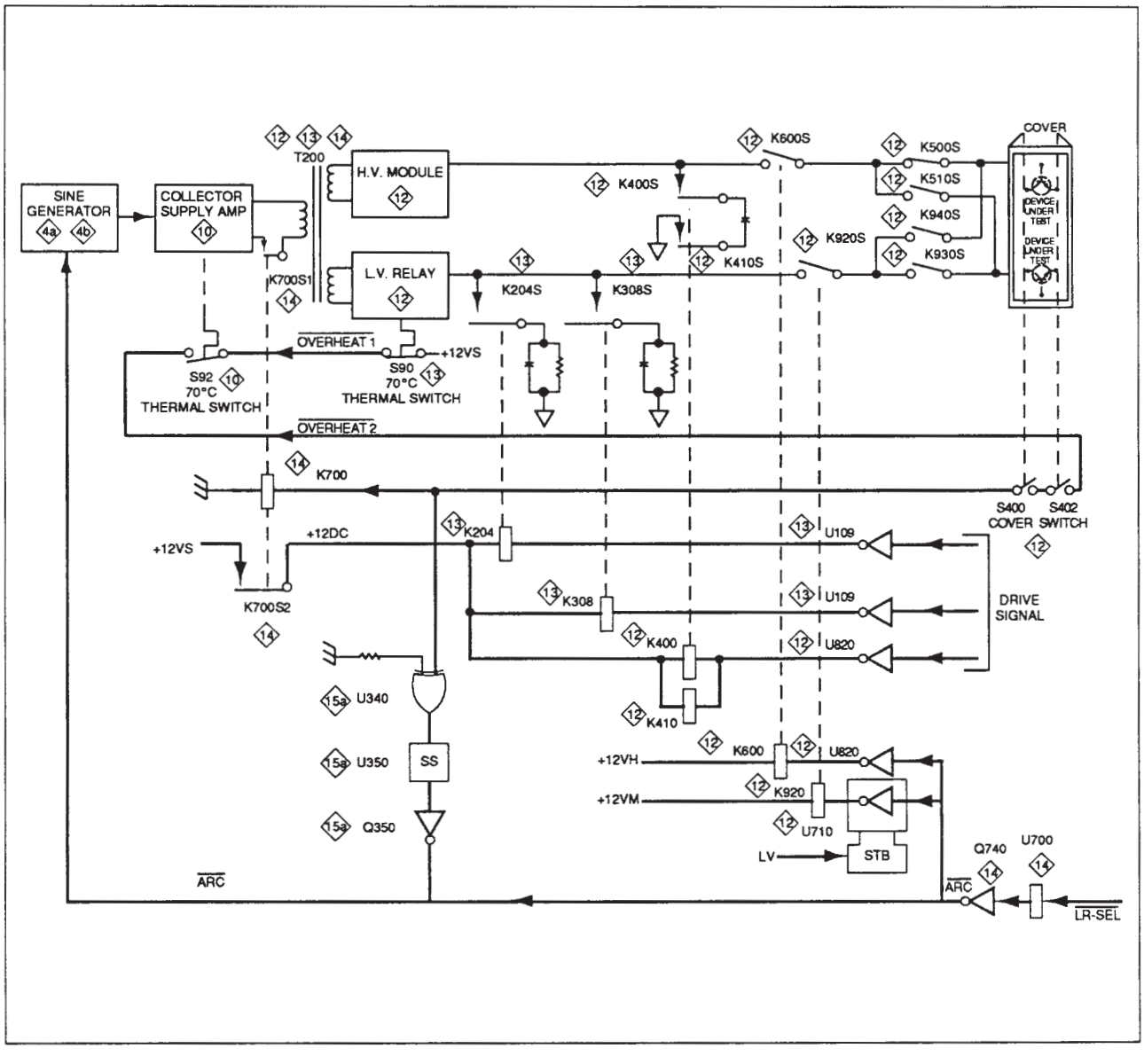


Figure 2-13. Interlock and Arc Killer Circuit.

for collector supply output transformer T200. Another contact point of K700 opens the relay drive line for K400 and K410 of H.V. Module U800, K204 and K308 on the A9 L.V. Relay board. Because these relays are connected to capacitors in which dangerous high voltages are stored, the resultant output voltage of the collector supply remains low. The same occurs when the temperature rises above 70° C at series resistor R400 on the A9 L.V. Relay board and the transistor heat sink on the A6 Collector Supply Output board, because thermal switches S90 and S92 are connected serially with interlock cover switches S400 and S402; see Figure 2-13.

The Arc Killer Circuit consists of monostable multivibrator U700 and transistor Q740. This circuit protects the 370A from dangerous high voltage arc discharge. High voltages that can cause an arc can be generated when the LEFT-RIGHT-STANDBY switch setting is changed while a voltage is applied. When the LEFT-RIGHT-STANDBY switch changes setting, the LR-SEL(L) signal is generated. The LR-SEL(L) signal is expanded by U700 and inverted into ARC(L) by Q740. This ARC(L) signal is used by the A3 A/D Board to cut off the Collector Supply Amplifier output and by H.V. Module U800 and the A9 L.V. Relay boards to cut off the Collector Supply output. The ARC(L) signal is also generated when the MAX PEAK VOLTS switch setting is changed or when the Protective Cover is opened and closed.

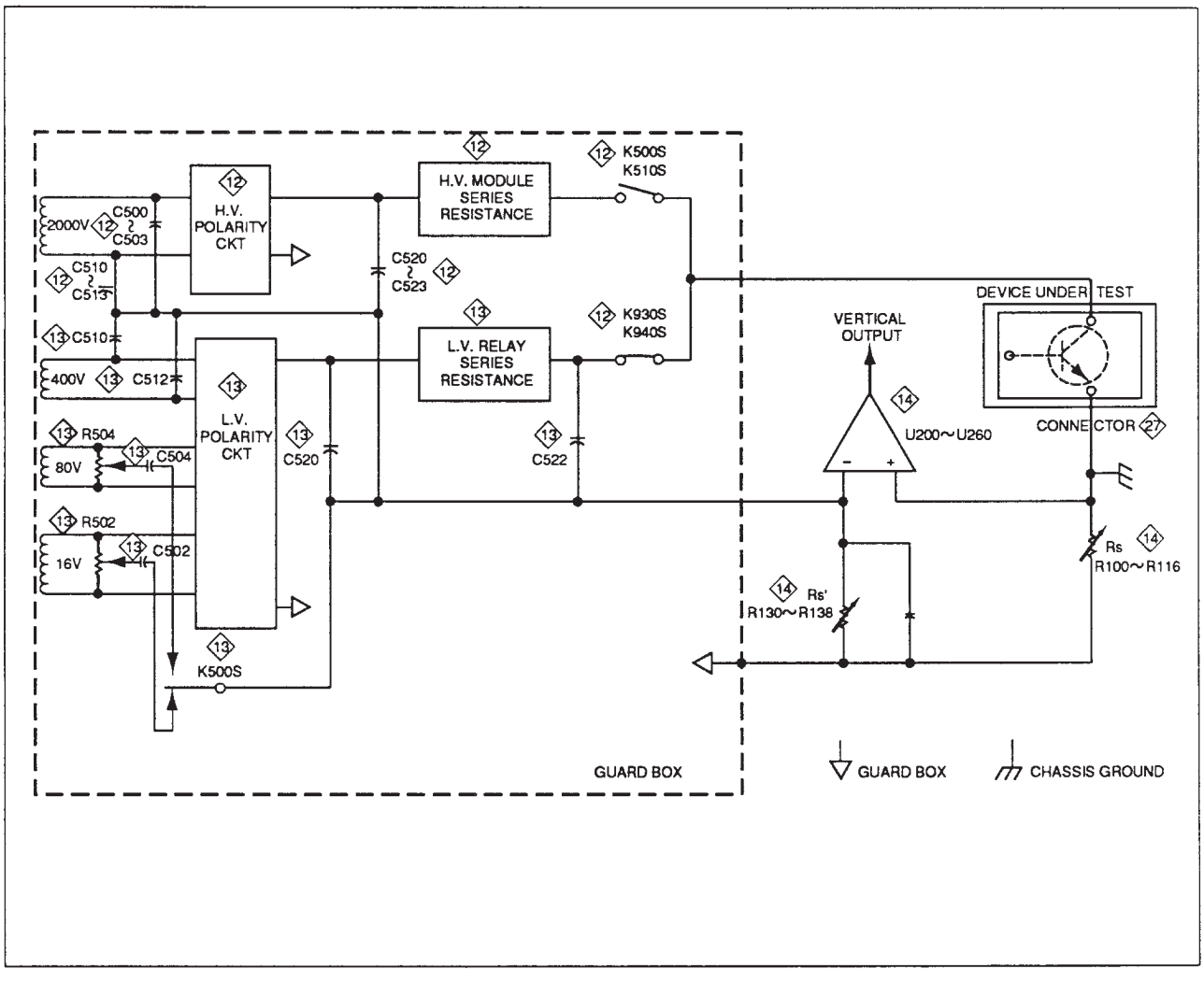


Figure 2-14. Looping Compensation (caused by stray capacitance).

Interface

The Interface Circuit consists of 3-to-8 demultiplexer U720, 8-bit addressable latches U730, U740, U750, U760 and U770 and relay drivers U745, U755, U765 and U775. This circuit decodes the control signal from the A2 CPU board and controls the relays. U720 decodes address signals (SA4-SA7) from the A2 CPU board and generates chip select signals for addressable latches U730 through U770. Then the selected addressable latch decodes data (SA1-SA3) and stores the results. This stored data is transferred to corresponding relays through relay drivers. Internal wiring J102 enables or disables the 80 and 400-volt collector supply peak voltage ranges. J101 enables or disables the 2000 volts range.

Vertical Sense

This circuit consists of the Looping Compensator Circuit, the Vertical Amplifier Circuit, the Collector Current Sense Circuit, and the Emitter Current Sense Circuit. These circuits compensate for any undesired effect of stray capacitance for measurement, and senses and amplifies the collector, base and emitter current.

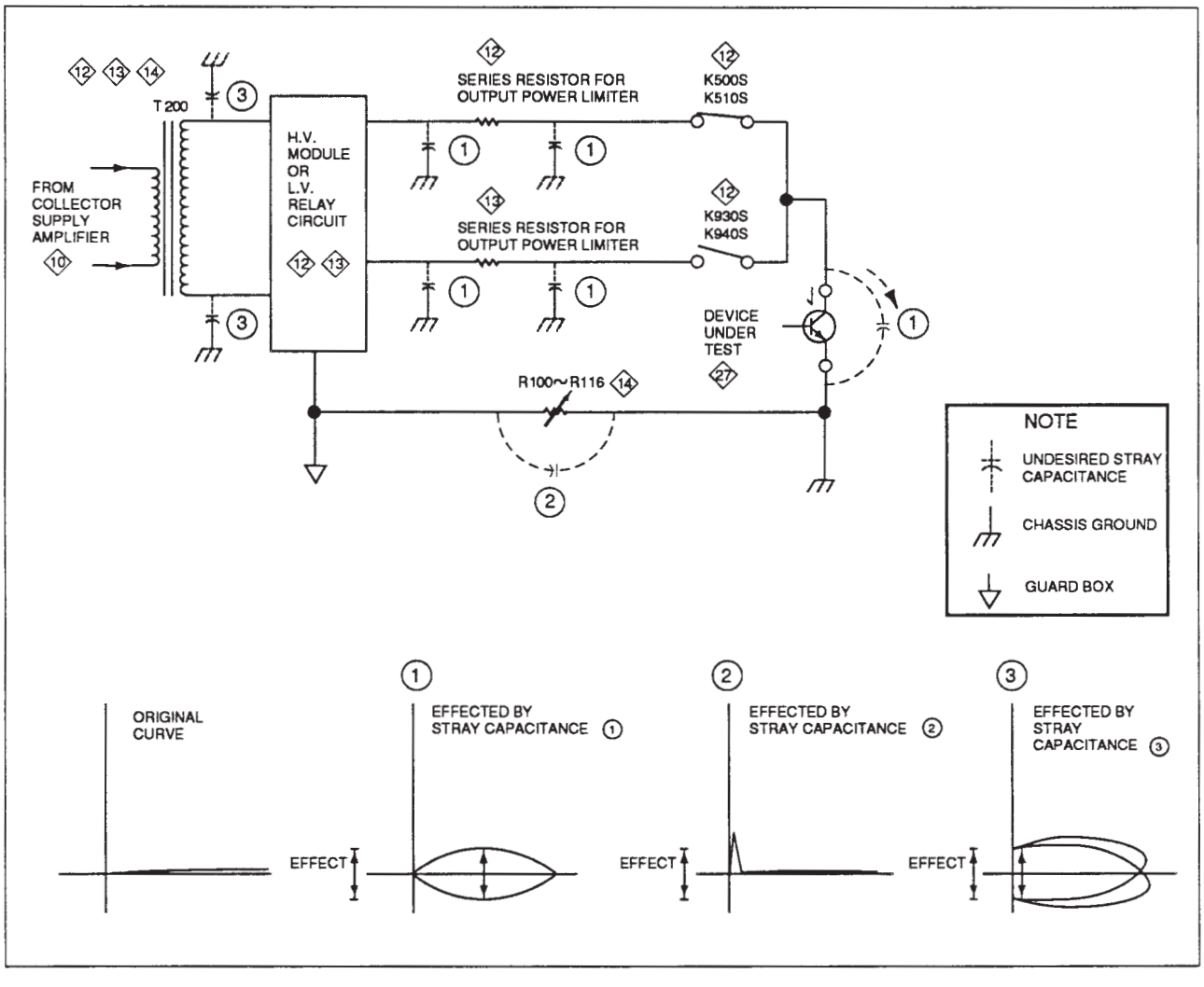


Figure 2-15. Effect of undesired stray capacitance on curve.

There is a certain amount of non-discrete capacitance associated with the collector supply. This undesired capacitance effects the measurement, which shows up in the display as looping. Part of this undesired capacitance is stray capacitance, which provides an AC current path between the collector supply and chassis ground, as does the capacitance of the device under test. The transformer and the guard box also exhibit some undesired capacitance between the guard box potential and chassis ground (see Figure 2-14). To cancel this effect, the 370A uses two different circuits, the Neutralize Circuit and the Cancel Circuit. The Neutralize Circuit reduces the stray capacitance effect before sensing. This circuit is located on the A9 L.V. Relay board and the A35 Looping board. The cancel Circuit cancels stray capacitance effect on the sensed signal through a subtraction technique after sensing.

The Looping Compensator Circuit consists of operational amplifiers U220, U230 and U240, diode CR220, resistors R140-R148. This circuit cancels the looping effect. The looping current is measured by placing resistors R140, R142, R144, R146 and R148 between input relay module U300 (located on diagram 15a) and the current return point for the collector supply, then measuring the developed voltage across these resistors. Operational amplifiers U220 and U230 sense and amplify the looping signal. The front-panel LOOPING COMPENSATION adjustment controls the amplitude of this signal. This signal is then isolated by U240 and subtracted electrically from the vertical signal. As a result, the looping effect is canceled. (See Figure 2-15).

The Vertical Amplifier Circuit consists of operational amplifiers U200, U210, U250 and U260 and analog switch U270. They form a high input impedance amplifier. The looping signal is subtracted at this stage. U260 and U270 form a 1-2.5-5 gain-selectable amplifier.

The Collector Current Sense Circuit consists of resistors R100 through R116. When the COLLECTOR SUPPLY POLARITY switch of the A12 Sub Keyboard is set to + or – dc, + or – full wave rectified sine or ac, this circuit senses the collector or base current of the device under test, according to the setting of the CONFIGURATION switch. The measurement is done by placing resistors R100-R116 between chassis ground and the current return point for the collector supply and measuring the developed voltage across them. Total value of placed resistors can be changed by the relays from 0.025 Ω to 25 kΩ. Table 2-10 shows the control signal for the relays.

The Emitter Current Sense Circuit consists of resistors R100 through R122 and capacitors C110, C112 and C114. If the COLLECTOR SUPPLY POLARITY switch on the A12 Sub Key board is set to ±LEAKAGE, this circuit senses emitter or collector-base current of the device under test. The measurement is done by placing resistors R100-R122 between chassis ground and the common terminal selected by the CONFIGURATION control and measuring the voltage across these resistors. If emitter current is to be to be measured, the CONFIGURATION control must be set to EMITTER-COMMON and BASE-OPEN or BASE-SHORT. If collector-base current is to be measured, the CONFIGURATION switch must be set to BASE-COMMON and EMITTER-OPEN. The resistor value can be set from 25 Ω to 25 MΩ. Table 2-11 shows the control signal for the relays. Remember that the vertical deflection factor is always decreased by 1000 times, the COMMON line is not grounded to the chassis when the LEAKAGE mode is selected, and the Number of Steps is set to zero.

Table 2-10
Relay Control Signals for Collector Current Sense

Vertical Current/Div		Relay Control Signals												
		VS RC	V1	V2	V3	V4	V5	V6	V7	V8	V9	V11	V13	V14
STEP GEN		1	1	0	0	0	0	0	0	0	0	1	0	0
COLLECTOR	2A	0	1	0	0	0	0	0	0	0	0	1	0	0
	1A	0	1	0	0	0	0	0	0	0	0	1	0	1
	500 mA	0	0	1	0	0	0	0	0	0	0	1	1	0
	200 mA	0	0	1	0	0	0	0	0	0	0	1	0	0
	100 mA	0	0	1	0	0	0	0	0	0	0	1	0	1
	50 mA	0	0	0	1	0	0	0	0	0	0	0	1	0
	20 mA	0	0	0	1	0	0	0	0	0	0	0	0	0
	10 mA	0	0	0	1	0	0	0	0	0	0	0	0	1
	5 mA	0	0	0	0	1	0	0	0	0	0	0	1	0
	2 mA	0	0	0	0	1	0	0	0	0	0	0	0	0
	1 mA	0	0	0	0	1	0	0	0	0	0	0	0	1
	500 µA	0	0	0	0	0	1	0	0	0	0	0	1	0
	200 µA	0	0	0	0	0	1	0	0	0	0	0	0	0
	100 µA	0	0	0	0	0	1	0	0	0	0	0	0	1
	50 µA	0	0	0	0	0	0	1	0	0	0	0	1	0
	20 µA	0	0	0	0	0	0	1	0	0	0	0	0	0
	10 µA	0	0	0	0	0	0	1	0	0	0	0	0	1
	5 µA	0	0	0	0	0	0	0	1	0	0	0	1	0
	2 µA	0	0	0	0	0	0	0	1	0	0	0	0	0
	1 µA	0	0	0	0	0	0	0	1	0	0	0	0	1

Table 2-11
Relay Control Signals

Vertical Current/Div		Relay Control Signals												
		VS RC	V1	V2	V3	V4	V5	V6	V7	V8	V9	V11	V13	V14
STEP GEN		1	0	0	0	1	0	0	0	0	0	1	0	0
EMITTER OR COLLECTOR/ BASE	2 mA	0	0	0	0	1	0	0	0	0	0	1	0	0
	1 mA	0	0	0	0	1	0	0	0	0	0	1	0	1
	500 µA	0	0	0	0	0	1	0	0	0	0	1	1	0
	200 µA	0	0	0	0	0	1	0	0	0	0	1	0	0
	100µA	0	0	0	0	0	1	0	0	0	0	1	0	1
	50 µA	0	0	0	0	0	0	1	0	0	0	1	1	0
	20 µA	0	0	0	0	0	0	1	0	0	0	1	0	0
	10 µA	0	0	0	0	0	0	1	0	0	0	1	0	1
	5 µA	0	0	0	0	0	0	0	1	0	0	1	1	0
	2 µA	0	0	0	0	0	0	0	1	0	0	1	0	0
	1 µA	0	0	0	0	0	0	0	1	0	0	1	0	1
	500 nA	0	0	0	0	0	0	0	0	1	0	1	1	0
	200 nA	0	0	0	0	0	0	0	0	1	0	1	0	0
	100 nA	0	0	0	0	0	0	0	0	1	0	1	0	1
	50 nA	0	0	0	0	0	0	0	0	0	1	1	1	0
	20 nA	0	0	0	0	0	0	0	0	0	1	1	0	0
	10 nA	0	0	0	0	0	0	0	0	0	1	1	0	1
	5 nA	0	0	0	0	0	0	0	0	0	0	1	1	0
	2 nA	0	0	0	0	0	0	0	0	0	0	1	0	0
	1 nA	0	0	0	0	0	0	0	0	0	0	1	0	1

15a HORIZONTAL SENSE

This circuit consists of the Collector Voltage Sense Circuit, the Base Voltage Sense Circuit, Overrun Detector Circuit, the Horizontal Amplifier circuit and the Timer Circuit. It measures either collector or base voltage of the device under test and eliminates transient voltage on the Collector or Base Terminal.

Collector Voltage Sense

The Collector Voltage Sense Circuit consists of operational amplifiers U400, U410, U420, and U490, comparators U480A through U480D, analog switches U430 and U440, diodes CR400, CR402, CR410, CR412, CR420, and CR422, zener diodes VR400 and VR402, input relay module U300, relays K340, K350, K360 and K370 and associated components. This circuit measures the collector voltage of the device under test. (when the CONFIGURATION control is set to BASE = COLLECTOR SUPPLY, this circuit measures the base voltage.) Figure 2-16 shows a simplified collector voltage measurement circuit. (The setting of the CONFIGURATION switch is assumed to be EMITTER: COMMON and COLLECTOR: COLLECTOR SUPPLY).

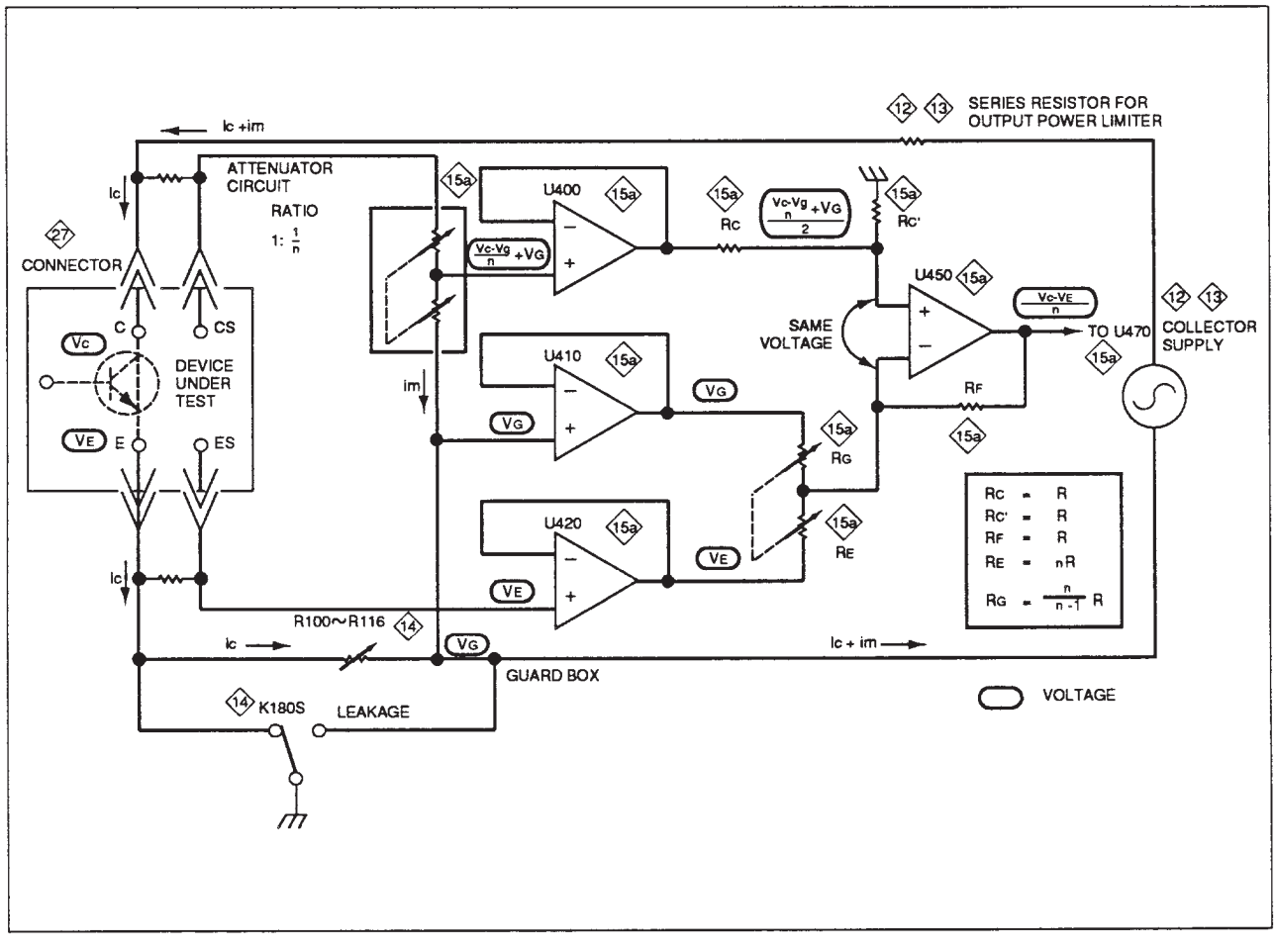


Figure 2-16. Simplified collector voltage measurement circuit.

To avoid the current error caused by an attenuator, both the attenuator and the common current return point of the collector supply are connected to the guard box. The output voltage of U400 is expressed as:

$$V(U400) = (VC - VG)/n + VG$$

where
V (U400) : output voltage of U400
VG : voltage of guard box
VC : voltage of collector terminal
n: ratio of attenuator

If the resistor values are appropriate, the output voltage of U450 is:

$$V(U450) = (VC - VE)/n$$

where
VE : voltage of emitter terminal

The above expression shows that VG is canceled and U450 outputs only net voltage without the VG bias voltage. The appropriate value of resistors to realize this condition is expressed as follows by using resistance unit R. (In the case of the 370A, R is 20 kΩ.)

$$RC = RC' = R$$
$$RF = R$$
$$RE = n*R$$
$$RG = n*R/(n-1)$$

U480 and diodes CR480 through CR483 make up four diode function generators. This circuit compares the output voltages of U400 and U410 with the positive and negative limits of the output voltage, which are set by R484 through R487. If the output voltage of U400 or U410 exceeds these limits, one of four diode generators is turned on and the output voltage is clamped within upper or lower limit.

Table 2-12 lists the relay control signals for each setting of the HORIZONTAL VOLTS/DIV control. Relays K6 and K7 of input relay module U300 and K340, K350, K360 and K370 select the attenuator. U400, U410 and U420 are high input impedance buffers. Analog switch U430 selects RE and RG. Analog switch U440 selects the collector voltage or base voltage to be measured. U450 forms a subtractor circuit.

Base Voltage Sense

The Base Voltage Sense Circuit consists of operational amplifier U500, transistors Q520, Q530 and Q540, diode CR500, zener diodes VR530 and VR534 and constant current diodes CR520 and CR540. This circuit forms a high input impedance buffer that senses the base voltage of the device under test. In order to increase dynamic range, Q520, Q530, and Q540 form a floating power supply circuit for U500.

Overrun Detector

The Overrun Detector Circuit consists of comparators U560A, U560B, U565A, and U565B, D-flip flop U570A, and associated components. This circuit compares the output voltages of U500 and AUX Supply with the positive and negative limits which are set by R564, R566, R568, and R570. If one of the output voltages exceeds these limits, U570A transfers the OVER-RUN(L) signal to the Status Port circuit (located on diagram 15b) and the Collector Supply output is disabled.

Horizontal Amplifier

The Horizontal Amplifier Circuit consists of operational amplifier U460, dual 4 to 1 multiplexer U470, and associated components. This circuit forms a 0.4-1-2-4 gain-selectable amplifier.

Timer

The Timer circuit turns off the Collector Supply momentarily whenever the protective cover is opened or closed. The output of U340A and U340B are always of opposite polarity. When the protective cover is opened or closed, U340A and U340C reverse the state of their outputs. The output of U340A is delayed by the RC circuit preceding U340B. This causes U340D to produce negative pulse. U350 stretches the pulse and turns Q350 on for 100 ms, generating the ARC(L) signal.

Table 2-12
Relay Control Signals for Horizontal Sense

HORIZONTAL Volts/Div Setting		Relay Control Signal											
		HSR	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11
STEP GEN		1	1	0	0	0	0	1	1	0	1	0	0
Base	5V	0	1	0	0	0	0	1	1	0	1	1	1
	2V	0	1	0	0	0	0	1	1	0	1	0	0
	1V	0	1	0	0	0	0	1	1	0	1	1	0
	.5V	0	1	0	0	0	0	1	1	0	1	0	1
	.2V	0	1	0	0	0	0	1	1	1	0	0	0
	.1V	0	1	0	0	0	0	1	1	1	0	1	0
	.05V	0	1	0	0	0	0	1	1	1	0	0	1
Collector	500V	0	1	0	0	0	0	1	1	0	0	1	1
	200V	0	1	0	0	0	0	1	1	0	0	0	0
	100V	0	1	0	0	0	0	1	1	0	0	1	0
	50V	0	1	0	0	0	0	1	1	0	0	0	1
	20V	0	0	1	0	0	0	0	1	0	0	0	0
	10V	0	0	1	0	0	0	0	1	0	0	1	0
	5V	0	0	1	0	0	0	0	1	0	0	0	1
	2V	0	0	0	1	0	1	1	0	0	0	0	0
	1V	0	0	0	1	0	1	1	0	0	0	1	0
	.5V	0	0	0	1	0	1	1	0	0	0	0	1
	.2V	0	0	0	0	1	1	0	0	0	0	0	0
	.1V	0	0	0	0	1	1	0	0	0	0	1	0
	.05V	0	0	0	0	1	1	0	0	0	0	0	1

15b LOR KEY INTERFACE

This circuit is located on the A13 Key Interface board, and consists of the Bus Buffer Circuit, the Address Decoder Circuit, the Rotary Encoder Circuit, the Status Port Circuit and Lower Panle Key and Display Circuit. These circuits interface signals with the A2 CPU board, set up VARIABLE COLLECTOR SUPPLY settings, transfer the status data to the A2 CPU board, control the lower panel LED displays, and transfer the key input data from the lower panel keys.

Bus Buffer

The Bus Buffer Circuit consists of bus buffers U60 and U100. This circuit isolates the Data Bus (D0-D7) from the A2 CPU board. After isolation, names of these signals are changed to LD0-LD7 and FD0-FD7. The direction of buffering is controlled by the RD(L) signal from the A2 CPU board. This buffering function is activated when the L-KEY(L) or FDD(L) signal from the A2 CPU board is activated low.

Address Decoder

This circuit consists of dual 2-to-4 demultiplexer U140, and decodes address signals A4-A5 from the A2 CPU board, generating corresponding chip select signals LL0(L), LL1(L), LKRD(L), CCW(L) and CW(L). This decoding function is activated when control signals L-KEY(L) and RD(L) (or L-KEY(L) and WR(L)) from the A2 CPU board is activated low. The L-KEY(L) signal is activated low when the microprocessor accesses address A8000(HEX) through AFFFF(HEX).

Rotary Encoder

The Rotary Encoder Circuit consists of hex inverter U170, dual D-flip flop U130, dual 4-bit binary counters U150 and U160, octal 3-state D-flip flop U180 and U190 and associated components. U150 and U160 operate as up and down counters. The rotary encoder generates two pulse trains; each is 90 degrees away from the other. Making use of this phase difference, the direction of rotation can be detected. The rotation is encoded into the number of pulses that is proportional to the angle of rotation; this circuit counts these pulses with the up or down counter, according to the direction of rotation. The pulse shapeof the generated pulse train is improved by U130, then sent to U150 and U160.

If S200 (located on diagram 18) rotates clockwise, the pulse train only appears at U130 pin 8, and up counter U150 counts, because the D-flip flop is cleared by the leading pulse. Conversely, if S200 rotates counter-clockwise, the pulse train appears only at U130 pin 6, and down counter U160 counts down. This counted data is periodically cleared by the microprocessor of the A2 CPU board and as a result, the counted data expresses the velocity of rotation during a given interval. The rotation velocity data is applied to U180 and U190. When the microprocessor on the A2 CPU board reads address A8000(HEX) and A8010 (HEX), the data of rotating velocity are read by the microprocessor respectively.

Status Port

This circuit consists of hex 3-state bus buffer U110, and reads the 370A status information such as OVER-RUN (L) (over-run information), OVERHEAT(L) (overheat information), COVER (cover switch information) and BRK1 (Outputs breaker information). To obtain the data, the microprocessor reads address A8020(HEX).

Lower Panel Key and Display

This circuit consists of hex 3-state bus buffer U70 and 8-bit addressable latches U80 and U90. This circuit reads the CONFIGURATION and LEFT-RIGHT-STANDBY key status, and controls and drives the CONFIGURATION and LEFT-RIGHT-STANDBY LED displays under the control of control signals LKRD(L), LL0(L), LL1(L), LD0, and address signals A1-A3. Among these signals, LKRD(L), LL0(L), LL1(L) are chip select signals, A1-A3 are display codes and LD0 is enable signal. The display information is sent from the A2 CPU board. The chip select signals LL0(L) and LL1(L) select U80 and U90 to fetch and store display information. The enable signal enables information fetching andstoring. This stored information is transferred directly to the corresponding LED. The chip select signal LKRD(L) selects U70 to read the key status into the microprocessor.

16 FRONT PANEL KEY INTERFACE

This circuit is located on the A11 Main Key board, and consists of the Bus Buffer Circuit, the Address Decoder Circuit, the Variable Control Circuit, and the Switch Matrix Circuit. These circuits interface signals between the A2 CPU board and the A12 Sub Key board, set up VERTICAL, HORIZONTAL and STEP AMPLITUDE settings, and control focus and intensity, etc.

Bus Buffer

Bus buffer U120 isolates the data bus (D0-D7) from the A2 CPU board. Once through U120, the signal titles are changed to KD0-KD7 and are sent to the A12 Sub Key board. The direction of buffering is controlled by the RD(L) select signal from the A2 CPU board. This buffering function is activated while the KEY(L) signal from the A2 CPU board is activated low.

Address Decoder

The Address Decoder consists of 3-to-8 demultiplexers U140, U160, U170, and U190 and dual 2-to-4 demultiplexer U180. The circuit decodes address signals A2-A7 from the A2 CPU board and generates corresponding chip select signals L0(L)-/L8(L) and K0(L)-/K7(L). The decoding function of U140, U160, U170 and U190 is activated when control signal KEY(L) and RD(L) (for U160 and U190) or WR(L) (for U140 and U170) are activated low. The KEY(L) signal is activated low when the microprocessor on the A2 CPU board accesses address A0000(HEX) through A7FFF(HEX). U180A is activated when the decoded signal from U160 is the key read signal for S210, S220 and S230. This selection occurs when the microprocessor accesses address A007x (HEX), RD(L) and KEY(L) signals are activated low and A7(L) signal is activated high.

Variable Control

This circuit consists of variable resistors R302, R312, R322, R330, R340, R350, R360 and R370 and resistors R300, R304, R310, R314, R320, and R324. This circuit adjusts the NONSTORE/STORE/VIEW INTENSITY, the REF INTENSITY, the READOUT/CURSOR INTENSITY, the FOCUS, the SCALE ILLUM, the VERT POSITION, the HORIZ POSITION and the TRACE ROTATION.

Switch Matrix

The Switch Matrix Circuit consists of rotary switches S210, S220 and S230 and diodes from CR210 through CR221. S210 and its associated diodes CR210, CR213, CR216 and CR219 set the VERTICAL CURRENT/DIV. S220 and diodes CR211, CR214, CR217 and CR220 set the HORIZONTAL VOLTS/DIV. S230 and diodes CR212, CR215, CR218 and CR221 set the STEP AMPLITUDE. Address signals A2 and A3 from the A2 CPU board are decoded by U180A, and applied as A0070, A0074 and A0078 to the Switch Matrix circuit. Depending on the switch setting, these signals are transferred to data bus KD0-KD3 through switches and diodes (see Table 2-13).

Table 2-13
Switch Matrix Data Input/Output

Input	Output	Switch	Data	
A0070	KD0	S210	VERTICAL	LSB
	KD1		VERTICAL	
	KD2		VERTICAL	
	KD3		VERTICAL	MSB
A0074	KD0	S220	HORIZONTAL	LSB
	KD1		HORIZONTAL	
	KD2		HORIZONTAL	
	KD3		HORIZONTAL	MSB
A0078	KD0	S230	STEP	LSB
	KD1		STEP	
	KD2		STEP	
	KD3		STEP	MSB

17 FRONT PANEL LED & KEY

This circuit is located on the A12 Sub Key board, and consists of theFront Panel Display Circuit and the Front Panel Key Matrix Circuit. The circuit is controlled by the A11 Main Key board, displays the Main Key setting information, and transfers key input data from the key matrix.

Front Panel Display

This circuit consists of 8-bit addressable latches U100, U110, U120, U130, U140, U150, U160, U170 and U180, BCD to seven segment decoder/latch/driver U200, U210 and U220, transistor Q190, LEDs from DS100 through DS167 and seven segment numerical displays DS190, DS200, DS210 and DS220. This circuit controls and drives the front-panel LEDs and the numerical display under the control of control signals L0(L)-L8(L) and KD0 and address signals A1-A3. This display information is sent from the A2 CPU board and processed through the A11 Main Key board. Among these signals, L0(L)-L8(L) are chip select signals, A1-A3 are display codes and KD0 is the enable signal. The chip select signals select one latch among U100 through U180 to fetch and store display information. The enable signal enables information fetching and storing. The stored information is transferred directly to the corresponding LED, with the exception of U170 U180. The signals ID0-ID3 from U170 are the Memory index display information. The signals ID0-ID3 from U180 are the number of steps display information. These signals are decoded to BCD by seven segment decoder/latch/driver U200, U210 and U220 and transferred to numerical display DS200, DS210 and DS220. Signal ID4 is also the number of steps display signal and, through transistor Q190, drives numerical display DS190. If the Memory Index number is set to a value in the range 1 to 9, the 0 BLANK(L) signal goes low, and the seven segment numerical display DS220 which indicates the tenth place is blanked.

Front Panel Key Matrix

This circuit consists of keys S300-S373 and diodes CR300-CR373, connected as a matrix. The key matrix sweep signals are applied to the matrix as row signal K0(L)-K7(L). The resultant output signals are obtained from the column of the matrix KD0-KD5.

18 CONFIGURATION LED

This circuit is located on the A15 Configuration LED board, and consists of LEDs DS100 through DS150, keys S100 and S110, and associated components. LEDs DS100 through DS150 display the CONFIGURATION setting information. When the microprocessor reads address A8030(HEX), the CONFIGURATION key status is read into the microprocessor.

19 CRT OUTPUT AMPLIFIER

This circuit is located on the A18 CRT Output board, and consists of the Horizontal Output Amplifier, the Vertical Output Amplifier, and the Z-axis Amplifier. The Horizontal and Vertical Output Amplifiers convert current signals from the preamplifier of the A5 Display Control board into deflection plate driving voltages for the CRT. The Z-axis Amplifier converts the current signal from the unblanking logic of the A5 Display Control board into the driving voltage for the Grid Bias and DC Restorer Circuit of the A20 H.V. REG board. The Horizontal and Vertical Output Amplifiers are similar, so only the Horizontal Output Amplifier is discussed here.

Horizontal Output Amplifier

The Horizontal Output Amplifier consists of transistors Q100, Q102,Q110, Q112, Q120, Q122 Q130 and Q132, Schottky diodes CR102 and CR104, Zener diode VR100, diodes CR100, CR110 and CR112 and associated components. This circuit symmetrically amplifies both +H and –H signals. Thus, only the –H amplifier Circuit is discussed here.

The bias network, which is composed of CR100 and R100, sets a constant base voltage for Q100. This constant voltage is obtained from the subtraction of the voltage drop at diode CR100 from +6.5 volts. As a result, the emitter voltage of Q100 is a nearly constant +6.5 volts, which forces the preamplifiers of the A5 Display Control board to which forces the preamplifiers of the A5 Display Control board to operate as a current amplifier, making the output

signal (–H) into constant voltage and variable current. The output stage of this amplifier consist of Q110, Q120 and Q130 and uses a self-biasing configuration, where the bias current for Q110 is supplied through R130. The voltage at the collector of Q120 balances at a level where the current through R130 and CR110 raises the voltage at the collector of Q100 to about zero volts. At this point any change in current through Q100 results in an equal but opposite change in current through R130. The output voltage (–H DEF) change is equal to the change in voltage across R130. Transistor Q130, Zener diode VR100 and resistor R128 form a constant current supply circuit for the output stage. Transistors Q110 and Q120 form a sink for the excess current not carried by R130. Schottky diodes CR102 and CR104 prevent excessive signal difference.

Vertical Output Amplifier

This circuit consists of transistors Q200, Q202, Q210, Q212, Q220, Q222, Q230 and Q232, Schottky diodes CR202 and CR204, Zener diode VR200, diodes CR200, CR210 and CR212 and associated components. This circuit operates in the same way as does the Horizontal Output Amplifier. Please refer to the Horizontal Output Amplifier description.

Z-Axis Amplifier

This circuit consists of transistors Q300, Q310, Q312, Q320 and Q330, Schottky diode CR306, diodes CR300, CR302 and CR304 and associated components. The circuit converts the current signal from the unblanking logic of the A5 Display Control board into the driving voltage for the Grid Bias And DC Restorer Circuit of the A20 H.V. REG board. The bias network, which is composed of CR300 and R300, sets up the base bias voltage of Q300 to be a constant voltage. This constant voltage is obtained through the subtraction of voltage drop at diode CR300 from +6.5 volts. As a result, the emitter voltage of Q300 is an almost constant voltage of +6.5 volts and this, in turn, forces the unblanking logic of the A5 Display Control board to operate as a current amplifier and the output signal Z to be a constant voltage and varying current. The signal current Z from the A5 Display Control board via Q300 develops a voltage across R306. When the Z signal is blanked, the developed voltage turns off diodes CR302 and CR304. Schottky diode CR306 prevents this voltage from exceeding approximately +0.4 volts. Q310, Q312, Q320 and Q330 and associated components form a current-to-voltage inverting amplifier. For a blanked signal, the output voltage from the collectors of Q320 and Q330 is approximately +3.8 volts, and this voltage provides current flow through feedback resistor R308 to bias resistor R310. As a result, bias voltage for Q310 and Q312 are provided. Because diodes CR302 and CR304 are reverse biased and cut off, they don't affect the output of Q310 and Q312. To unblank the CRT, the unblanking logic of the A5 Display Control board reduces the current signal Z. This in turn reduces the voltage across R306 and turns on diodes CR302 and CR304 by forward biasing. The forward-biased diodes sinks bias currents of Q310 and Q312 away from each base terminal. These reduced bias currents lower the Q310 base bias and increases Q312 base bias. As a result, the collectors of Q320 and Q330 forced high, so that the current through R308 can maintain the forward bias current of diodes CR302 and CR304. This output voltage supplies current through R308 to diodes CR302 and CR304. If this current is equal to the current that can maintain diodes CR302 and CR304 at the cut off level, the circuit balances. The maximum output voltage of the amplifier is approximately +25 volts and CRT intensity may be set anywhere between these limits, depending on the value of the Z current signal.

20 POWER SUPPLY

This circuit is located on the A19 L.V. Supply board and the A27 Primary board. This board consists of the Primary Circuit, the Low-voltage Power Supply Circuit and the Interrupt Generator Circuit. This circuit supplies low voltage power for the 370A and generates the interrupt signals.

Primary

This circuit consists of line filter FL100, LINE VOLTAGE SELECTOR switches S200 and S300, transformer T100, spark gaps E100 and E200 and air cooling fan B100. This circuit provides AC line power supply voltages for the 370A. The 370A can be operated from either a 115-volt or a 230-volt nominal line voltage source by setting the LINE VOLTAGE SELECTOR switches (S200 and S300, which are located on the 370A rear panel). In the 115-volt position of S200, the primary windings of T100 are connected parallel. Conversely, in the 230-volt position, the two primary windings of T100 are connected serially. Thus, the output of the secondary windings of T100 is the same if the operator sets S200 correctly. S300 determines how many turns of each primary is used to compensate for variations in line voltage. Spark gaps E100 and E200 protect the rectifier and filter circuit from line surges over 230 volts peak-to-peak. This board also supplies AC power voltages to air cooling fan B100.

Low-voltage Power Supplies

The Low-voltage Power Supply Circuit provides five regulated voltages (+5V, +6.5V, +12V, –6.5V, –12V) and four unregulated voltages (+12V UNREG, –12V UNREG, +40V UNREG and –40V UNREG). The two reference voltages (+2V REF and –2V REF) and the scale illumination voltage are also provided by this circuit.

+5V Supply. This circuit produces regulated +5 volts for the digital circuits and consists of diode CR100, capacitors C100, C102 and C140 and voltage regulator U100. Fixed resistor R102 sets the output of U100 to +5.2 volts.

+6.5 and –6.5VSupply. This circuit provides regulated +6.5 and –6.5 volts for analog circuits; the circuit consists of transistors Q130 and Q230, capacitors C134 and C234 and operational amplifier U130. The reference voltage of U130 is supplied by U120, elsewhere on the board. The output voltages of +6.5 volts and –6.5 volts are sensed and divided by resistor pair R134-R136 (+6.5 volts) or R234-R236 (–6.5 volts). These divided voltages are compared with the reference voltage of +2.5V REF and the differential voltages are obtained by U130. U130 amplifies each differential voltage, and this output controls Q130 and Q230, respectively, to make the +6.5 volts and –6.5 volts constant.

+12V supply. This circuit consists of diode CR300, capacitors C300 and C312 and voltage regulator U310.

–12V supply. This circuit consists of diode CR400, capacitors C400, C422 and C412 and voltage regulator U410.

+12, –12, +40, and –40Vunregulated supplies. These supply circuits provide operating power for the Step Generator, the AUX Supply, etc. The unregulated +40 and –40 volts supply consist of diode CR500, capacitors C500 and C502 and resistor R501. Unregulated +12 and –12 volts are obtained from pre-regulated stages of +12 and –12 volts supply, respectively.

ILLUM voltage supply. This circuit consists of transistors Q600 and Q602 resistor R602. The circuit supplies current to the A28 LAMP A and A29 LAMP B boards under the control of the the ILLUM signal, the level of which is set by the GRAT ILLUM control of the A11 Main Key board.

+2.0V and –2.0V REF. These reference supply circuits consist of operational amplifier U500 and reference regulator U120. Resistors R500 and R516 adjust the +2.0 volts and –2.0 volts, respectively.

Interrupt Generator

This circuit consists of operational amplifiers U560A and U560B and associated components. The circuit provides interrupt signals for the A2 CPU board and the A3 A/D board, namely, TIM-INT (line frequency timer interrupt) and PF-INT (power fail interrupt).

The TIM-INT Generator Circuit synchronizes the line frequency. Comparator U560A produces the clock signal of the AC line frequency for the PLL and the microprocessor. It consists of diodes CR570 and CR572 and U560A. This TIM-INT clock signal is used by the PLL Circuit on the A3 A/D Board to synchronize waveform generation timing and by the A2 CPU board to initiate periodical input procedures such as keyboard data reading of the microprocessor.

The PF-INT Generator Circuit consists of diode CR560 and CR562, resistor R560 and R562, and capacitors C562 and U560B. When the power supply of the AC line shuts down, this circuit produces the active high PF-INT signal for the microprocessor before the +5-volt supply shuts down, so that the microprocessor has time to initiate and complete the Power Failure support procedure.

21 H.V. POWER SUPPLY

The H.V. Power Supply is located on the A20 H.V. REG board. This circuit consists of the High-voltage Generator Circuit, the High-voltage Regulator Circuit, the Grid Bias and DC Restorer Circuit, the Focus Amplifier and DC Restorer Circuit, the Anode Multiplier Circuit, the Rectifier Filter Circuit and the CRT Circuit. This circuit provides the various high voltage operating potentials required by the CRT, and displays the 370A data.

High-voltage Generator

This circuit consists of transistor Q100 and transformer T100 and associated components. Q100 and two of primary windings of T100 are connected to form an oscillator. The frequency of oscillation is approximately 20 kHz. The 20 kHz AC voltage induces high voltage in the secondary windings of T100.

High-voltage Regulator

The High-voltage Regulator Circuit consists of U200A and associated components. This circuit monitors the cathode voltage of the CRT and controls base bias current of Q100. This results in a controlled high voltage output from the T100 secondary windings.

Grid Bias and DC Restorer

The Grid Bias And DC Restorer Circuit provides the CRT control-grid bias voltage and couples both the DC and low frequency components of the Z-OUT drive signal to the CRT control-grid. The circuit operates by impressing the grid bias setting and the Z-OUT drive signal on an AC waveform. This shaped waveform is then ac-coupled to the high-potential CRT environment where the DC components of the original signal are restored. An AC drive voltage of approximately 400 volts peak-to-peak is applied to this circuit from pin 7 of transformer T100. This signal is coupled to the junction of a positive clamp (made up of R208, R210, CR202, VR200 and VR202) and a negative clamp (made up of CR204) through resistor R204 and R206 and capacitor C202. Grid bias potentiometer R210 determines the overall CRT intensity.

The positive and negative clamped AC waveform and Z-axis signal is applied to pin 9 and pin 10 of U100 high voltage module, respectively. The capacitor connected to pin 9 and the two diodes attached to its other terminal in U100 form a rectifier circuit. This circuit changes the capacitor connected to pin 10 to a potential below the -2400 volt level of the CRT cathode. A positive transition of the Z-OUT signal voltage moves the control-grid bias positive by approximately the same voltage, thereby increasing CRT beam current.

Focus Amplifier and DC Restorer

The Focus Amplifier and DC Restorer Circuit provides the level shiftingof the operator-controlled FOCUS signal to the high potential environment of the CRT. This level shifting is done in a manner similar to that just described for the last stage, the Grid Bias and DC Restorer. The active positive clamp, made up of U200, Q200 and their associated components, provides a variable voltage clamp that limits the positive swing of the AC waveform. Diode CR200 limits the negative swing. The 800 volts of AC signal is applied to the clamping node through resistors R200 and R202 and capacitor C200. Operational amplifier U200B changes its output so that feedback through R222 maintains the voltage on pin 6 equal to that on pin 5, which is zero volts. The FOCUS signal from the A11 Main Key board is divided by R226 and R224. FOCUS can be adjusted from zero to +6.5 volts. This provides a range of clamping levels from +650 volts (FOCUS equals zero volt) to +344 volts (FOCUS equals +6.5 volts). Q200 provides voltage isolation for the output of U200B. When CR210 is forward biased by a voltage swing that exceeds the clamping level, U200B absorbs the excess current through R220, Q200 and R228 so that feedback current through R222 can remain unchanged.

The positive and negative clamped AC signal from T100 is fed to pin 7 of U100. The Capacitor connected to pin 7 and the two diodes attached to the capacitor's other terminal within U100 form a rectifier circuit. This circuit changes the capacitor connected to pin 8 to a potential above the–2400 volt level of the CRT cathode. This voltage is applied to the focus-grid of the CRT to control spot size.

Anode Multiplier

Anode multiplier U300 is a conventional voltage multiplier of 12 stages; it produces 12 kilovolts accelerating potential for the CRT.

Rectifier Filter

The Rectifier Filter Circuit consists of diodes CR300, CR310 and CR320 and capacitors C300, C310 and C320. This circuit provides approximately +100 volts and +200 volts to the CRT output amplifier from the 200 volts peak-to-peak AC supplied by T100.

CRT

This circuit consists of the CRT (Cathode Ray Tube), orthogonality coil L120, trace rotation coil L100 and associated components. This circuit displays the 370A data. L100 and L120 control trace rotation and orthogonality of the CRT. Pin assignment of CRT is described in Table 2-14.

Table 2-14
CRT Pin Assignment

Pin number	Pin name	Connected signal
1 14	Heater power supply	6.3-volt heater line
2	Cathode	Cathode (–2400 volts)
3	No. 1 grid	Intensity control line
4	No. 1 plate	Focus control line
5	No. 2 grid	Geometry
6	Collector	GND
7 9	Vertical deflection plates	–VDEF –VDEF
11 12	Horizontal deflection plates	–HDEF –HDEF

22 GPIB & PLOTTER INTERFACE

This circuit is located on the A22 GPIB Interface board. The circuit consists of the Bus Buffer Circuit, the Address Decoder Circuit, the GPIB Address Switch, the GPIB Controller Circuit, the GPIB Bus Driver Circuit, the Plotter Controller Circuit and the Plotter Bus Driver Circuit. The function of this circuit is to transfer the microprocessor data to the plotter and to communicates with other instruments via the bidirectional general purpose interface bus (GPIB). These functions are under control of the microprocessor and the communication handling software, which are located on the A2 CPU board.

Bus Buffer

The Bus Buffer Circuit consists of U120 and U140; it isolates data bus D0-D7, address bus A1-A4 and control signals (RD(L), WR(L), RESET(L) and IFCS(L)). After isolation, the names of these signals are changed to IFD0-IFD7 (data bus), IFA1-IFA4 (address bus) and IFRD(L), IFWR(L), IFRESET(L) and IFCE(L) (control signals) respectively. Because the data bus (IFD0-IFD7) is a bidirectional bus, data bus driver U140 switches the direction of buffering under the control of the IFRD(L) signal. The address bus and control signals are unidirectional signals from the A2 CPU board and are isolated by U120 and changed in name as mentioned before.

Address Decoder

The Address Decoder Circuit consists of dual 2-to-4 demultiplexers U220. This circuit generates chip select signals for GPIB controller U300, plotter controller U400, and GPIB address switch U360 by decoding address signals of IFA2, IFA3 and IFA4, which are derived from the A2 CPU board. The decoded signals are transferred to the corresponding circuit of the board when the IFCE(L) control signal is asserted. Address signals of IFA0-IFA4 are also used to select internal registers of GPIB controller U300 and U400 for reference by the microprocessor.

GPIB Address Switch

The GPIB Address Switch Circuit consists of S360 DIP switch and U360, which determine the GPIB address and data delimiter. The right five digits of the switch (No.2-No.6) set GPIB address from 0 to 31 in binary notation. The leftmost digit of the switch (No.1) sets the data delimiter.

GPIB Controller

The GPIB Controller Circuit consists of GPIB controller U300 (TMS-9914A). This circuit manages all interfacing procedures needed to complete GPIB data communication.

GPIB Bus Driver

GPIB Bus Driver U320 and U340 transfers signals to and from the GPIB and the GPIB controller Circuit. U340 drives the GPIB control signals from U300 to the GPIB. U320 drives the GPIB data signals between U300 and the GPIB.

Plotter Controller

The Plotter Controller Circuit consists of GPIB controller U400 (TMS-9914A). This circuit manages all interfacing procedures needed to complete data communication.

Plotter Driver

The Plotter Driver consists of U440 and U460; this circuit transfers the signals between the Plotter Controller and the Plotter Bus. U440 drives the plotter control signals and U460 drives data.

CONFIGURATION RELAY

The Configuration Circuit is located on the A33 Configuration Relayboard. This circuit consists of relays K600 through K640. These relays are driven by the CONFIGURATION control. Table 2-15 shows the control signal for the relays.

Table 2-15
Relay Control Signals for Configuration Setting

Configuration Setting			Relay Control Signal						
Collector	**Base**	**Emitter**	**T0**	**T1**	**T2**	**T2'**	**T3**	**T4**	**T5**
Collector Supply	Step Gen	Common	1	0	0	0	0	0	1
Collector Supply	Open (Ext)	Common	1	0	0	0	1	0	1
Collector Supply	Short (Emitter)	Common	1	1	0	0	0	0	1
Collector Supply	Common (Ext)	Open	0	0	1	1	1	0	1
Collector Supply	Common	Step Gen	0	0	1	1	0	0	1
Open	Collector Supply	Common	1	1	0	0	0	1	0

24 LOR KEY

This circuit is located on the A14 LOR Key board, and consists of LEDs DS100, DS200, DS210, DS220, and DS400, keys S100, S110, and S120, and assosiated components. LEDs DS200, DS210, and DS220 display the LEFT-RIGHT-STANDBY switch setting information. When the microprocessor reads address A8030(HEX), the LEFT-RIGHT-STANDBY key status is read into the microprocessor. The Warning LED DS100 indicates that dangerous voltage may be applied to the collector or base terminals. The Limiter LED DS400 indicates that the automatic protection is operating.

25 FDD INTERFACE

This circuit is located on the A23 FDD Interface board. The circuit consists of the Bus Buffer Circuit, the Address Decoder Circuit, the FDD Controller Circuit and the FDD Bus Driver Circuit. The function of this circuit is to communicate with the FDD unit.

Bus Buffer

The Bus Buffer Circuit consists of U100 and U120; it isolates data bus D0-D7, address bus A1, A2, A3, A5, A6 and control signals (RD(L), WR(L), and FDD(L)). After isolation, the names of data bus signals are changed to DF0-DF7. Because the data bus (DF0-DF7) is a bidirectional bus, data bus driver U100 switches the direction of buffering under the control of the RD(L) signal. The address bus and control signals are unidirectional signals from the A2 CPU board and are isolated by U120.

Address Decoder

The Address Decoder Circuit consists of 2-to-4 demultiplexers U140B. This circuit generates chip select signals for FDD controller U400 and 3-state buffer U300 by decoding address signals of A5 and A6, which are derived from the A2 CPU board. The decoded signals are transferred to the corresponding circuit of the board when the FDD(L) control signal is asserted. Address signal A1 is used to select internal registers of FDD controller U400.

FDD Controller

The FDD Controller Circuit consists of FDD controller U400. This circuit manages all interfacing procedures needed to complete data communication. Octal 3-state buffer U300 reads the interrupt signal from FDD controller U400. To obtain the data, the microprocessor reads address B8020(hex).

FDD Bus Driver

The FDD Bus Driver consists of U440 and U460; this circuit transfers the signals between the FDD Controller and the FDD Bus.

Maintenance

3
Maintenance

This section of the manual contains information for performing preventive maintenance, troubleshooting, and corrective maintenance for the 370A Programmable Curve Tracer.

PREVENTIVE MAINTENANCE

Preventive maintenance, when performed on a regular basis, can prevent instrument breakdown and may improve the reliability of the instrument. The severity of the environment to which the instrument is subjected will determine the frequency of maintenance. A convenient time to perform preventive maintenance is preceding electrical adjustment of the instrument.

CABINET REMOVAL

WARNING

Dangerous potentials exist at several points throughout this instrument. When the instrument is operated with the covers removed, do not touch exposed connections or components. Some transistors have voltages present on the case. Disconnect power before cleaning the instrument or replacing parts.

The side, top, and bottom cabinet panels provide protection to personnel from operating potentials present within the instrument. In addition, they reduce radiation of electromagnetic interference from the instrument. The cabinet panels are held in place by slotted fasteners. To remove the panels, turn each fastener counterclockwise a quarter turn with a large screwdriver. Lift the panels away from the instrument. Operate the instrument with the panels in place to protect the interior from dust.

CLEANING

The 370A should be cleaned as often as operating conditions require. Accumulation of dirt in the instrument can cause overheating and component breakdown. Dirt on components acts as an insulating blanket and prevents efficient heat dissipation. It also provides an electrical conduction path that may result in instrument failure.

CAUTION

Avoid the use of chemical cleaning agents that might damage the plastics used in this instrument. Use a non-residue type of cleaner, preferably Isopropyl alcohol or totally denatured ethyl alcohol. Before using any other type of cleaner, consult your Tektronix Service Center or representative.

Exterior

Loose dust accumulated on the outside of the instrument can be removed with a soft cloth or small brush. The brush is particularly useful for dislodging dirt on and around the front-panel controls. Dirt that remains can be removed with a soft cloth dampened in a mild detergent and water solution. Abrasive cleaners should not be used.

CRT

Clean the plastic light filter, implosion shield, and the CRT face plate with a soft, lint-free cloth dampened with denatured alcohol.

Interior

Cleaning the interior of the instrument should only be occasionally necessary. The best way to clean the interior is to blow off the accumulated dust with dry, low-velocity air (approximately 5 lbs/sq in). Remove any dirt that remains with a soft brush or a cloth dampened with a mild detergent and water solution. A cotton swab is useful for cleaning in narrow spaces, or for cleaning more delicate circuit components.

CAUTION

Circuit boards and components must be dry before applying power to prevent damage from electrical arcing.

The high-voltage circuits should receive special attention. Excessive dirt in this area may cause high-voltage arcing and result in improper instrument operation.

VISUAL INSPECTION

The 370A should be inspected occasionally for such defects as broken connections, improperly seated semiconductors, damaged or improperly installed circuit boards, and heat-damaged parts. The corrective procedure for most visible defects is obvious; however, particular care must be taken if heat-damaged parts are found. Overheating usually indicates other trouble in the instrument; therefore, correcting the cause of overheating is important to prevent recurrence of the damage.

SEMICONDUCTOR CHECKS

Periodic checks of the semiconductors are not recommended. The best check of semiconductor performance is actual operation in the instrument. More details on semiconductors are given under Troubleshooting later in this section.

PERIODIC ELECTRICAL ADJUSTMENT

To ensure accurate measurements, check the electrical adjustment of this instrument after each 2000 hours of operation, or annually if used infrequently. In addition, replacement of components may necessitate adjustment of the affected circuits. Complete adjustment instructions are given in Section Four, Performance Check and Adjustment. This procedure can be helpful in localizing certain troubles in the instrument, and in some cases, may correct them.

TROUBLESHOOTING

The following information is provided to facilitate troubleshooting of the 370A Programmable Curve Tracer. Information contained in other sections of this manual should be used in conjunction with the following data to aid in locating a defective component. An understanding of the circuit operation is helpful in locating troubles. See Section Two, Theory of Operation, for this information.

TROUBLESHOOTING AIDS

Diagrams

Complete schematic diagrams are given on the pullout pages in Section 7, Diagrams and Circuit Board Illustrations. The component number and electrical value of each component in this instrument are shown on these diagrams. (See the first page of the Diagrams and Circuit Board Illustrations section for definitions of the reference designators and symbols used to identify components in this instrument.) Important voltages and numbered waveform test points are also shown on the diagrams. Important waveforms, and the numbered test points where each was obtained, are located adjacent to each diagram. The portions of circuits mounted on circuit boards are enclosed with heavy solid-black lines.

Circuit Board Illustrations

To aid in locating circuit boards, a circuit board location illustration appears on the back of the pullout page that faces the appropriate schematic diagram. In addition, circuit board illustrations are included that show the physical location of the components and waveform test points that appear on the schematic diagram. Each circuit board illustration includes a grid locator with an index to aid rapid location of components contained in the schematic diagrams.

Troubleshooting Charts

Troubleshooting charts are given in Section 7, Diagrams and Circuit Board Illustrations, to aid in locating a defective circuit. The shaded blocks on the Troubleshooting charts indicate circuits that may cause the indicated malfunction. The circuits listed are discussed in detail in Section 2, Theory of Operation.

Adjustment and Test Point Locations

To aid in locating test points and adjustable components called out in the various portions of the Adjustment procedure, the Adjustment and Test Point Locations pullout pages appear in Section 7, Diagrams and Circuit Board Illustrations.

Component Color Coding

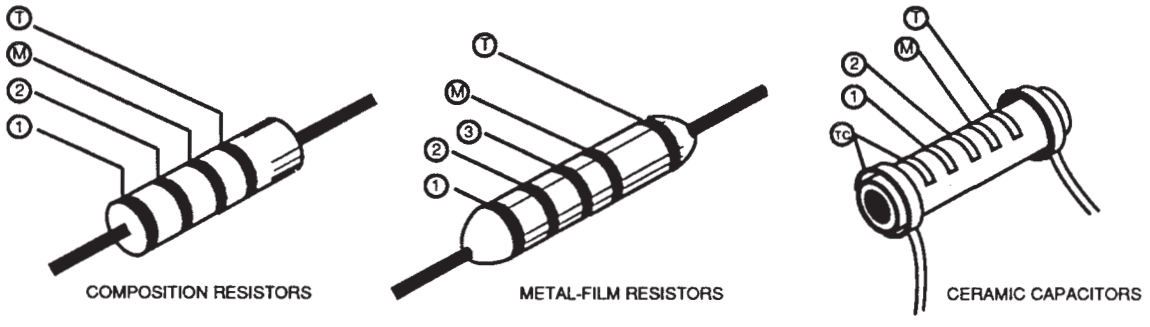
The instrument contains brown composition resistors, some metal-film resistors, and some wire-wound resistors. The resistance value of a wire-wound resistor is usually printed on the component body. The resistance value of a composition resistor or metal-film resistor is color-coded on the component, using the EIA color code. (Some metal-film resistors may have the value printed on the body.)

The color code is read starting with the stripe nearest the end of the resistor. Composition resistors have four stripes, which consist of two significant figures, a multiplier, and a tolerance value (see Figure 3-1). Metal-film resistors have five stripes that consist of three significant figures, a multiplier, and a tolerance value.

The values of common disc capacitors and small electrolytic capacitors are marked on the side of the component body. The white ceramic and epoxy-coated tantalum capacitors used in the instrument are color coded using a modified EIA code (see Figure 3-1).

The cathode end of glass-encased diodes is indicated by a stripe, a series of stripes, or a dot. The cathode and anode ends of metal-encase diodes can be identified by the diode symbol marked on the body.

COLOR CODE



① ② AND ③ – 1ST, 2ND AND 3RD SIGNIFICANT FIGS.

Ⓜ – MULTIPLIER Ⓣ – TOLERANCE

TC – TEMPERATURE COEFFICIENT

Ⓣ AND/OR TC COLOR CODE MAY NOT BE PRESENT ON SOME CAPACITORS.

COLOR	SIGNIFICANT FEATURES	RESISTORS		CAPACITORS		
		MULTIPLIER (OHMS)	TOLERANCE	MULTIPLIER (pF)	TOLERANCE	
					OVER 10pF	UNDER 10 pF
BLACK	0	1	—	1	± 20%	± 2pF
BROWN	1	10	±1%	10	±1%	± 0.1pF
RED	2	10^2OR 100	±2%	10^2OR 100	±2%	—
ORANGE	3	10^3OR 1 K	±3%	10^3OR 1000	±3%	—
YELLOW	4	10^4OR 10 K	±4%	10^4OR 10,000	+100% –0%	—
GREEN	5	10^5OR 100 K	±1/2%	10^5OR 100,000	±5%	± 0.5pF
BLUE	6	10^6OR 1 M	±1/4%	10^6OR 1,000,000	—	—
VIOLET	7	—	±1/10%	10^7OR 10,000,000	—	—
GRAY	8	—	—	10^{-2}OR 0.01	+80% –20%	± 0.25pF
WHITE	9	—	—	10^{-1}OR 0.1	± 10%	±1pF
GOLD	—	10^{-1}OR 0.1	±5%	—	—	—
SILVER	—	10^{-2}OR 0.01	±10%	—	—	—
NONE	—	——	±20%	—	±10%	±1pF

Figure 3-1. Resistor and capacitor color coding.

Semiconductor Lead Configurations

Lead configurations for semiconductor devices used in the 370A are shown in Figure 3-2.

STATIC-SENSITIVE DEVICES

CAUTION

Static discharge can damage any semiconductor component in this instrument.

This instrument contains electrical components that are susceptible to damage from static discharge. See Table 3-1 to determine the relative susceptibility of various classes of semiconductors. Static voltages of 1 kV to 30 kV are common in unprotected environments.

Observe the following precautions to avoid damage:

1. Minimize handling of static-sensitive components.

2. Transport and store static-sensitive components or assemblies in the original container on a metal rail, or on conductive foam.

3. Discharge the static voltage from your body by wearing a wrist strap while handling static-sensitive components. Servicing static-sensitive components should be performed only at a static-free work station by qualified service personnel. We recommend use of a static-control mat, and wrist strap.

4. Allow nothing capable of generating or holding a static charge on the work station surface.

5. Keep the component leads shorted together whenever possible.

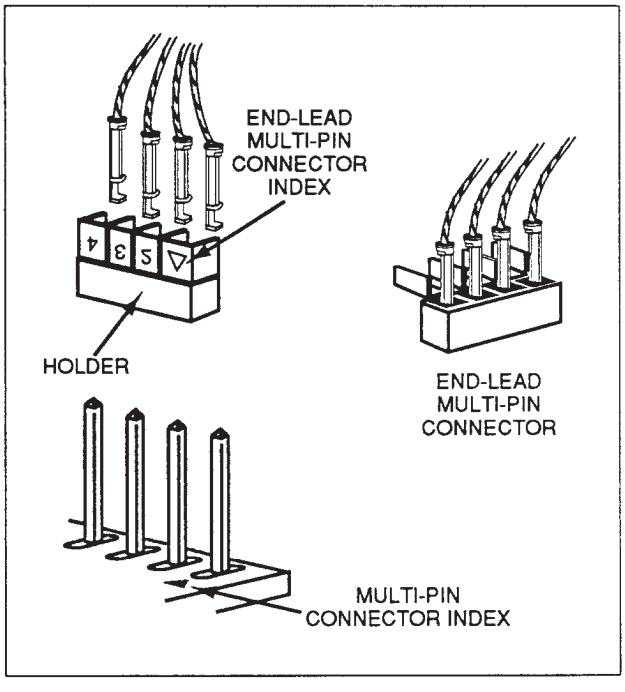


Figure 3-2 Connector pin indexing

6. Pick up components by the body, never by the leads.

7. Do not slide the component over any surface.

8. Avoid handling components in areas that have a floor or work-surface covering capable of generating a static charge.

9. Use a soldering iron that is connected to earth ground.

10. Use only special antistatic suction-type desoldering tools.

Table 3-1
Relative Susceptibility to Damage from Static Discharge

Semiconductor Class	Relative Susceptibility Level
MOS or CMOS microcircuits, and discrete or linear microcircuits with MOS inputs (most sensitive)	1(100 to 500 volts)
ECL	2 (200 to 500 volts)
Schottky Signal Diodes	3 (250 volts)
Schottky TTL	4 (500 volts)
High-frequency bipolar transistors	5 (400 to 600 volts)
JFETs	6 (600 to 800 volts)
Linear Microcircuits	7 (700 to 1000 volts)
Low-power Schottky TTL	8 (900 volts)
TTL (least sensitive)	9 (1200 volts)
(Voltage is discharged from a 100 pF capacitor through a resistance of 100 ohms.)	

Multi-pin Connector Identification

Multi-pin (harmonica, ribbon cable) connector pins are marked with a triangle, dot, or square symbol on the connector, which denotes pin 1 of the connector. When making a connection to a circuit board, match the symbol position on the connector to the index symbol that is printed on the board near the connector (see Figure 3-2).

CAUTION

Exceptions to the FUJITSU's holders are as follows. The F mark identifies pin 1. From the F mark each slot in the connector is sequentially numbered (2, 3, 4, 5, etc.). Notice that the "." mark does not identify pin 1 but fifth slot from the "F" mark.

Troubleshooting Equipment

The following equipment is useful for troubleshooting the 370A Programmable Curve Tracer.

1. Transistor Tester

Description: Dynamic type tester.

Purpose: Test semiconductors.

Recommended type: SONY/TEKTRONIX 370A Programmable Curve Tracer.

2. Digital Multimeter

Description: 10 MΩ input impedance and 0 to 1 kV range, AC and DC; ohmmeter,accuracy, within 0.1%. Test probes must be insulated to prevent accidental shorting.

Purpose: Check voltages and resistances.

Recommended type: TEKTRONIX DM501A Digital Multimeter.

3. Test Oscilloscope

Description: Frequency response, DC to 50 MHz minimum; deflection factor, 2 mV to 5 V/division. A 10X, 10-MΩ voltage probe should be used to reduce circuit loading for voltage measurements.

Purpose: Check operating waveforms.

Recommended type: TEKTRONIX 2445B Oscilloscope.

4. Variable Autotransformer

Description: Output variable from 0 to 140 volts, 10 A minimum rating. Must have three-wire power cord, plug, and receptacle.

Purpose: Vary line voltage when troubleshooting the power-supply.

Recommended type: General Radio W10MT3W Variac Autotransformer.

5. Calibration Fixtures

a. Extender Board

Purpose: Troubleshooting the circuit boards.

Recommended type: TEKTRONIX 670-9303-00 Extender.

b. Extension Cable

Purpose: Troubleshooting with the drawer unit extended.

Recommended type: TEKTRONIX 174-1999-00, 174-0352-00.

The above calibration fixtures are obtained in kit from: TEKTRONIX 067-0187-00.

Troubleshooting Techniques

This troubleshooting procedure is arranged to check the simple trouble possibilities before proceeding with extensive troubleshooting. The first few checks ensure proper connection and operation of associated equipment. If the trouble is not located by these checks, the remaining steps aid in locating the defective component. When the defective component is located, replace it using the replacement procedures given under Corrective Maintenance.

1. Check Control Settings

Incorrect control settings can indicate a trouble that does not exist. If there is any question about the correct function or operation of any control on the the instrument, refer to the Operators Manual.

2. Check Associated Equipment

Before proceeding with troubleshooting, check that the equipment used with this instrument is operating correctly. Also, check that the input signals are properly connected and that the interconnecting cables are not defective. Also check the line-voltage source.

3. Visual Check

Visually check the portion of the instrument in which the trouble is located. Many troubles can be found by visible indications, such as unsoldered connections, loose cable connections, broken wires, damaged circuit boards, and damaged components.

4. Check Instrument Adjustment

Check the electrical adjustment of this instrument, or of the affected circuit if the trouble appears in one circuit. The apparent trouble may only be a result of misadjustment. Complete adjustment instructions are given in Section 4, Performance Check and Adjustment.

5. Isolate Trouble to a Circuit

To isolate trouble to a particular circuit, note the trouble symptom. The symptom often identifies the circuit in which the trouble is located. When trouble symptoms appear in more than one circuit, check the affected circuits by taking voltage and waveform measurements. Also check for the correct output signals at the front- and rear-panel output connectors with a test oscilloscope. If the signal is correct, the circuit is working correctly up to that point.

Incorrect operation of all circuits often indicates trouble in the power supply. Check first for correct voltage of the individual supplies. However, a defective component elsewhere in the instrument can appear as a power-supply trouble and may also affect the operation of other circuits. If incorrect operation of the power supplies is suspected, refer to Troubleshooting the High-efficiency Power Supply given later in this section.

The 370A Troubleshooting charts in the Diagrams and Circuit Board Illustrations, Section 7, provides a guide for locating defective circuits. Start at the top of the chart and perform the checks until one of the checks fails.

6. Check Voltages

Often the defective component can be located by checking for the correct voltages in the circuit. Typical voltages are given in Section 6, Diagrams and Circuit Board Illustrations.

NOTE

Voltages appearing in Section 7, Diagrams and Circuit Board Illustrations, are not absolute and may vary slightly between 370A Programmable Curve Tracers. To obtain operating conditions used to take these readings, see the Voltage Conditions adjacent to the schematic diagram.

7. Check Individual Components

The following procedures describe methods of checking individual components in the 370A. Components that are soldered in place (excluding integrated circuits) are best checked by first disconnecting one end. This isolates the measurement from the effects of surrounding circuitry.

CAUTION

To avoid electric shock hazard, always turn off the mainframe power switch before removing or replacing components.

Fuses: Check for open fuses by checking continuity with an ohmmeter.

WARNING

Before replacing an open fuse, determine the cause of failure. Refer to the Power Supply Board and Interconnect diagrams and the adjacent board illustrations in the foldout section at the rear of this manual for component locations.

Transistors: A good check of transistor operation is actual performance under operating conditions. A transistor can most effectively be checked by substituting a new component for it (or one that has been previously checked). However, be sure that circuit conditions are not such that a replacement transistor might also be damaged. If substitute transistors are not available, use a dynamic tester. Static testers are not recommended, because they do not check operation under simulated operating conditions.

Integrated Circuits: These can be checked with a test oscilloscope, digital tester or by direct substitution.

CAUTION

Direct substitution must not be attempted with soldered-in integrated circuits. The I.C., circuit board, or both, may be damaged due to the heat required to melt the solder from the connections. Refer to Soldering Techniques later in this section.

Use care when checking voltages and waveforms around the integrated circuits so that adjacent leads are not shorted together. The integrated circuit test clip provides a convenient means of clipping a test probe to the in-line, multi-pin, integrated circuit.

A good understanding of the circuit operation is essential to troubleshooting circuits using integrated circuits. Operating conditions and other information for the integrated circuits are given in Section 2, Theory of Operation, and Section 7, Diagrams and Circuit Board Illustrations.

Diodes: A diode can be checked for an open or shorted condition by measuring the resistance between terminals with an ohmmeter on a scale having a low internal source current, such as the R x 1k scale. The resistance should be very high in one direction and very low when the meter leads are reversed.

CAUTION

When checking diodes, do not use an ohmmeter scale setting that has a high internal current, because high currents may damage the diodes under test.

Resistors: Check the resistors with an ohmmeter. Resistor tolerances are given in Section 6, Replaceable Electrical Parts. Normally, resistors need not be replaced unless the measured value varies widely from the specified value.

Capacitors: A leaky or shorted capacitor can best be detected by checking resistance with an ohmmeter on the highest scale. Do not exceed the voltage rating of the capacitor. The resistance reading should be high after initial charge of the capacitor. An open capacitor can best be detected with a capacitance meter or by checking if the capacitor passes AC signals.

8. Repair and Adjust the Circuit

If any defective parts are located, follow the replacement procedures given under Component Replacement in this section. Check the performance of any circuit that has been repaired or that has had any electrical components replaced. Adjustment of the circuit may be necessary.

CORRECTIVE MAINTENANCE

Corrective maintenance consists of component replacement and instrument repair. Special techniques required to replace components in the 370A Programmable Curve Tracer are given here.

COMPONENT REMOVAL AND REPLACEMENT

WARNING

To avoid electric-shock hazard, always disconnect the instrument from the power source before removing or replacing components or sub-assemblies.

The exploded-view drawings associated with the Replaceable Mechanical Parts list (located at the rear of this manual) may be helpful in the removal or disassembly of individual components or sub-assemblies.

Preparations for Component Removal and Replacement

Before removing or replacing a component, it may be necessary to open or remove panels, keyboards, etc. The following is the procedure for these preparations.

Cabinet Panel Removal

1. The 370A has three cabinet panels, top, right, and left.

2. Remove the four cabinet panel retainers from each corner of the 370A rear panel.

3. Remove the top cabinet panel by first removing its securing screw at the rear. Slide the panel back to remove it.

4. Remove the right and left cabinet panels by first removing each securing screw at the rear. Pull each panel back slightly to release it from the front casting. Then, move the top of the panel outward. Remove each panel by either sliding it to the rear or by lifting it from the bottom groove in the main body.

5. Replace cabinet panels in the reverse order of removal.

Rear Panel Removal

1. Remove the four cabinet panel retainers from each corner of the rear panel.

2. Remove the top, left, and right cabinet panels from the main body of the 370A. (See the Cabinet Panel Removal instructions.)

3. Remove any connector(s) attached to the outside of the rear panel at the IEEE STD 488 PORT, the PLOTTER INTERFACE PORT, or the AC INPUT.

4. Remove the six screws securing the rear panel.

5. Pull the rear panel out and carefully lower it away from the main body. Do not stretch any connector wires inside the panel.

NOTE

When removing connectors from a board, tag each one to prevent misconnection while reassembling.

6. Remove the following connectors from inside the rear panel:

   J270 and J274 from the A27 Primary circuit board
   P16 and P18 from the FL100 Filter

NOTE

Remove the A2 CPU and the A3 A/D circuit boards before the next step. (See the Plug-in Boards removal instructions.)

   J220 from the A1 Mother circuit board
   Both ground wires from the main body chassis

7. Remove the rear panel.

NOTE

Removal of the A22 Interface circuit board, the A27 Primary circuit board, or the B100 Cooling Fan is described later in this section. To remove one of these circuit boards or the fan from the rear panel, see the removal instructions for that component.

8. Replace the rear panel in the reverse order of removal.

Connector Replacement

1. The 370A uses many types of connectors; some of them are very similar in appearance. Tag each connector before removing to avoid confusing one connector with another. (See Figure 3-2.)

2. Some connectors have latches to prevent erroneous removal during operation. Release these latches when disconnecting them.

3. Be sure to properly orient each connector when reconnecting it.

CAUTION

Some connectors are symmetrical. These are indexed by a mark that denotes pin 1.

Drawer Unit Removal

1. Remove the right and left cabinet panels from the main body.

2. Remove the eight screws (four flat-head and four round-head) from each of the mounting brackets that secure the drawer unit to the main body. Remove both the right and left mounting brackets.

3. Pull the drawer unit forward away from the 370A.

4. Replace the drawer unit in the reverse order of removal.

NOTE

Before replacing the left or right mounting bracket, make certain that the label on one access hole is properly aligned with the internal potentiometers. (The brackets are interchangeable and could be installed on the wrong side.)

Cathode-Ray Tube Removal

NOTE

Before removing the CRT, be certain that removal is necessary by checking associated circuits.

Remove the Cathode-Ray Tube (CRT) as follows:

WARNING

The CRT may retain a dangerous electrical charge. Before removing the CRT, the anode must be fully discharged by shorting the CRT anode to the chassis. Wait approximately ten minutes and again firmly short the anode to the chassis, then remove the CRT.

Use extreme care when handling a CRT. Breakage of the CRT causes a high-velocity scattering of glass fragments (implosion). Wear protective clothing and safety glasses. Avoid striking the CRT on any object that might cause it to crack or implode. When storing a CRT, place it in a protective carton or face down in a protected location on a smooth surface with a soft mat under the face plate.

1. Remove the rear panel and the top cabinet panel.

2. Loosen the two screws located on both sides of the CRT base-pin until the tension of the springs on these screws is released.

3. Remove the CRT base-pin socket from the rear of the CRT.

4. Disconnect the CRT anode cap from the jack located on the left side of the CRT. Ground the CRT anode to the chassis to dissipate any stored charge remaining in the CRT.

5. Remove the CRT bezel cover from the lower side of the CRT bezel by pulling it off with your fingernail. Remove the CRT bezel from the front panel by removing the two screws located on the lower side of the bezel.

6. Remove the CRT filter, CRT spacer, and CRT implosion shield from the CRT frame.

7. Remove the four screws located on the inner sides of the frame.

8. Remove the CRT frame by removing the four remaining screws located on the outer sides of the CRT frame. Remove the cushion from the CRT face plate.

9. Remove the graticule illumination lamp assembly from both sides of the CRT.

10. Hold one hand on the CRT face plate and gently pull out the CRT while pushing on the CRT base pins.

Cathode-Ray Tube Replacement

Replace the Cathode Ray Tube (CRT) as follows:

1. Place four CRT retainers into each guide line located at each corner of the front panel CRT opening.

2. Insert the CRT into the front panel opening and set it firmly against the CRT clamp ring located at the rear of the CRT shield.

3. Clean the CRT face plate and place the A28 and A29 lamp boards on the right and left sides of the CRT, respectively.

4. Replace the CRT cushion. Fasten the CRT frame by fixing four screws located on the outer sides of the CRT frame.

5. Tighten the four screws located on the inner sides of the CRT frame by applying 5 Kg/cm (4.3 inch-lb) of torque.

6. Tighten the two screws beside the CRT base until the springs on the screws are fully compressed.

7. Replace the CRT base-pin socket on the CRT base pins.

8. Replace the CRT implosion shield, CRT spacer, and CRT filter.

9. Replace the CRT bezel and bezel cover.

10. Reconnect the CRT anode cap.

11. Replace the rear panel and the top cabinet panel.

NOTE

Replacing the CRT requires re-adjustment of the 370A.

BOARDS

To determine the location of a circuit board, see Figure 7-3 in Section 7.

Chassis-Mounted Boards

Remove and replace all chassis-mounted circuit boards as follows:

1. Disconnect all pin connectors attached to the board, or that connect the board to other parts of the instrument.

2. Remove the securing screws.

3. Remove the chassis-mounted board.

4. Replace chassis-mounted boards in the reverse order of removal. Be sure to match the index arrow or index mark on the multi-pin connector to the corresponding arrow on the board.

NOTE

To remove a specific circuit board, other circuit boards, chassis parts, or panels may require removal. If such is the case, refer to the removal instructions for that assembly as required.

A1 Mother Circuit Board

Remove and replace the A1 Mother circuit board as follows:

1. Remove the top, left, and right cabinet panels from the main body.

2. Remove A2, A3, A4, and A5 circuit boards from the main body. (See the Plug-In Boards removal instructions.)

3. Remove the connectors for J10, J12, J110, J180, J190, J220, J400, J410, and J412 from the board.

4. Remove the connector for J60 from the A6 Collector Supply Output circuit board. Remove the connector for J70 from the A7 Step Generator circuit board. Remove the connector for J192 from the A19 L.V. Supply circuit board.

5. Remove the A1 Mother circuit board by removing the eight screws from the board.

6. Replace the A1 Mother circuit board in the reverse order of removal.

A2, A3, A4, A5 Plug-in Boards

Remove and replace the plug-in boards as follows:

1. Remove the top cabinet panel from the main body.

2. Remove the two circuit board retainers.

3. Remove the plug-in board by pulling up on the ejector tab at each end of the board.

4. Replace the plug-in board by aligning the board with the guide slots (components on the side away from the CRT) and inserting it, holding the tabs parallel to the top of the board.

5. Slide the board down through the slots until the edge connectors rest on the bus slot connectors on the A1 Mother board.

6. Push the module down into the bus slot connectors of the A1 Mother board. Press firmly on the board, but do not press on components.

7. Replace the two circuit board retainers.

A6 Collector Supply Output Circuit Board

Remove and replace the A6 Collector Supply Output circuit board as follows:

1. Remove the top and left cabinet panels from the main body.

2. Remove the electrical shield of the A6 Collector Supply Output circuit board from the main body by removing the four securing screws.

3. Remove the connectors for J60 and J62 from the board and remove the connector for J64 from the A19 L.V. Supply circuit board.

4. Remove the four screws that secure the heat sink of the board to the chassis.

5. Remove the A6 Collector Supply Output circuit board by removing the two screws from the board.

6. Replace the A6 Collector Supply Output circuit board in the reverse order of removal.

CAUTION

If the transistors with heat sink (Q438, Q440, Q538, Q540) are replaced, make sure that all four insulation washers on the transistors are placed in position. Without these insulators, destructive electric short circuits will occur.

NOTE

At the time of replacement, no silicone grease application is required because of the high heat conductivity of the insulation washer.

A7 Step Generator Circuit Board

Remove and replace the A7 Step Generator circuit board as follows:

1. Remove the right cabinet panel from the main body.

2. Remove the connectors for J70, J72, and J74 from the board.

3. Remove the three screws located on the lower side of the board.

4. Remove the three screws fastening the heat sink of the board to the main body. Support the board as these screws are removed so it does not fall and become damaged.

5. Remove the A7 Step Generator circuit board.

6. Replace the A7 Step Generator circuit board in the reverse order of removal.

A9 L.V.Relay Circuit Board and A35 Looping Circuit Board

The A35 Looping circuit board is located on the A9 L.V. Relay circuit board. Remove and replace the A9 L.V.Relay circuit board and the A35 Looping circuit board as follows:

1. Pull out the drawer unit from the main body of the 370A.

2. Remove the guard box assembly cover from the drawer unit by removing
the four screws.

NOTE

When removing connectors from a board, tag each one to prevent misconnection while reassembling.

3. Remove the connectors for J80, J82, J89, J90, J91, J92A, J92B, J93, J94, J95, J97, J98, J99, J150, P160, J400, and J410 from the A9 L.V. Relay circuit board. Remove the connector for J90 from the A10 Sense circuit board, which is located to the right of the A9 L.V. Relay circuit board.

4. Remove the six screws from the board, and remove the two screws that secure the heat sink (and board) to the guard box.

5. Remove the A9 L.V. Relay circuit board by grasping the heat sink and lifting the board.

6. Remove the A35 Looping circuit board from the A9 L.V. Relay circuit board by removing solder for J84 and J85 connectors of the A35 Looping circuit board.

NOTE

The heat sink of the A9 L.V. Relay circuit board is also used as the current return of the floating ground. Therefore secure firmly the two screws securing the heat sink to the guard box when replacing the A9 L.V. Relay circuit board.

7. Replace the A9 L.V.Relay circuit board and A35 Looping circuit board in the reverse order of removal.

A10 Sense Circuit Board and A13 Key Interface Circuit Board

The A13 Key Interface circuit board is located on the A10 Sense circuit board. Remove and replace the A10 Sense circuit board and A13 Key Interface circuit board as follows:

1. Pull out the drawer unit from the main body of the 370A.

2. Remove the connector for J100 from the A13 Key Interface circuit board.

3. Remove the six screws securing the support bracket for the A24 FDD assembly and the A23 FDD Interface circuit board to the chassis.

4. Remove the bracket with the A24 FDD assembly and A23 FDD Interface circuit board attached.

5. Remove the connector for J142 from the A13 Key Interface circuit board.

NOTE

Steps 6 and 7 are instructions for removal of the A13 Key Interface board. Proceed to step 8, if you don't need to remove this board.

6. Remove the two screws from the A13 Key Interface circuit board.

NOTE

The A10 Sense circuit board and A13 Key Interface circuit board are connected to one another by circuit board mounted connectors J130 and P130. Be careful not to damage the connector when removing and replacing the board.

7. Pull up the A13 Key Interface circuit board to disconnect the interface connection between the A10 Sense circuit board and A13 Key Interface circuit board, releasing the two board retaining latches with a pair of pliers.

8. Remove the connectors for J414, J415, J416, J417, and J418 from the A10 Sense circuit board.

9. Remove the P411 connector with cable assembly by removing the two screws securing the P411 connector to the drawer unit.

NOTE

When removing connectors from a board, tag each one to prevent misconnection while reassembling.

10. Remove the connectors for J90, J104, J140, J301, J302, J330, and J419 from the A10 Sense circuit board, and remove the connector for P160 from the A9 L.V. Relay circuit board.

11. Remove the screw holding the guard box wire lug (which is located to the front in the guard box) to the guard box chassis.

12. Remove the two flat-head screws securing the heat sink of the A10 Sense circuit board to the right side of the drawer unit.

13. Remove the six screws from the A10 Sense circuit board.

14. Remove the A10 Sense circuit board.

15. Replace the A10 Sense circuit board and the A13 Key Interface circuit board in the reverse order of removal.

NOTE

When troubleshooting the A10 Sense circuit board below the A13 Key Interface, A13 Key Interface circuit board can be used to stand by connecting P131 on the A13 Key Interface circuit board with J131 on the A10 Sense circuit board.

A11 Main Key Circuit Board

Remove and replace the A11 Main Key circuit board as follows:

1. Remove the CRT bezel from the front panel. (See step 5 of the Cathode-Ray Tube Removal instructions.)

2. Remove the right cabinet panel from the main body.

3. Remove the two securing screws from the right side of the front panel, and pull out the front panel.

4. Remove the connector for J110 from the A1 Mother circuit board and remove the screw holding the ground wire lug. Then remove the front panel.

5. Pull out the eight knobs (three large and five small) from the front panel.

6. Remove the A11 Main Key circuit board by removing the six screws securing the board.

NOTE

A11 Main Key circuit board and A12 Sub Key circuit board are connected to one another by circuit board mounted connectors J100, J120, P100 and P120. Be careful not to damage the connectors when removing and replacing the board.

7. Replace the A11 Main Key circuit board in the reverse order of removal.

A12 Sub Key Circuit Board

Remove and replace the A12 Sub Key circuit board as follows:

1. Remove the A11 Main Key circuit board. (See the NOTE in the last part of the A11 Main Key Circuit Board removal instructions.)

2. Remove the A12 Sub Key circuit board by removing the six spacer posts from the board.

3. Replace the A12 Sub Key circuit board in the reverse order of removal.

A14 LOR Key Circuit Board

Remove and replace the A14 LOR Key circuit board as follows:

1. Pull out the drawer unit from the main body of the 370A.

2. Remove the protective box from the Test Adapters.

3. Remove the four flat-head screws securing the Test Adapter Mounting Plate assembly to the center front of the drawer unit.

4. Remove the two flat-head screws securing the right front panel assembly to the right front side of the drawer unit.

5. Remove the right front panel assembly by lifting it out.

6. Remove the connector J140 from the A10 Sense circuit board.

7. Remove the A14 LOR Key circuit board by removing the three nuts securing the board.

8. Replace the A14 LOR Key circuit board in the reverse order of removal.

A15 Configuration LED Circuit Board

CAUTION

When replacing or removing the rotary encoder S200, tighten the mounting nuts to a torque of 8 kg/cm when remounting the encoder. Excessive tightening torque can cause failures.

Remove and replace the A15 Configuration LED circuit board as follows:

1. Pull out the drawer unit from the main body of the 370A.

2. Remove the protective box from the Test Adapters.

3. Remove the four flat-head screws securing the Test Adapter Mounting Plate assembly to the center front of the drawer unit.

4. Remove the two flat-head screws securing the left front panel assembly to the left front side of the drawer unit.

5. Remove the left front panel assembly by lifting it out.

6. Remove the connectors for J200 and J210 from the board. Remove the connector for J150 from the A9 L.V. Relay circuit board.

7. Remove the A15 Configuration LED circuit board by removing the two nuts securing the board.

8. Replace the A15 Configuration LED circuit board in the reverse order of removal.

A18 CRT Output Circuit Board

Remove and replace the A18 CRT Output circuit board as follows:

1. Remove the top cabinet panel from the main body of the 370A.

2. Remove the (plastic) insulator by removing its four securing screws from the A18 CRT Output circuit board.

3. Remove the connectors for J180, J182, J184, and J186 from the board.

4. Remove the A18 CRT Output circuit board by removing the four spacer posts from the board.

5. Replace the A18 CRT Output circuit board in the reverse order of removal.

A19 L.V.Supply Circuit Board

Remove and replace the A19 L.V. Supply Circuit board as follows:

1. Remove the top, left, and right cabinet panels from the main body.

2. Remove the rear panel. (See the Rear Panel Removal instructions.)

NOTE

When removing connectors from a board, tag each one to prevent misconnection while reassembling.

3. Remove the connectors for J64, J72, J190, J192, J194, J196, J198, J280, and J290 from the board.

4. Remove the three screws that secure the heat sink of the A19 L.V. Supply circuit board to the chassis.

5. Remove the A19 L.V. Supply circuit board by removing its three securing screws from the rear edge of the board.

6. Replace the A19 L.V. Supply circuit board in the reverse order of removal.

A20 H.V. Regulator Circuit Board

Remove and replace the A20 H.V. Regulator circuit board as follows:

1. Remove the left cabinet panel from the main body.

2. Remove the shield covering the A20 H.V. Regulator circuit board from the main body by removing the four securing screws.

3. Remove the retainer, that holds the transistor on the board to the chassis, by removing its screw.

WARNING

The CRT anode circuit retains up to 2400 Volt of charge. Be sure the anode cap is completely grounded to the chassis before handling the circuit board.

4. Remove the CRT anode cap from the jack on the left side of the CRT.

Ground the CRT anode cap to the chassis to dispel any stored charge.

5. Remove the connectors for J182, J194, and J200 from the board.

6. Remove the A20 H.V. Regulator circuit board by removing the four screws from the corners of the board.

7. Replace the A20 H.V. Regulator circuit board in the reverse order of removal.

A22 Interface Circuit Board

Remove and replace the A22 Interface circuit board as follows:

1. Remove the A2 CPU and the A3 A/D circuit boards. (See the A2, A3, A4, and A5 Plug-in Circuit Board removal instructions.)

2. Remove the connector for J220 from the A1 Mother circuit board.

3. Remove the four screws that secure the IEEE STD 488 PORT connector and the PLOTTER INTERFACE PORT connector to the rear panel.

4. Remove the rear panel. (See the Rear Panel Removal instructions.)

5. Remove the A22 Interface circuit board and its (plastic) insulation cover by removing the four securing screws from the board.

6. Replace the A22 Interface circuit board in the reverse order of removal.

A23 FDD Interface Circuit Board

Remove and replace the A23 FDD Interface circuit board as follows:

1. Pull out the drawer unit from the main body of the 370A.

2. Remove the connector for J100 from the A13 Key Interface circuit board.

3. Remove the connector (through the W200 on the A23 FDD Interface circuit board) from the FDD assembly.

4. Remove the A23 FDD Interface circuit board by removing the four securing screws from the board.

5. Replace the A23 FDD Interface circuit board in the reverse order of removal.

A27 Primary Circuit Board

Remove and replace the A27 Primary circuit board as follows:

1. Remove the rear panel. (See the Rear Panel Removal instructions.)

2. Remove the connectors for J270, J272, and J274 from the board.

NOTE

Removal of connector J272 may be difficult with the (plastic) insulation cover installed over the board. The upper corner of the cover may keep one of the connector's latches from releasing. Remove the cover first if this problem occurs.

3. Remove the (plastic) insulation cover and the A27 Primary circuit board by removing the four securing screws from the board.

4. Replace the A27 Primary circuit board in the reverse order of removal.

A28, A29 Graticule Illumination Lamp Circuit Board

Remove and replace A28 and A29 Graticule Illumination Lamp circuit boards as follows:

1. Remove the CRT bezel cover from the lower side of the CRT bezel by pulling it off with your fingernail. Remove the CRT bezel from the front panel by removing the two screws located on the lower side of the bezel.

2. Remove the (blue) CRT filter, the CRT spacer, and the CRT implosion shield from the CRT frame.

3. Remove the CRT frame by first removing the four round head screws from the inner sides of the frame. Then remove the four flat-head screws from the outer sides of the CRT frame.

4. Remove the top cabinet panel.

5. Remove connector(s) J280 and/or J290 from the A19 L.V. Supply circuit board.

6. Remove the (internal scale illumination) light reflector, the light reflector retainer, and the retainer spring by pulling them out from alongside the CRT face plate.

7. Remove the A28 or A29 Graticule Illumination Lamp circuit board by removing the two screws that secure the board in place.

8. Replace the A28 or A29 Graticule Illumination Lamp circuit board in the reverse order of removal.

A33 Configuration Relay Circuit Board

Remove and replace the A33 Configuration Relay circuit board as follows:

1. Remove the right front panel assembly. (See step 1 through 5 of the A14 LOR Key circuit board removal instructions.)

NOTE

When removing connectors from a board, tag each one to prevent misconnection while reassembling.

2. Remove the connectors for J102, J103, and J104 from the board.

3. Remove the connectors for J302, J330, and J419 from the A10 Sense circuit board.

4. Remove the A33 Configuration Relay circuit board by removing the four screws from the board.

5. Replace the A33 Configuration Relay circuit board in the reverse order of removal.

A34 LOR Relay Circuit Board

Remove and replace the A34 LOR Relay circuit board as follows:

1. Remove the A9 L.V. Relay circuit board. (See the A9 L.V. Relay Circuit Board removal instructions.)

2. Remove the two screws securing the wires to J91 and J95. Remove the connector for J301 from the A10 Sense circuit board.

3. Remove the A31 Relay circuit board by removing the six screws securing the relays on the board to the guard box chassis.

4. Replace the A34 LOR Relay circuit board in the reverse order of removal.

A24 Floppy Disk Drive Assembly

Remove and replace the A24 FDD assembly as follows:

1. Pull out the drawer unit from the main body of the 370A.

2. Remove the connector (through the W200 on the A23 FDD Interface circuit board) from the A24 FDD assembly.

3. Remove the A24 FDD assembly by removing the four securing screws from the FDD assembly.

4. Replace the A24 FDD assembly in the reverse order of removal.

H.V. Relay Module

Remove and replace the H.V. Relay module as follows:

1. Remove the A9 L.V. Relay circuit board. (See the A9 L.V. Relay Circuit Board removal instructions.)

2. Remove the four screws securing the wires to J8, J11, J12, and J13 on the Series Resistor module.

3. Remove the H.V. Relay module by removing the four screws securing the H.V. Relay module to the guard box chassis.

4. Replace the H.V. Relay module in the reverse order of removal.

NOTE

See the label on the Series Resistor module showing the destination of each wire and connector.

Series Resistor Module

Remove and replace the Series Resistor module as follows:

1. Remove the A9 L.V. Relay circuit board. (See the A9 L.V. Relay Circuit Board removal instructions.)

NOTE

When removing connectors from a board, tag each one to prevent misconnection while reassembling.

2. Remove the six screws securing the wires to J1, J2, J8, J11, J12, and J13 on the Series Resistor module. Remove the two screws securing the wires to J91 and J95 on the A34 LOR Relay circuit board. Remove the screw securing the wire to J1 on the Input Relay module.

3. Remove the nut holding the guard box wire lug.

4. Remove the Series Resistor module by removing the four screws securing the module to the guard box chassis.

5. Replace the Series Resistor module in the reverse order of removal.

NOTE

See the label on the Series Resistor module showing the destination of each wire and connector.

Input Relay Module

Remove and replace the Input Relay module as follows:

1. Perform parts 1 through 4 of the removal instructions for the A10 Sense circuit board.

2. Remove the three screws securing the wires to J1, J3, and J4 on the Input Relay module.

3. Remove the Input Relay module and the shield by removing the four screws.

4. Replace the Input Relay module in the reverse order of removal.

NOTE

See the label on the Input Relay module showing the destination of each wire and connector.

Cooling Fan

Remove and replace the Cooling Fan (B100) as follows:

1. Remove the rear panel. (See the Rear Panel Removal instructions.)

2. Remove the protective cover and remove the connector for J272 from the A27 Primary Circuit board.

3. Remove the Cooling Fan together with the fan cover, filter, and fan guard by removing four screws and nuts.

NOTE

Before reinstalling the cooling fan, be certain that the J272 wires are at the bottom left corner (as facing the rear). Also check that the air flow arrow marked on the fan housing is pointing toward the inside of the 370A.

4. Replace the Cooling Fan in the reverse order of removal.

Line Fuse

The line fuse used in the 370A is located within the filter unit on the rear panel. Replace the line fuse only with one of proper type and rating.

Remove and replace the line fuse as follows:

1. Remove the AC power cable connector from the line filter housing in the rear panel.

2. Remove the fuse cover by pulling it out from the line filter. Insert some flat-edged tool (such as a straight-slot, screw-driver blade tip) into the small groove in the outer left side of the housing. Use the tool to pull, or pry, the fuse cover loose.

3. Remove the line fuse from its fuse cover.

4. Replace the line fuse in the reverse order of removal.

Semiconductors

Do not replace semiconductors unless actually defective. If removed from their sockets during routine maintenance, return them to their original sockets. Unnecessary replacement of semiconductors may affect the adjustment of the instrument. When semiconductors are replaced, check the operation of circuits that may be affected.

WARNING

To avoid electric shock hazard, always disconnect the 370A from the power source before removing or replacing components.

Replacement semiconductors should be of the original type or a direct replacement. When removing soldered-on transistors, use a solder-removing wick to remove the solder from the circuit board pads.

An extracting tool should be used to remove the in-line integrated circuits to prevent damaging the pins. This tool is available from Tektronix, Inc.; order Tektronix part 003-0619-00.

If an extracting tool is not available, use care to avoid damaging the pins. Pull slowly and evenly on both ends of the integrated circuit. Try to avoid disengaging one end from the socket before the other.

ADJUSTMENT AFTER REPAIR

After any electrical component has been replaced, the adjustment of that particular circuit should be checked, as well as the adjustment of any closely related circuits.

DIAGNOSTIC ROUTINES

The 370A has four diagnostic routines: Two Power-on Diagnostic routines, a User Initiated Diagnostic routine, and GPIB diagnostic routine.

Power On Diagnostic Routines

At power on, the 370A runs the Power On Diagnostic routine to execute the following tests:

System ROM check
System RAM check
Display RAM check
Acquisition RAM check
Push button test

After completion of Power on Diagnostic routines, the 370A displays a "SELFTEST PASS" message at the error message area of the CRT and sets the initial settings.

If the 370A is turned on with the FAST/SHIFT key pressed, a more detailed Power On Diagnostic routine is made, in the following order:

System ROM check
System RAM check
Display RAM check
Acquisition RAM check
LED check
Display quality check
Push button test

To exit this diagnostic routine, press the FAST/SHIFT button.

System ROM Check

After confirming that the system ROMs are in the correct sockets, the 370A diagnoses the system ROMs by checksum.

If a system ROM fatal error is found, (such as misinsertion) the memory index display blinks with 0 and 1.

When checksum error is found, the error message is displayed on the error message area of the CRT. The format of this messages is as follows:

ROM 000X

When X is the hexadecimal number whose bit 1 through bit 4 respectively indicates the error status of system ROM U600, U610, U620, and U630. (For example, error message "ROM 0002" indicates that checksum error is detected in ROM U610.)

In the above cases, the 370A does not advance the diagnostics routine.

System RAM Check

The 370A checks the system RAM by read/write operation. If a system RAM fatal error is found (such as bus shorted), the memory index display blinks with 0 and 2.

When read/write errors are found, the error message is displayed on the error message area of the CRT. The format of this message is as follows:

RAM XXXXX YYYY

Where XXXXX is a hexadecimal representation of the address of the RAM in error, and YYYY is a hexadecimal representation of error bits in that address (for example, error message "RAM 00000 0018" indicates that a read/write error is detected in bit 4 and bit 5 of the system RAM at address 00000).

In the above cases, the 370A does not advance the diagnostics routine.

Display RAM Check

The 370A checks the Display RAM by read/write operation.

If a read/write error is found (such as bus shorted), the memory index display blinks with 0 and 3, and the 370A does not advance the diagnostics routine.

Acquisition RAM Check

The 370A checks the Acquisition RAM by a read/write operation.

If a read/write error is found (such as bus shorted), the memory index display blinks with 0 and 4, and the 370A does not advance the diagnostics routine. Table 3-2 shows the Power-on System Error Messages displayed on the memory index display.

Table 3-2
Power on System Error Messages

Display	Meaning
0/1 (blink)	System ROM error (such as mis-insertion)
0/2 (blink)	System RAM error (such as bus shorted)
0/3 (blink)	Display RAM Read/Write error (such as bus shorted)
0/4 (blink)	Acquisition RAM Read/Write error (such as bus shorted)

LED Check

The 370A turns on all front-panel LEDs sequentially for visual check.

Display Quality Check

The 370A displays the Logo mark (SONY/TEKTRONIX), and a CRT adjustment pattern on the CRT for CRT control adjustment. For the implementation of this adjustment pattern, refer to Section 4, Performance Checks and adjustment.

Pressing the FAST/SHIFT key exits this routine.

Push Button Test

The 370A executes pushbutton test (FAST/SHIFT button is not tested in this case). If an error is found, the error message is displayed at the bottom of the CRT. The Error Message is indicated by the following format:

<STRING> KEY ERROR

<STRING> identifies the front panel control as listed in Table 3-3.

The following message appears on the text area of the CRT simultaneously with the above error message:

PRESS FAST KEY TO GO ON

You can ignore the displayed error and push the FAST/SHIFT key to carry out the measurement, but the displayed key function will not necessarily occur correctly.

Table 3-3
Front Panel Control Identification

Control	Message
Display NON STORE	NON STORE
Display STORE	STORE
Display REF	REF
Display VIEW	VIEW
Display ENTER	ENTER
Display INVERT	INVERT
MEMORY up	MEMORY up
MEMORY down	MEMORY down
Setup SAVE	SAVE
Setup RECALL	RECALL
MAX PEAK VOLTS up	PEAK VOLTS up
MAX PEAK VOLTS down	PEAK VOLTS down
MAX PEAK POWER WATTS up	PEAK WATTS up
MAX PEAK POWER WATTS down	PEAK WATTS down
Collector Supply POLARITY up	POLARITY up
Collector Supply POLARITY down	POLARITY down
GPIB LOCAL	LOCAL
GPIB PLOT	PLOT
ACQ MODE (STORE MODE) up	ACQ MODE up
ACQ MODE (STORE MODE) down	ACQ MODE down
Measurement REPEAT	REPEAT
Measurement SINGLE	SINGLE

Table 3-3 (cont)
Front Panel Control Identification

Control	Message
Measurement SWEEP	SWEEP
MAG	MAG
FAST/SHIFT	FAST/SHIFT
NUMBER OF STEPS up	# OF STEPS up
NUMBER OF STEPS down	# OF STEPS down
Step Generator VOLTAGE	VOLTAGE
Step Generator CURRENT	CURRENT
Step Generator OFFSET OPPOSE	OPPOSE
Step Generator OFFSET AID	AID
Step Generator POLARITY	STEP POLARITY
Step Generator MULTI	STEP MULTI
Step Generator PULSE	PULSE up
AUX up	AUX up
AUX down	AUX down
CURSOR Mode up	CURSOR up
CURSOR Mode down	CURSOR down
Position CURSOR	CURSOR
Position DISPLAY	DISPLAY
Position Control up	POSITION up
Position Control left	POSITION left
Position Control down	POSITION down
Position Control right	POSITION right

Table 3-3 (cont)
Front Panel Control Identification

Control	Message
CONFIGURATION up	CONFIGURATION up
CONFIGURATION down	CONFIGURATION down
LEFT	LEFT
STANDBY	STANDBY
RIGHT	RIGHT
INTERLOCK	COVER ON COVER OFF
VERTICAL CURRENT/DIV	VERTICAL XX(0-16)
HORIZONTAL VOLTS/DIV	HORIZONTAL XX(0-16)
STEP AMPLITUDE	STEP AMP XX(0-16)
VARIABLE COLLECTOR SUPPLY	VARIABLE XX(0-25)
OUTPUTS	OUTPUT ENABLE OUTPUT DISABLE
PROTECTIVE COVER	COVER ON COVER OFF

User Initiated Diagnostic Routine

Pressing both the FAST/SHIFT key and Position DISPLAY key enters the Users Initiated Diagnostic routine. This routine displays a number or message that corresponds to the front panel push button or rotary switch pressed or rotated. Thus, you can diagnose whether the front panel controls are operating normally. Table 3-3 lists the buttons, switches and associated messages. To exit this routine, press both the FAST/SHIFT key and the Position DISPLAY key again.

GPIB Diagnostic Routine

The GPIB TEST? command initiates the 370A system ROM and RAM diagnostic routines. The 370A responds to this command by returning system ROM and RAM information to the controller in the following format:

TEST ROM:000X (ROM error code), RAM:YYYY (RAM error code)

The TEST query response consists of two hexadecimal numbers that indicate if a ROM or RAM IC was found to be defective. These numbers must be translated to the binary equivalent to determine the ROM and RAM locations. (If all ROMs and RAMs are good, the TEST query response is ROM:0000, RAM:0000.)

Performance Check and Adjustment

4
Performance Check and Adjustment

The Performance Check and Adjustment Procedure:

- Checks key electrical specifications
- Provides instructions for determining whether adjustment is necessary
- Provides instructions for making all internal adjustments
- Provides optional functional check instructions

Adjustment Interval

To maintain instrument accuracy, check performance every 2000 hours of operation or annually if used infrequently.

IMPORTANT:

The Performance Check and Adjustment Procedure is a multipurpose procedure. Time can be saved by performing only those steps necessary for your application. Carefully read Table 4-1 to select the appropriate procedure option for the task to be performed.

Table 4-1
Performance Check and Adjustment Procedure Options

Task	Procedure Options
Performance Check (Checking key electrical specifications)	• Perform the Power-Up Sequence at the beginning of the Performance Check and Adjustment Procedure. • Perform those steps with titles beginning with "Checking" and identified with a ✓ in the bar above the heading (see the Procedure Index at the beginning of the procedure). IMPORTANT: If a "Checking" step also contains the word "Adjusting" in the title and a ⊘ in the bar above the title, ignore those parts of the step with adjustment instructions.
Adjustment	• Perform the Power-Up Sequence at the beginning of the Performance Check and Adjustment Procedure. • Perform only those steps with "Adjusting" in the title and a ⊘ in the bar above the title (see the Procedure Index at the beginning of the procedure). IMPORTANT: Perform all parts of these adjustment steps; most adjustments are preceded by instructions for determining whether adjustment is necessary and followed by instructions for verifying that the adjustment was correctly performed.
Performance Check and Adjustment	• Perform the Power-Up Sequence at the beginning of the Performance Check and Adjustment Procedure. • Perform all steps in the procedure with a ✓ or a ⊘ (or both) in the bar above the step title (see the Procedure Index at the beginning of the procedure). IMPORTANT: Steps for "Examining" characteristics only (i.e., those with no "Checking" or "Adjusting" instructions included) are not necessary for checking specifications or making adjustments.
Partial Performance Check or Adjustment	• Perform the Power-Up Sequence at the beginning of the Performance Check and Adjustment Procedure. • Perform the desired steps (e.g., A1, B3, etc.) using the SETUP CONDITIONS at the beginning of each step. IMPORTANT: Although a partial adjustment procedure can be performed, we recommend that the entire subsection procedure (e.g., A. Power Supply, F. Step Generator, etc.) be performed if any adjustments are made.
Functional Check of Front Panel Controls and Connectors	• Perform the First Time Operation procedure in Section 3 of the 370A Operators Manual.

Table 4-1 (cont)
Performance Check and Adjustment Procedure Options

Task	Procedure Options
Complete Functional Check	• Perform the Power-Up Sequence at the beginning of the Performanc e Check and Adjustment Procedure. • Perform only those steps with titles beginning with "Checking" or "Examining". IMPORTANT: If a "Checking" or an "Examining" step also contains the word "Adjusting" in the title and a ⃠ in the bar above the title, ignore those parts of the step with adjustment instructions.

Before making adjustments, thoroughly clean and inspect the 370A instrument as instructed in the Maintenance section of this manual.

USING THIS PROCEDURE

The following aids are used in this procedure:

Performance Check Summary. The Performance Check Summary lists key characteristics checked in the procedure and the procedure steps in which they are checked. It also indicates which steps contain adjustments which may affect the specified performance of characteristics.

Power-Up Sequence. The Power-Up Sequence ensures that operating conditions are stable and repeatable, and must be performed before any complete or partial procedure is performed.

Initializing the 370A. The 370A is initialized at the beginning of most the 370Aprocedure steps to prevent the carry-over of inappropriate setup conditions from previous steps. Initialization also allows each step to be performed independently if only portions of the procedure are performed.

Subsection Headings. The procedure is divided into subsections by major circuit function. For example: A. Power Supply, B. CRT, etc. Each subsection contains steps to check or adjust characteristics of that major circuit.

Step Titles and Title Bars. The title of each step begins with "checking", "adjusting", or "examining", or a combination of these words.

- Checking indicates that an electrical specification is checked.
- Adjusting indicates that instructions are given to make one or more internal adjustments.
- Examining indicates that a functional check of the circuit is performed and that no electrical specifications are checked.

Each step with instructions for checking and/or adjusting instrument characteristics has a title bar positioned over the step title. The title bar contains a ✓ and/or a ⃠ to quickly identify the purpose of the step.

Specifications. All steps that check specifications list those specifications immediately after the step title.

Setup Conditions. Each step has setup conditions enclosed in a box, which include all equipment, connections, and control settings necessary to begin the step.

Parts of Steps. Each step is composed of sequential parts with alphabetic indexing. The parts are arranged into functional groups so that, for instance, if a performance check is being performed, adjustment instructions may be skipped.

Performance Check Summary

Table 4-2 lists key characteristics checked in this procedure and the steps in which they are checked. Also listed are steps containing adjustment instructions which may affect a characteristic's specified performance. The specifications for characteristics listed in Table 4-2 are given at the beginning of the procedure step in which they are checked.

Table 4-2
Performance Check Summary

Characteristic	Checked	Adjusted
COLLECTOR SUPPLY		
POLARITY	Not specified; examined in G5	
+LEAKAGE	Not specified; examined in G5	
+DC	Not specified; examined in G5	
+ ∞	Not specified; examined in G5	
AC	Not specified; examined in G5	
− ∞	Not specified; examined in G5	

Table 4-2
Performance Check Summary

Characteristic	Checked	Adjusted
− DC	Not specified; examined in G5	
− LEAKAGE	Not specified; examined in G5	
DC Mode Ripple	G3	
Max Peak Volts	G2	G2
Voltage Accuracy	G2	
Range	G2	
Max Peak Current	G4	
Series Resistance Available (Ω, ±5% or 0.1 Ω)	G6	
Peak Power Watts	G2, G4, G6	G2
Variable Collector 0 to100.0% Supply	Not specified; examined in G5	
Safety Interlocks	Not specified; examined in G5	
Warning Indicator	Not specified; examined in G5	
Limiter Indicator	Not specified; examined in G7, G8	
Looping compensation	Not specified; examined in C7	C7
Voltage limiter	G7	
Current limiter	G8	

Table 4-2
Performance Check Summary

Characteristic	Checked	Adjusted
STEP GENERATOR		
Accuracy (Current or voltage steps including offset)		
Incremental	F8, F9, F10, F11	F1, F2
Absolute	F6, F7, F12, F13	F1, F2
Offset control range	F6, F7	
Resolution	F6	
Current Mode		
Amplitude range	F7	
Max current	F13	
Max Voltage	F16	
Max Opposing Volts	F17	
Output Impedance	F3	
Ripple plus noise	F5	
Voltage Mode		
Amplitude switch range	F6	
Max voltage	F12	
Max current	F14	
Max Opposing Current	F15	
Ripple plus noise	F4	

Table 4-2
Performance Check Summary

Characteristic	Checked	Adjusted
Step Rates	F19	
Pulsed Steps	F18	
Steps and offset polarity	F20	
Number of Steps	F8, F10	
AUX SUPPLY		
Range (and resolution)	H1	
Accuracy	H1	
Output current	H2	
Ripple plus noise	H3	
NON STORE VERTICAL DEFLECTION SYSTEM		
Maximum displayed noise or ripple	E7	C7
Calibrator Voltage	Not specified; examined in C1	

Table 4-2
Performance Check Summary

Characteristic	Checked	Adjusted
DIGITAL STORAGE VERTICAL ACQUISITION		
Collector Current		
Range	E6a, E6b	
Accuracy	E6a, E6b	E1, E2
Emitter Current		
Range	E5	
Accuracy	E5	E1, E3
Display offset		
Accuracy	C6	C2, C3, C4
Display Mag X10 accuracy	E5	
Display invert accuracy	C5	
NON STORE HORIZONTAL DEFLECTION SYSTEM		
Collector Volts		
Displayed noise	D7	
Base/Emitter Volts		
Input Impedance	D6	
Displayed noise	D7	
Calibrator Voltage	Not specified; examined in C1	

Table 4-2
Performance Check Summary

Characteristic	Checked	Adjusted
DIGITAL STORAGE HORIZONTAL ACQUISITION		
Collector Volts		
Range	D4, D5	
Accuracy	D4, D5	D1
Base/Emitter Volts		
Range	D3	
Accuracy	D3	D1
Display offset		
Range	C6	
Accuracy	C6	C2, C3, C4
Display Mag X10 accuracy	D2	
Display invert accuracy	C5	
CRT		
Cathode Voltage	Not specified; examined in B1	
Intensity	Not specified; examined in B2	B2
Astigmatism and Focus	Not specified; examined in B3	B3

Table 4-2
Performance Check Summary

Characteristic	Checked	Adjusted
Intensity Controls	Not specified; examined in B4, B5, B6	
Geometry	C4	C4
Orthogonality	C4	C4
POWER SUPPLY		
Deviation	Not specified; examined in A1	
Ripple	Not specified; examined in A1	
Reference voltage	A2	A2

Power-Up Sequence

The performance of this instrument can be checked at any ambient temperature from +10° C to +40° C unless otherwise stated. Adjustment must be made at an ambient temperature from +15° C to +25° C for the specified tolerances to apply.

WARNING
Adjustment of the 370A should only be performed by a qualified service technician.

1. Check that the 370A has been set for the proper power source, and that a suitable power cord has been attached.

2. Remove the 370A cabinet panels to gain access to internal adjustment and test points.

   For instructions on cabinet panel removal, refer to the description under the heading COMPONENT REMOVAL AND REPLACEMENT in Section 3 of this manual.

WARNING
Use extreme care when operating the 370A with the covers removed, due to the line voltage, high voltage, and high current levels present.

3. Connect the 370A to a suitable power source.

4. Press the POWER button and allow at least 20 minutes warmup before proceeding.

Initializing the 370A

The following procedure saves the power-up default 370A settings for use when the procedure calls for you to "Initialize the 370A".

1. Press the SETUP SAVE button to store the default settings in memory location 1.

   These default settings plus the manual initialization settings are used as starting settings throughout this procedure, expect as noted otherwise.

2. Now, to Initialize the 370A:

   a. Press the SETUP RECALL button (with the MEMORY index set to location 1).

   b. Make the additional manual settings:

OUTPUTS	ENABLED
Protective Cover	Closed

The power-up default settings are as follows:

DISPLAY	
Mode	STORE
VERTICAL	2 A COLLECTOR
HORIZONTAL	2 V COLLECTOR
INVERT	Off
COLLECTOR SUPPLY	
MAX PEAK VOLTS	16
MAX PEAK POWER WATTS	0.08
POLARITY	+ ⌒
STEP GENERATOR	
Mode	CURRENT
STEP AMPLITUDE	50 nA
NUMBER OF STEPS	5
OFFSET	0.0 nA
POLARITY	+
INVERT	Off
STEP MULTI .1X	Off
PULSE	Off
ACQ MODE	NORM
MEASUREMENT	REPEAT
MAG X10	Off
POSITION	CURSOR
CURSOR	OFF
AUX SUPPLY	0.00 V
CONFIGURATION	BASE STEP GEN
VARIABLE COLLECTOR SUPPLY	0 %
LEFT-RIGHT-STANDBY	STANDBY

Test Equipment

The test equipment listed in Table 4-3 is required for a complete Performance Check and Adjustment of the instrument. However, complete checking or adjusting may not always be necessary or desirable. You may be satisfied with checking only selected characteristics, thereby reducing the amount of test equipment actually required.

The specifications for test equipment listed in Table 4-3 are the minimum required to check performance requirements of the 370A. Detailed operating instructions for test equipment are not given in these procedures; refer to the test equipment instruction manual if more information is needed.

Special Fixtures

Special fixtures are used where they facilitate instrument adjustment. These fixtures are available from Tektronix, Inc. Order by part number from Tektronix Field Offices or representatives.

Test Equipment Alternatives

The checks and adjustment procedures are based on the first item of equipment given as an example. When other equipment is substituted, control settings or setups may have to be altered. If the exact item of equipment given as an example in Table 4-3 is not available, first check the Minimum Specifications column carefully to see if any other equipment might suffice. Then check the Purpose column to see where this item is used. If used for a performance check or adjustment that is of little or no importance for your measurement requirements, the item and corresponding step(s) can be deleted.

Table 4-3
Test Equipment

Item	Minimum Specification	Purpose	Example of Applicable Test Equipment
1. Test Oscilloscope	Bandwidth, DC to 150 MHz; deflection factor, 2 mV to 5 V/DIV (with 10X, 10 MΩ probe)	Used to check ripple.	a. Tektronix 2445B 150 MHz Oscilloscope with P6137 Probe. b. Refer to Tektronix Products catalog for compatible equipment.
2. Calibrator	Voltage range: 500.0 mV to 1000 V; Accuracy: 0.1 mV; Resolution: 0.1 mV; Current range: 10.00 µA to 1.999 A; Accuracy: 0.1 %	Supplies a reference voltage to the 370A Supplies a reference current to the 370A	Fluke 5101B
3. Digital Multimeter	4.5 digit DCV: 1000 V, Accuracy: 0.05 %; Resolution: 0.1 mV; Input imp: 10,000 MΩ (100 mV, 1 V, 10 V range), 10 MΩ (100 V, 1000 V range); DCA: 1.28 A; Accuracy: 0.1 %; Resolution: 0.1 nA; Ω: 25 MΩ; Accuracy: 0.05 %; Resolution: 0.01Ω.	Used throughout the checks and adjustments to measure voltage, current, and resistance	a. Fluke 8505A Option 02A, 03 b. Keithley 195A W/OP 1950
	4.5 digit DCV: 1000 V, Accuracy: 0.05 %; Resolution: 0.1 mV; Input Imp: 10 MΩ (20 V range)	Used to examine –2400 V	Tektronix DM501A
4. Tool, Alignment	Combination hex wrench and screwdriver tips for electronics use	Used to perform internal adjustments	Tektronix Part No. 003-0489-00
5. Banana Plugs	Banana plug with cap	Used to hold resistors and probe hooks	Tektronix Part No. 134-0016-01 and 134-0198-00
6. Screw Driver	POZIDRIV; length: 8 1/2 inch Point size #1, #2	Used to remove panels and High Voltage shield cover	Tektronix Part No. 003-0293-00
7. Patch Cord	Banana Plug-Jack to Banana Plug-Jack	Used throughout the procedure	Tektronix Part No. 198-5621-00 and 198-5625-00
8. High Voltage Probe	Voltage range: 0 - 3 kV (DC, AC); Accuracy: ± 1%	Used to examine –2400 V	Fluke 80K-6
9. Test lead		Used throughout the procedure	Fluke Y8131

Table 4-3 (cont)
Test Equipment

Item	Minimum Specification	Purpose	Example of Applicable Test Equipment
10. Resistors	25 MΩ, 0.1%,1/2 W 2.5 MΩ, 0.1%, 1/2 W 250 kΩ, 0.1%, 1/2W 1 MΩ, 5%, 1/4W 10 MΩ, 5%, 1/4W 100 Ω, 5%, 1/4 W 0.025 Ω, 0.1%, 4W	To check: • emitter accuracy • collector accuracy in 500 mA, 1A, 2A range • horizontal displayed noise • base input impedance • step generator accuracy in 100 mA and 200 mA range • step generator ripple To adjust: • step generator	Tektronix Part No. 067-1337-00
11. Transistor	2N3904	Used as DUT for acquisition of curve data	Tektronix Part No. 151-0190-00
12. Plotter	8-bit parallel interface; HPGL support	Used to check the plotter interface	Tektronix HC100
13. Controller	GPIB Support	Used to check the GPIB	a. IBM PC with Tektronix GURU card running BASICA b. IBM PC with National Instruments PC2 or PC2A card running BASICA c. Hewlett-Packard 200 or 300 Series Scientific Computer running 200 or 300 BASIC.
14. Micro floppy disk	3.5 inch, double sided	Used to store displayed curve data and instrument settings	Tektronix Part No. 119-3446-00
15. Test adapter		Used to hold the DUT	Tektronix A1007
16. Extender cables		Operate instrument with drawer unit detached	Tektronix Part No. 067-0187-00

A. POWER SUPPLY

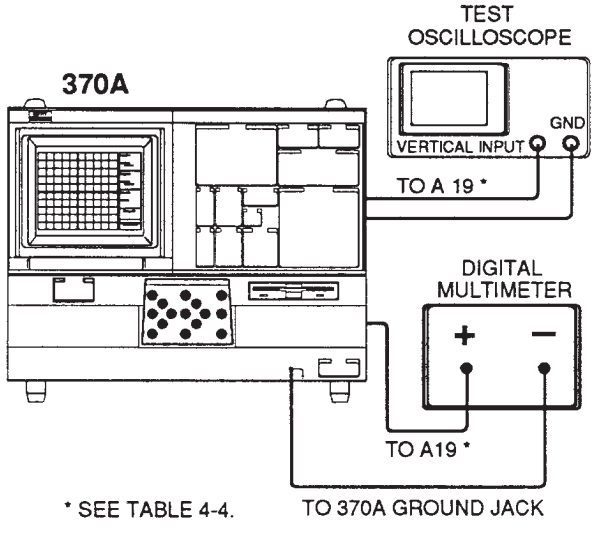
Equipment Required (see Table 4-3):
- Digital Multimeter
- Test Oscilloscope

A1. Examining Voltage Deviation and Ripple

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

A1 SETUP CONDITIONS



370A settings:
Initialize the 370A

Test Equipment settings:

Digital Multimeter	
Mode	DC Voltage
Test Oscilloscope	
Vertical Sensitivity	20 mV/division
Time	5 ms/division
Trigger	Auto

NOTE

See Test Point and Adjustment Locations 3 in Section 7 for the location of test points for this step.

Examining Voltage Deviation

a. Connect the digital multimeter to the +5 test point on the A19 LV Supply board.

b. EXAMINE the digital multimeter reading at the +5 test point and each of the other power supply test points listed in Table 4-4 for voltage levels within the given deviation.

Examining Ripple

c. Disconnect the digital multimeter and connect the test oscilloscope to the +5 test point.

d. EXAMINE the test oscilloscope display at each of the test points listed in Table 4-4 for ripple displays within the given deviation.

Removing the Setup

e. Disconnect the test oscilloscope.

Table 4-4
Voltage Regulation and Ripple

Voltage	Test Point	Deviation Limits (V)	Ripple (mV)
+5.2 V	+5	+4.99 to +5.41	≤200
–12 V	–12	–11.4 to –12.6	≤100
+12 V	+12	+11.4 to +12.6	≤100
–6.5 V	–6.5	–6.35 to–6.65	≤50
+6.5 V	+6.5	+6.35 to +6.65	≤50

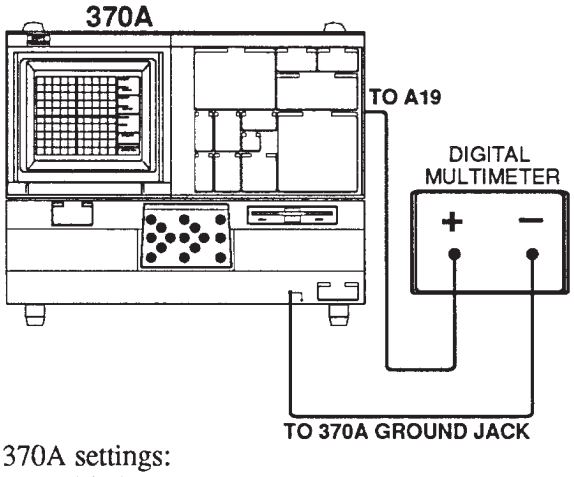
A2. Checking the +2 V and –2 V Reference

Adjusting the +2 V and –2 V Reference (A19R500 and R516)

Specification:

- The +2 V and –2 V Reference is accurate to within 0.001 V.

A2 SETUP CONDITIONS



370A settings:
Initialize the 370A

Test Equipment settings:
Digital Multimeter
Mode DC Voltage

NOTE

See Test Point and Adjustment Locations 3 in Section 7 for the location of test points and adjustment for this step.

Checking the +2 V Reference

a. CHECK for a digital multimeter reading of +1.999 V to +2.001 V.

If not within these limits, the following adjustment is necessary.

Adjusting the +2 V Reference

b. ADJUST +2 V ADJ on the A19 LV Supply Board, for a digital multimeter reading of +2.000 V.

Checking the –2 V Reference

c. CHECK for a digital multimeter reading of –1.999 V to –2.001 V.

If not within these limits, perform part d.

Adjusting the –2 V Reference

d. ADJUST –2 V ADJ on the A19 LV Supply Board, for a digital multimeter reading of –2.000 V.

Removing the Setup

e. Disconnect the positive lead of the digital multimeter from the test point.

B. CRT

Equipment Required (see Table 4-3):

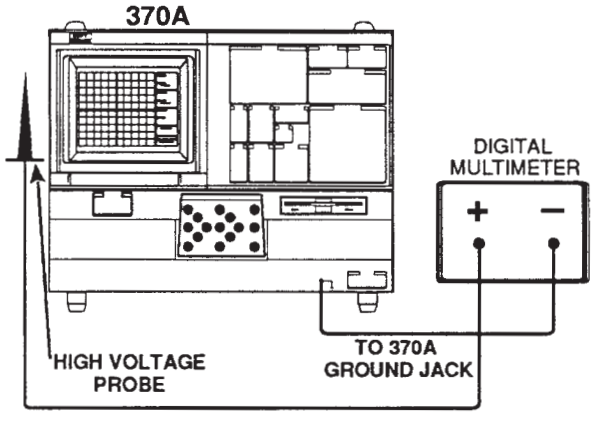
- Digital Multimeter
- High Voltage Probe for Digital Multimeter
- Pozidrive Screwdriver with #1 Point

B1. Examining the –2400 V Cathode Supply

IMPORTANT:

The characteristics examined in this procedure are provided as examples of typical instrument operation; they are not specifications.

B1 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

INTENSITY

NON STORE

STORE/VIEW Full counterclockwise

Test Equipment settings:

Digital Multimeter with High Voltage Probe

Mode DC Voltage

Removing the High Voltage Shield

WARNING

To avoid electric shock hazard, be certain the 370A POWER switch is set to OFF before removing or replacing the high voltage shield and connecting the Digital Multimeter to the 370A. Be certain that the Digital Multimeter ground lead is connected to the 370A ground terminal.

a. Change the following 370A setting:

POWER OFF

b. Use a #1 Pozidrive screwdriver to remove the high voltage shield from the left side of the 370A. (There are three shields on the left side; remove the center shield.)

Measuring the Cathode Voltage

NOTE

See test Point and Adjustment Locations 3 in Section 7 for the location of the test point used in this step.

c. Connect the ground lead of High Voltage Probe to chassis ground, and the High Voltage Probe to TP400 on the A20 HV Regulator Board.

d. Change the following 370A setting:

POWER ON

e. EXAMINE the Digital Multimeter for a reading of –2304 V to –2496 V.

Disconnecting the Meter

f. Change the following 370A setting:

POWER OFF

WARNING
To avoid electric shock hazard, be certain the 370A POWER switch is set to OFF before disconnecting the Digital Multimeter lead.

g. Disconnect the High Voltage Probe and Digital Multimeter from the 370A.

Replacing the High Voltage Shield

WARNING
To avoid electric shock hazard, be certain the 370A POWER switch is set to OFF before replacing the high voltage shield.

h. Replace the high voltage shield.

i. Change the following 370A setting:

POWER ON

B2. Examining CRT Bias

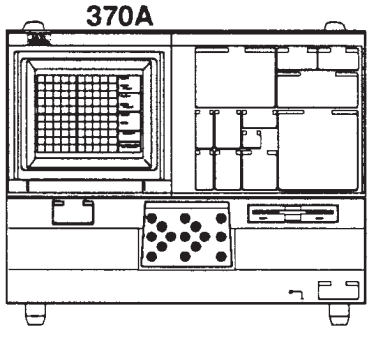
Adjusting CRT Bias (A20R210)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R210; they are not specifications.

B2 SETUP CONDITIONS

370A



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
COLLECTOR SUPPLY	
POLARITY	AC

Examining CRT Bias

a. Change the following 370A settings:

INTENSITY	
NON STORE	
STORE/VIEW	Fully counterclockwise
READOUT	
CURSOR	Fully counterclockwise
GRAT ILLUM	Fully counterclockwise

b. EXAMINE the CRT for the displayed spot to be barely visible.

If the spot is bright or not visible at all, the following adjustment may be necessary.

Adjusting CRT Bias

NOTE

R210 can be adjusted through the access hole in the high voltage shield.

c. ADJUST Grid Bias adjustment R210 on the A20 HV Regulator Board until the CRT spot is barely visible.

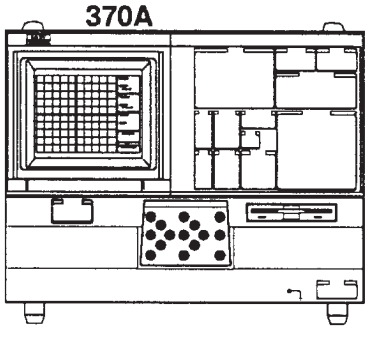
B3. Examining Astigmatism Adjusting Astig (A18R420)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R420; they are not specifications.

B3 SETUP CONDITIONS

370A



370A settings:

POWER	OFF
FOCUS	Fully counterclockwise

a. While pressing the FAST/SHIFT button, set the 370A POWER switch to ON. This displays the Frame Test Pattern on the CRT.

Examining Astigmatism

b. Change the following 370A settings:

INTENSITY	
NON STORE	
STORE/VIEW	Largest possible dis played center spot
READOUT	
CURSOR	Fully counterclockwise

c. EXAMINE the center spot for a circular shape.

If the center spot is not circular, the following adjustment may be necessary.

Adjusting Astigmatism

NOTE

See Test Point and Adjustment Location 3 for the location of the adjustment associated with this step.

d. ADJUST ASTIG adjustment R420 on the A18 CRT Output Board for a circular spot shape.

e. Change the following 370A settings:

FOCUS	Clockwise for smallest possible spot
INTENSITY	
NON STORE	
STORE/VIEW	Normal viewing
READOUT	
CURSOR	Normal viewing

f. EXAMINE the CRT for the Frame Test Pattern to be similarly in focused.

If the Frame Test Pattern is not similarly focusing, the following adjustment may be necessary.

g. READJUST ASTIG adjustment R420 on the A18 CRT Output Board for slightly compromise between the center dot and the outer frame.

Removing the Setup

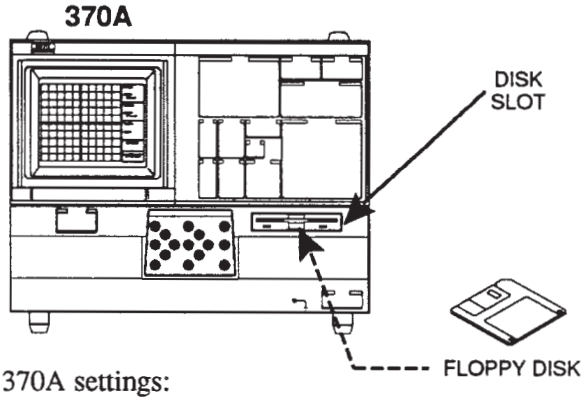
h. Press the FAST/SHIFT key to exit the Frame Test Pattern.

B4. Examining NON STORE/ STORE/VIEW INTENSITY Operation

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

B4 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL	STEP GEN
OUTPUTS	ENABLED
VARIABLE	
COLLECTOR SUPPLY	100%
Protective Cover	Closed
INTENSITY	
NONSTORE	
STORE/VIEW	normal viewing

NOTE:

Be sure to use a formatted floppy disk to perform this procedure.

Entering waveform data

a. Set the MEMORY number to 2, using the "up" MEMORY button.

b. Press ENTER. Examine the display for the "ENTER COMPLETE" message.

Examining NON STORE intensity

c. Change the following 370A setting:

DISPLAY	
Mode	NONSTORE
VARIABLE	
COLLECTOR SUPPLY	about 50%.

d. EXAMINE the crt for a continuous increase in NON STORE waveform brightness as the NON STORE/ STORE/VIEW INTENSITY control is turned from fully counterclockwise to fully clockwise.

Examining STORE intensity

e. Change the following 370A setting:

DISPLAY	
Mode	STORE

f. EXAMINE the crt for a continuous increase in STORE waveform brightness when the NON STORE/STORE/VIEW INTENSITY control is turned from fully counterclockwise to fully clockwise.

Examining VIEW intensity

g. Change the following 370A setting

DISPLAY	
Mode	VIEW

h. EXAMINE the crt for a continuous increase in VIEW waveform brightness when the NON STORE/STORE/VIEW INTENSITY control is turned from fully counterclockwise to fully clockwise.

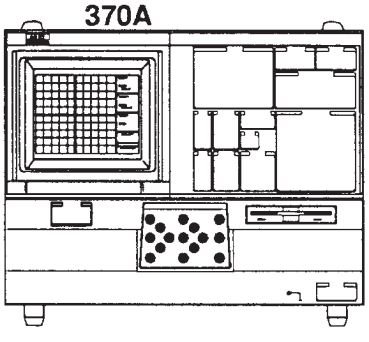
B5. Examining REF INTENSITY Operation

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

B5 SETUP CONDITIONS

370A



370A settings:
Initialize the 370A

a. Press the REF button.

b. Change the following 370A setting:

DISPLAY
INVERT ON

c. EXAMINE the CRT for a continuous increase in brightness of the viewed trace as the REF INTENSITY control is turned from full counterclockwise to fully clockwise.

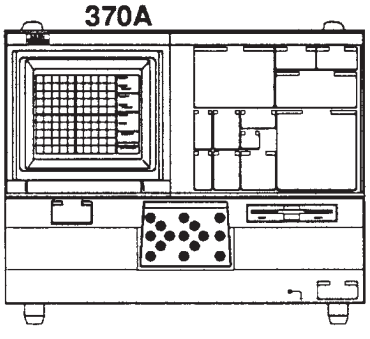
B6. Examining READOUT/ CURSOR INTENSITY Operation

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation;they are not specifications.

B6 SETUP CONDITIONS

370A



370A settings:

Initialize the 370A;then set the following control as indicated.

CURSOR

Mode	WINDOW

a. EXAMINE the display for a continuous increase in readout and cursor brightness as the READOUT/ CURSOR INTENSITY control is turned from fully counterclockwise to fully clockwise.

b. Change the following 370A setting:

INTENSITY

READOUT	
CURSOR	Normal viewing level

C. DISPLAY

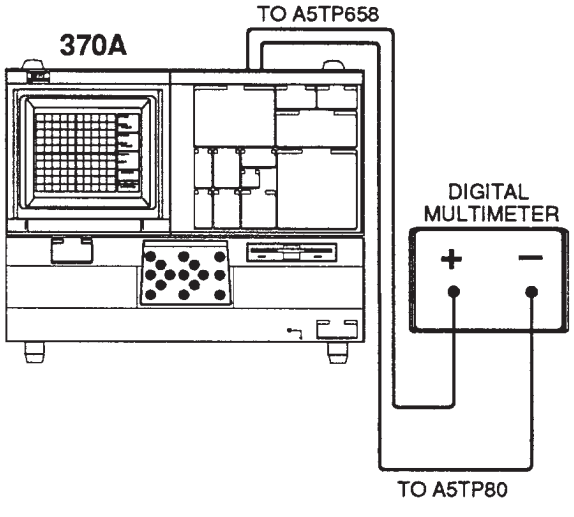
Equipment Required(see Table 4-3):
- Digital Multimeter

C1. Examining Calibrator Voltage

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation;they are not specifications.

C1 SETUP CONDITIONS



370A settings:
Initialize the 370A

Test Equipment settings:
Digital Multimeter
Mode DC Voltage

NOTE

See Test Point and Adjustment Locations 1 in Section 7 for the location of test points used in this step.

Examining Horizontal CAL ZERO

a. Change the following 370A setting:

DISPLAY
Mode CAL ZERO

CAL ZERO is initiated by pressing the NON STORE button whileholding down the FAST/ SHIFT button.

b. EXAMINE the digital multimeter for a reading between –0.995 V and –1.005 V.

Examining Horizontal CAL FULL

c. Change the following 370A setting:

DISPLAY
Mode CAL FULL

CAL FULL is initiated by pressing the REF button while holding down the FAST/SHIFT button.

d. EXAMINE the digital multimeter for a reading between +0.995 V and +1.005 V.

e. Disconnect the digital multimeter positive lead from TP658.

Examining Vertical CAL FULL

f. Connect the digital multimeter positive lead to TP648 on the A5 Display Control Board.

g. EXAMINE the digital multimeter for a reading between + 0.995 V and + 1.005 V.

Examining Vertical CAL ZERO

h. Change the following 370A setting:

DISPLAY
Mode CAL ZERO

i. EXAMINE the digital multimeter for a reading between -0.995 V and -1.005 V.

Removing the Setup

j. Change the following 370A setting:

DISPLAY
Mode CAL OFF

CAL OFF is initiated by pressing the STORE button whileholding down the FAST/SHIFT button.

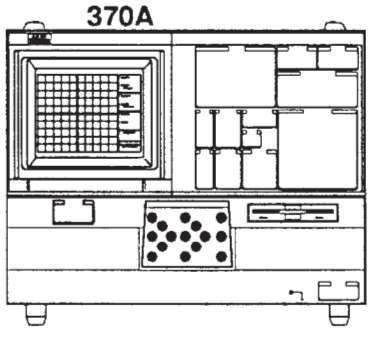
k. Disconnect the digital multimeter from TP648 and TP80.

C2. Adjusting V Zero and H Zero (A3R600 and A3R590)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R600 and R590; they are not specifications.

C2 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
CURSOR	
Mode	DOT
DISPLAY	
Mode	CAL ZERO

CAL ZERO is initiated by pressing the NON STORE button whileholding down the FAST/ SHIFT button.

Determining if Adjustment is Necessary

a. Examine the vertical CURSOR readout for a reading that does not exceed ± 0.06 A and the horizontal CURSOR readout for a reading that does not exceed 0.06 V.

If the CURSOR readouts are not within these limits,the following adjustment is necessary.

Adjusting H Zero and V Zero

NOTE

See Test Point and Adjustment Locations 1 in Section 7 for the location of adjustments in this step.

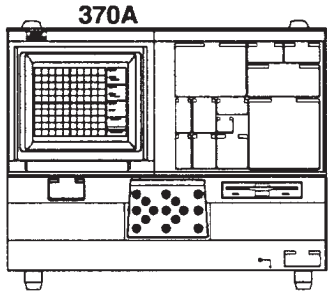
b. ADJUST H Zero adjustment R590 and V Zero adjustment R600 on the A3 A/D Board for a CURSOR readout of 0.00 for Vertical and 0.00 for Horizontal.

C3. Adjusting Storage Gain (A3R610)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R610;they are not specifications.

C3 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	CAL ZERO
CURSOR	
Mode	DOT

CAL ZERO is initiated by pressing the NON STORE button whileholding down the FAST/ SHIFT button.

Determining if Adjustment is Necessary

a. EXAMINE the vertical and horizontal CURSOR readouts for readings of 0.00 ± 0.06.

If the CURSOR readouts are not within these limits,the following adjustment is necessary.

Adjusting Storage Gain

NOTE

See Test Point and Adjustment Locations 1 in Section 7 for the location of the adjustment in this step.

b. ADJUST Storage Gain adjustment R610 on the A3 A/D Board for Vertical and Horizontal CURSOR readouts of 0.00.

Examining Storage Gain for CAL FULL

c. Change the following 370A setting:

DISPLAY	
Mode	CAL FULL

CAL FULL is initiated by pressing the REF button while holding down the FAST/SHIFT button.

d. EXAMINE the vertical and horizontal CURSOR readout for a reading of 20.00 ± 0.36.

Removing the Setup

e. Change the following 370A setting:

DISPLAY	
Mode	CAL OFF

CAL OFF is initiated by pressing the STORE button while holding down the FAST/SHIFT button.

C4. Checking Orthogonality and Geometry

Examining Store Position,Non Store Gain, and D/A Gain

Adjusting SX Position (A5R508), SY Position (A5R528), D/A Gain (A4R842), X Gain (A5R554), Y Gain (A5R574), Orthogonality (A5R80), Geom (A18R410)

Specifications:

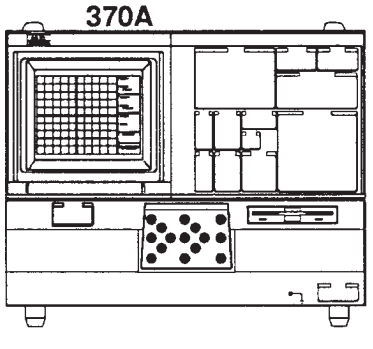
- Orthogonality is 90° within 0.3°.
- Geometry includes two categories: (1) Tilt or bowing is no more than 0.5 minor division. (2) Keystone effect is no more than 0.75 minor division.

IMPORTANT:

Characteristics in EXAMINE steps are provided as examples of typical instrument operation to aid in adjustment;they are not specifications.

C4 SETUP CONDITIONS

370A



370A setting:
None

NOTE

See Test Point and Adjustment Locations 1 and 3 in Section 7 for the location of adjustments associated with this step.

Initiating the Test Pattern

a. Change the following 370A setting:

POWER	OFF

b. Hold the FAST/SHIFT button depressed and set the 370A POWER to ON.

This initiates the diagnostic routine. The Sony/ Tektronix logo first appears,followed by the display test pattern shown in Figure 4-1.

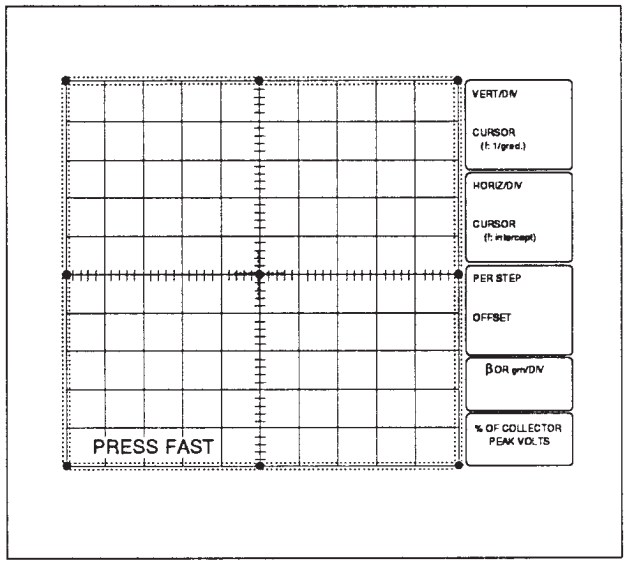


Figure 4-1. Diagnostic test pattern display.

The test pattern consists of the Frame Test Pattern overlaid over the Dot Test Pattern.

c. Turn the GRAT ILLUM control fully clockwise for maximum brightness.

d. Set the Frame Test Pattern to the same intensity as the graticule using the Intensity READOUT/ CURSOR control and set the Dot Test Pattern slightly brighten using the intensity NON STORE/ STORE/VIEW INTENSITY control.

Examining Store Position

e. EXAMINE the display to determine whether the center cross mark of the Frame Test Pattern aligns with the center dot of the Dot Pattern.

If the pattern centers do not align, the following adjustments are necessary.

Adjusting SY Position and SX Position

The SX and SY Position controls change the Frame Test Pattern position without affecting the Dot Test Pattern position.

f. ADJUST SY Position adjustment R528 and SX Position adjustment R508 on the A5 Display Control Board so that the center cross mark of the Frame Test Pattern conforms to the center dot of the Dot Pattern (not the center of the graticule).

Examining and Adjusting D/A Gain

g. EXAMINE the display to determine whether the outer eight dots of the Dot Pattern are located between the inner frame and outer frame of the Frame Test Pattern.

If the location is not correct,the following adjustment is necessary.

h. ADJUST D/A Gain adjustment R842 on the A4 Digital Display Board to position the outer eight dots between the inner frame and outer frame of the Frame Test Pattern.

D/A Gain adjusts the size of the Frame Test Pattern without changing the Dot Test Pattern size.

Checking and Adjusting the Display

The Dot and Frame Test Pattern are visual aids for display alignment. Positioning,straightening and sizing of the display involves several adjustments. Three of these adjustment, GEOMETRY,TRACE ROTATION, and ORTHOGONALITY are interactive.

- GEOMETRY adjusts the curvature of the sides,top and bottom of the test pattern:

- TRACE ROTATION tilts the test pattern about a pivot point approximately 2 1/2 divisions from the right side of the graticule on the horizontal center line.

- ORTHOGONALITY changes the test pattern shape from rhombic to rectangular.

- X-GAIN and Y-GAIN change the test pattern from rectangular to square.

- Front-panel POSITION controls change the position of the whole display.

Checking Orthogonality

i. Change the following 370A settings:

POSITION controls	
Vertical and Horizontal	Position the center dot to graticule center.
TRACE ROTATION	Position the three intermediate horizontal dots on the center horizontal graticule line.

j. CHECK that the three intermediate vertical dots conform to the center vertical graticule line within 0.5 minor division.

If the dots do not conform, the following adjustment isnecessary.

Adjusting Orthogonality

k. ADJUST Orthogonality adjustment R80 on the A5 Display Control Board so that the three intermediate vertical dots conform to the center vertical graticule line.

Examining Non-Store Gain

l. EXAMINE the display to determine if the Dot Pattern's outer eight dots are positioned within the inner and outer frame patterns.

If the positioning is not correct,the following adjustment is necessary.

Adjusting X-Gain and Y-Gain

m. ADJUST X-Gain adjustment R554 and Y-Gain adjustment R574 on the A5 Display Control Board to position the Dot Pattern's outer eight dots within the inner and outer Frame Patterns.

Checking and Adjusting Geometry

n. Change the following 370A settings:

POSITION controls	
Vertical and Horizontal	Position the center dot of the Dot Pattern at graticule center.

o. CHECK the Frame Pattern for ≤0.5 minor division of bowing and ≤ 0.75 minor division of keystone effect. If the bowing and keystone effect are not within these limits,the following adjustment may be necessary.

p. ADJUST Geometry adjustment R410 on the A18 CRT Output Board (if necessary) for minimum display bowing.

Examining the Display for Adjustment Interaction

q. EXAMINE the display for all dots to be between the outer frame and inner frame of the Frame Test Pattern,within 0.5 minor division.

If not,repeat parts j through n.

r. EXAMINE the display for the graticule periphery to be between the outer frame and inner frame of the frame test pattern,within 0.5 minor division.

If not,repeat parts j through n.

s. EXAMINE the display for the center dot to be at graticule center, within 0.5 minor division.

Removing the Test Pattern

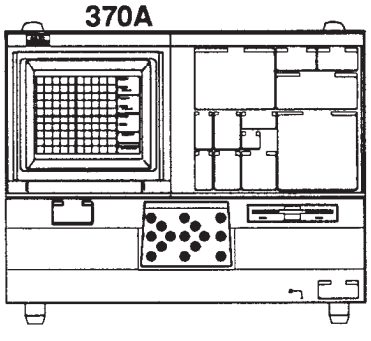
t. Press the FAST/SHIFT button to exit the diagnostic routine.

C5. Checking DISPLAY INVERT Accuracy

Specification:

- DISPLAY INVERT for Digital Storage Vertical and Horizontal acquisition is accurate to within 0.04 of VERT/DIV or HORIZ/DIV setting.

C5 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	CAL ZERO
CURSOR	
Mode	DOT

CAL ZERO is initiated by pressing the NON STORE button while holding down the FAST/ SHIFT button.

a. Change the following 370A setting:

DISPLAY	
INVERT	ON

The indicator above the INVERT button will light.

b. Check that the spot moves from lower left corner to the upper right corner of the graticule and the vertical CURSOR readout and horizontal CURSOR readout are 0.00 ± 0.08.

C6. Checking Display Offset Accuracy

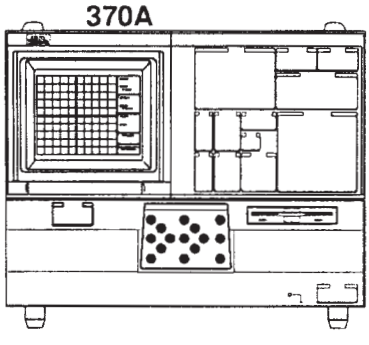
Specifications:

- For Digital Storage Vertical and Horizontal Acquisition, the center-line display can be vertically and horizontally offset up to ten divisions in 0.1 division steps.

- Display Offset is accurate to within{1.5 % of the offset (in divisions) + 0.01 division of the setting}.

C6 SETUP CONDITIONS

370A



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	CAL ZERO
CURSOR	
Mode	DOT
POSITION	
Mode	DISPLAY

Hold down the FAST/SHIFT button and press the NON STORE button to enter the CAL ZERO mode.

Checking Positive Offset

a. EXAMINE the display, as the right Position Control button is pressed, for the spot to move continuously from lower left corner to lower right corner.

b. EXAMINE the display, as the up Position Control button is pressed, for the spot to move continuously from lower right corner to upper right corner.

c. CHECK the vertical and horizontal CURSOR readout within ± 0.32.

Checking Negative Offset

d. Change the following 370A setting:

COLLECTOR SUPPLY	
POLARITY	– ∞
POSITION	Simultaneously press the up and down Position Control buttons, then simultaneously press the left and right Position Control buttons.

e. EXAMINE the display, as the left Position Control button is pressed, for the spot to move continuously from upper right corner to upper left corner.

f. EXAMINE the display, as the down Position Control button is pressed, for the spot to move continuously from upper left corner to lower left corner.

g. CHECK the vertical and horizontal CURSOR readouts within ± 0.32.

C7. Adjusting Looping Compensation (A10R139, A10R224, A35R500, A35R501, A35R502, A35R03, A35R504).

IMPORTANT:
The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R139, R224, R500, R501, R502, R503, R504; they are not specifications.

The accuracy of the vertical displayed noise may be affectedby these adjustments. See E7.

NOTE

See Test Point and Adjustment Locations 2 in Section 7 for the location of the adjustments associated with this step.

a. Press the "up" Position Control button to move the trace to graticule center.

NOTE

Following adjustments from b to f are preliminary adjustment.

Preliminary adjustment

b. Preset the following 370A adjustments:

A10R139 (TAN-DELTA)	center
A10R224 (LOOP GAIN)	center

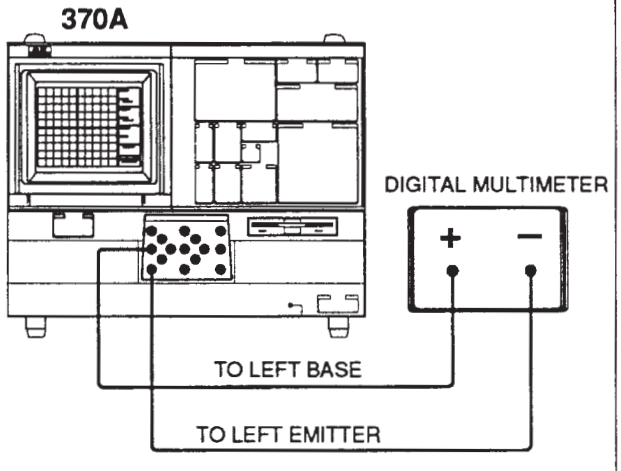
A cutout in the right siderail provides adjustment access.

A35R500 (LOOP BALANCE)
fully counterclockwise

A cutout in the left side of the guard box provides adjusment access.

c. ADJUST R224 LOOP GAIN adjustment on the A10 Sense Board to optimum overlay of the right portion of the loop.

C7 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
VERTICAL	
CURRENT/DIV	1μA COLLECTOR
HORIZONTAL	
VOLTS/DIV	50V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	400V
POSITION	DISPLAY
OUTPUTS	ENABLED
VARIABLE	
COLLECTOR SUPPLY	100%
LOOPING COMPENSATION	cw
Protective cover	Closed

d. ADJUST R501 400 V LOOPING adjustment on the A35 Looping board to optimum overlay of the left portion of the loop.

A cutout in the left of the guard box provides adjustment access.

e. ADJUST R500 LOOP BALANCE adjustment on the A35 Looping board to minimize the vertical projection on the left portion of the loop using the LOOPING COMPENSATION control. If necessary, repeat d and e.

f. ADJUST R224 LOOP GAIN adjustment on the A10 Looping board to minimize the vertical projection of the left portion of the loop using the LOOPING COMPENSATION control.

If necessary, repeat steps d through f.

Examining 2000 V LOOPING

g. Change the following 370A settings:

DISPLAY	
HORIZONTAL	
VOLTS/DIV	200 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	2000
VARIABLE	
COLLECTOR SUPPLY	100 %
LOOPING	
COMPENSATION	Minimum trace width

h. EXAMINE the left end of the displayed trace for optimum overlay of the loop, and the right side to run parallel with the horizontal graticule lines.

If the overlay is not optimum, and the trace does not parallel the horizontal graticule lines, the following adjustment is necessary.

Adjusting 2000 V LOOPING

i. ADJUST R503 2000 V LOOPING adjustment on the A35 Looping board for optimum overlay of the left portion of the loop. See Figure 4-2.

A cutout in the left side of the guard box provides adjustment access.

Adjusting LOOP BALANCE

j. ADJUST R500 LOOP BALANCE on the A35 Looping board to align the display with the horizontal graticule line, using the LOOPING COMPENSATION control.

If necessary, repeat steps i and j.

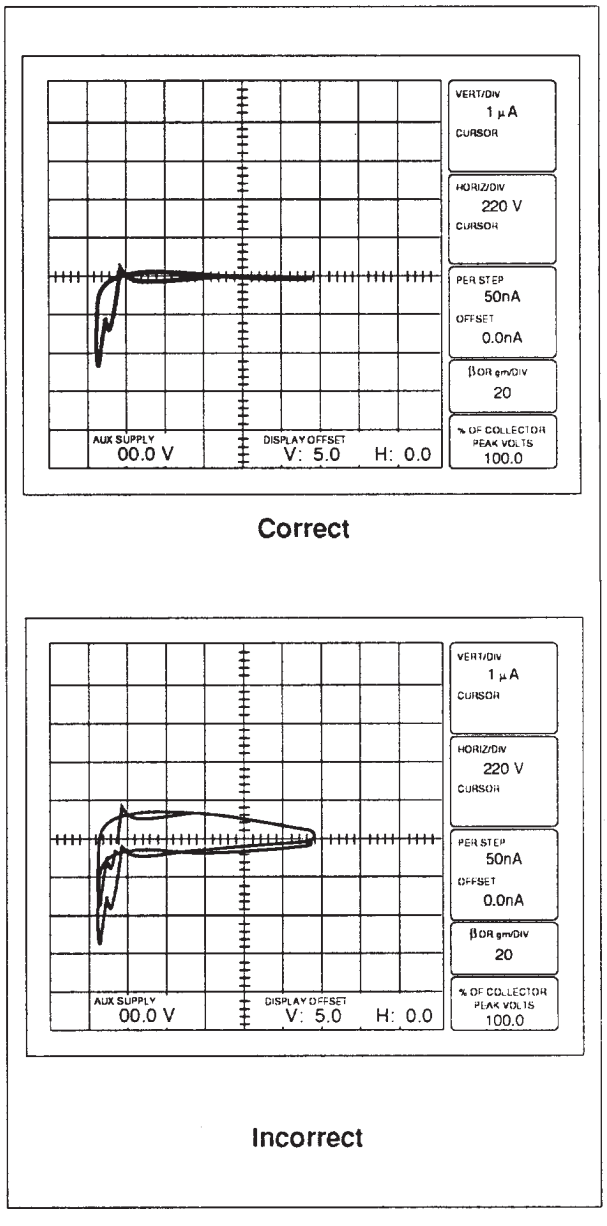


Figure 4-2. Looping compensation display.

Adjusting TAN-DELTA

k. Change the following 370A setting:

COLLECTOR SUPPLY	
MAX PEAK POWER WATTS	50

l. ADJUST TAN-DELTA R139 on the A10 Sense board to align the display with the horizontal graticule line, using the LOOPING COMPENSATION control.

Readjusting LOOP BALANCE

m. Change the following 370A settings:

COLLECTOR SUPPLY	
MAX PEAK POWER WATTS	0.08

n. READJUST R500 LOOP BALANCE on the A35 Looping Board to align the display with the horizontal graticule line, using the LOOPING COMPENSATION control.

If necessary, repeat steps k through n.

Examining 400 V LOOPING

o. Change the following 370A settings:

DISPLAY	
HORIZONTAL	
VOLTS/DIV	50 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	400
VARIABLE	
COLLECTOR SUPPLY	100 %
LOOPING	
COMPENSATION	Minimum trace width

p. EXAMINE the left end of the displayed trace for optimum overlay of the trace.

If the left end of the trace doesn't overlay correctly, the following adjustment is necessary.

Adjusting 400 V LOOPING

q. ADJUST R501 400 V LOOPING adjustment on the A35 Looping board for optimum overlay of the left end of the trace.

Examining 80 V LOOPING

r. Change the following 370A settings:

DISPLAY	
HORIZONTAL	
VOLTS/DIV	10 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	80
VARIABLE	
COLLECTOR SUPPLY	100 %
LOOPING	
COMPENSATION	Minimum trace width

s. EXAMINE the left protion of the displayed trace for optimum overlay (see Figure 4-2).

If the overlay is not optimum, the following adjustment is necessary.

Adjusting 80 V LOOPING

t. ADJUST R502 80 V LOOPING adjusment on the A35 Looping board for optimum overlay of the left portion of the trace.

Examining 16 V LOOPING

u. Change the following 370A settings:

DISPLAY	
HORIZONTAL	
VOLTS/DIV	2 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	16
VARIABLE	
COLLECTOR SUPPLY	100 %
LOOPING	
COMPENSATION	Minimum trace width

v. EXAMINE the left portion of the displayed trace for optimum overlay of the trace (see Figure 4-2).

If the overlay is not optimum, the following adjustment is necessary.

Adjusting 16 V LOOPING

w. ADJUST R504 16 V LOOPING adjustment on the A35 Looping board for optimum overlay of the left portion of the trace.

D. HORIZONTAL

Equipment Required (see Table 4-3):

- Calibrator (DC Voltage Source)
- 1 MΩ, 5 %, 0.25W Resistor
- 10 MΩ, 5 %, 0.25W Resistor

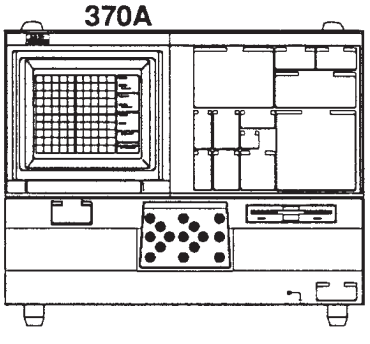
D1. Adjusting H Balance (A10R460)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R460; they are not specifications.

D1 SETUP CONDITIONS

370A



370A settings:

Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
MAG X10	On
CURSOR	
Mode	DOT
OUTPUTS	ENABLED
LEFT-RIGHT-STANDBY	LEFT or RIGHT
Protective Cover	Closed

Determining if Adjustment is Necessary

a. EXAMINE the horizontal CURSOR readout for a reading of 0, ±60 mV.

If the reading is not within these limits,the following adjustment is necessary.

Adjusting H Balance

NOTE

See Test Point and Adjustment Locations 2 in Section 7 for the location of the adjustment for this step.

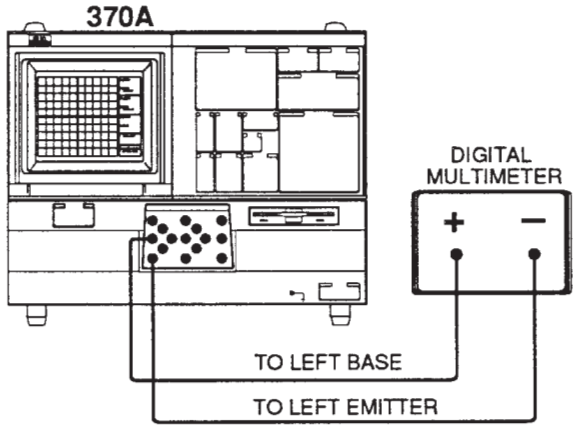
b. ADJUST H Balance adjustment R460 on the A10 Sense Board for a horizontal CURSOR readout of 0 mV.

A cutout in the right side rail provides adjustment access.

D2. Checking horizontal MAG X10 Accuracy.

Specification:
- OFFSET with MAG set to x10 is accurate to within (1.5% of the readout +0.3 division of the setting).

D2 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

MAG	X10
COLLECTOR SUPPLY	
POLARITY	AC
DISPLAY	
HORIZONTAL	100 mV BASE/EMITTER
STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	1 V
NUMBER OF STEPS	0
CURSOR	DOT
POSITION	
Mode	DISPLAY
OUTPUTS	ENABLED
Protective Cover	Closed
LEFT-RIGHT-STANDBY	LEFT

Test Equipment setting

Digital Multimeter	
Mode	DC Voltage

Checking horizontal MAG X10 Accuracy

a. CHECK that the difference between horizontal CURSOR readout and Digital Multimeter reading is within ± 30 mV.

b. Change the following 370A setting:

STEP GENERATOR	
OFFSET	10.00 V User the AID button to set the STEP GENERATOR OFFSET readout.
POSITION	Use the left Position Con trol button to position the spot near the horizontal center.

c. CHECK that the difference between horizontal CURSOR readout and Digital Multimeter reading is within ± 0.18 V.

Removing the Setup

d. Change the following 370A setting:

LEFT-RIGHT-STANDBY	STANDBY

e. Remove the digital multimeter leads from the 370A.

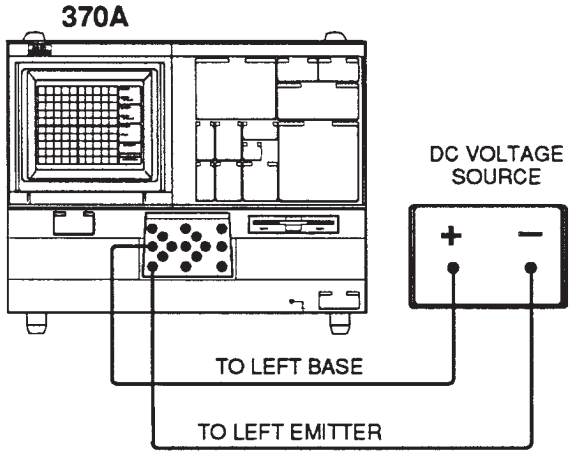
D3. Checking HORIZONTAL BASE/EMITTER Accuracy and Range in STORE Mode

Specifications:

- The range of HORIZONTAL BASE/EMITTER selections in STORE DISPLAY mode is from 50 mV to 5 V in a 1-2-5 sequence of seven steps.

- The BASE/EMITTER settings are accurate to within 1.5 % of the readout + 0.05 division of the setting.

D3 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
HORIZONTAL	50 mV BASE/
VOLTS	EMITTER
CURSOR	
Mode	DOT
CONFIGURATION	BASE OPEN(EXT)
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Calibrator	
Output	0.00 V

NOTE

Disregard the flashing cursor on the 370A display.

Checking Base/Emitter Accuracy

a. Change the following 370A setting:

LEFT-RIGHT-STANDBY LEFT

b. CHECK that the horizontal CURSOR readout is within the CURSOR Readout limits for each HORIZONTAL (BASE/EMITTER) VOLTS/DIV and DC Voltage setting listed in Table 4-5.

There are two DC Voltage values given for each HORIZONTAL VOLTS/DIV setting in Table 4-5; check for both.

To check the 2V and 5V Horizontal Volts/Div settings, push the Operate button on the Voltage Source.

Table 4-5
Base/Emitter Voltage Accuracy

HORIZONTAL VOLTS/DIV Setting	Calibrator DC Voltage	Horizontal CURSOR Readout
50 mV	0.000 mV 500.0 mV	±2.5 mV 490 to 510 mV
100 mV	0.000 mV 1000 mV	±5 mV 980 to 1020 mV
200 mV	0.000 mV 2000 mV	±10 mV 1960 to 2040 mV
500 mV	0.000 mV 5000 mV	±25 mV 4900 to 5100 mV
1 V	0.00 V 10.00 V	±0.05 V 9.80 to 10.20 V
2 V	0.00 V 20.00 V	±0.10 V 19.60 to 20.40 V
5 V	0.00 V 40.00 V	±0.25 V 39.15 to 40.85 V

Removing the Setup

c. Change the following Test Equipment setting:

Calibrator
Output Standby

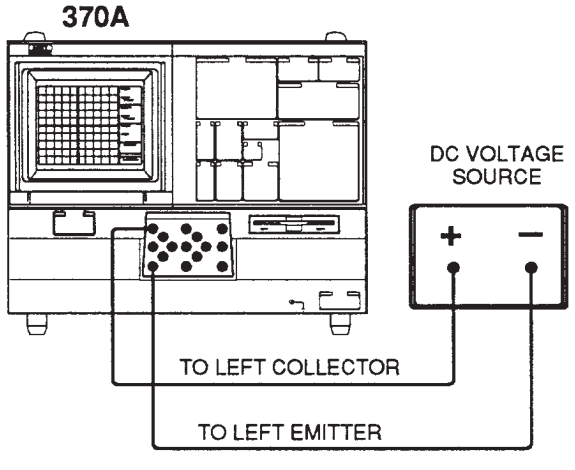
d. Disconnect the Calibrator leads from the 370A.

D4. Checking HORIZONTAL COLLECTOR Voltage Accuracy and Range in STORE Mode

Specifications:

- The range of HORIZONTAL COLLECTOR settings in STORE DISPLAY mode is from 50 mV/DIV to 500 V/DIV in a 1-2-5 sequence of 13 steps.
- The HORIZONTAL COLLECTOR settings are accurate to within 1.5 % of the readout + 0.05 division of the setting.

D4 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
HORIZONTAL VOLT/DIV	50 mV COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	400
CURSOR	
Mode	DOT
Protective Cover	Closed
LEFT-RIGHT-STANDBY	LEFT

Test Equipment settings:

Calibrator Voltage	0.00 V DC

WARNING

Extreme caution must used when performing the following step due to the dangerous potentials present at the input of the 370A.

The protective cover should be installed.

Checking Collector Voltage Accuracy

a. CHECK that the horizontal CURSOR readout is within the CURSOR Readout limits for each HORIZONTAL CURRENT VOLTS/DIV and DC Voltage setting listed in Table 4-6.

There are two DC Voltage values given for each HORIZONTAL VOLTS/DIV setting in Table 4-6: Check for both.

Removing the Setup

b. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

c. Change the following test equipment setting:

Calibrator Output	0.00 V

WARNING

Be certain that the output of the Calibrator is set to zero or Standby before connecting or disconnecting the test leads.

d. Disconnect the Calibrator leads from the 370A.

Table 4-6
Collector Voltage Accuracy

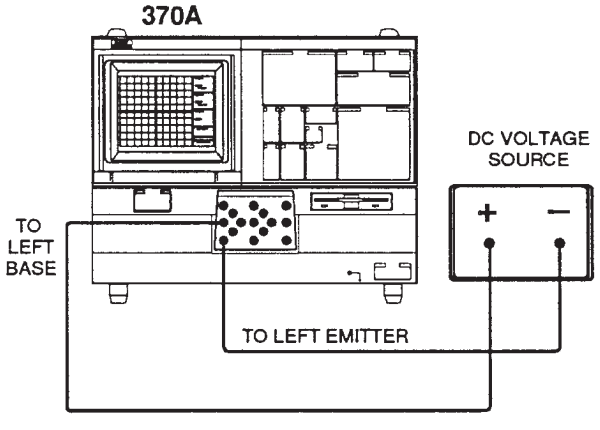
HORIZONTAL VOLTS/DIV Setting	Calibrator DC Voltage	Horizontal CURSOR Readout
50 mV	0.00 mV 500.0 mV	±2.5 mV 490 to 510 mV
100 mV	0.00 mV 1000 mV	±5 mV 980 to 1020 mV
200 mV	0.00 mV 2000 mV	±10 mV 1960 to 2040 mV
500 mV	0.00 mV 5000 mV	±25 mV 4900 to 5100 mV
1 V	0.00 mV 10.00 V	±50 mV 9.80 to 10.20 V
2 V	0.00 mV 20.00 V	±0.10 V 19.60 to 20.40 V
5 V	0.00 mV 50.00 V	±0.25 V 49.00 to 51.00 V
10 V	0.00 mV 100.0 V	±0.5 V 98.0 to 102.0 V
20 V	0.00 mV 200.0 V	±1.0 V 196.0 to 204.0 V
50 V	0.00 mV 500.0 V	±2.5 V 490.0 to 510.0 V
100 V	0.00 mV 1000 V	±5 V 980 to 1020 V
200 V	0.00 mV 1000 V	±10 V 976 to 1024 V
500 V	0.00 mV 1000 V	±25 V 960 to 1040 V

D5. Checking HORIZONTAL COLLECTOR Voltage Accuracy and Range in CONFIGURATION BASE to COLLECTOR SUPPLY Mode

Specifications:

- The HORIZONTAL COLLECTOR settings are accurate to within 1.5 % of the readout + 0.05 division of the setting.

D5 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
HORIZONTAL VOLT/DIV	50 mV COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	400
CURSOR	
Mode	DOT
CONFIGURATION	BASE COLLECTOR SUPPLY
Protective Cover	Closed
LEFT-RIGHT-STANDBY	LEFT

Test Equipment settings:

Calibrator Output	0.00 V

WARNING

Extreme caution must used when performing the following step due to the dangerous potentials present at the input of the 370A.

Checking Collector Voltage Accuracy

a. CHECK that the horizontal CURSOR readout is within the CURSOR Readout limits for each HORIZONTAL CURRENT VOLTS/DIV and DC Voltage setting listed in Table 4-7.

There are two DC Voltage values given for each HORIZONTAL VOLTS/DIV setting in Table 4-7: Check for both.

Removing the Setup

b. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

c. Change the following test equipment setting:

Calibrator Output	0.00 V

WARNING

Be certain that the output of the Calibrator is set to zero or Standby before connecting or disconnecting the test leads.

d. Disconnect the Calibrator leads from the 370A.

e. Replace the Protective Cover in the 370A.

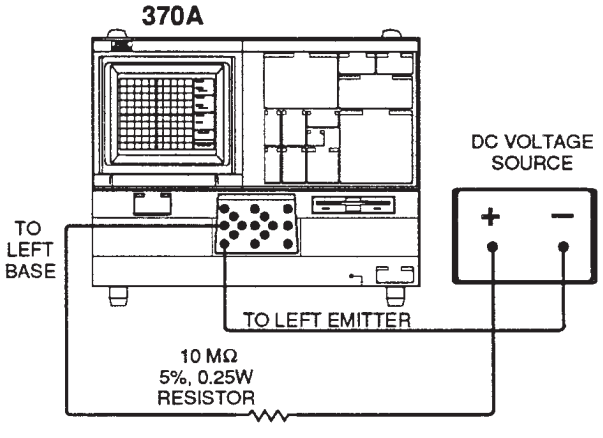
Table 4-7
Collector Voltage Accuracy in CONFIGURATION BASE to COLLECTOR SUPPLY mode

HORIZONTAL VOLTS/DIV Setting	Calibrator DC Voltage	Horizontal CURSOR Readout
50 mV	0.00 mV 500.0 mV	±2.5 mV 490 to 510 mV
100 mV	0.00 mV 1000 mV	±5 mV 980 to 1020 mV
200 mV	0.00 mV 2000 mV	±10 mV 1960 to 2040 mV
500 mV	0.00 mV 5000 mV	±25 mV 4900 to 5100 mV
1 V	0.00 mV 10.00 V	±50 mV 9.80 to 10.20 V
2 V	0.00 mV 20.00 V	±0.10 V 19.60 to 20.40 V
5 V	0.00 mV 50.00 V	±0.25 V 49.00 to 51.00 V
10 V	0.00 mV 100.0 V	±0.5 V 98.0 to 102.0 V
20 V	0.00 mV 200.0 V	±1.0 V 196.0 to 204.0 V
50 V	0.00 mV 500.0 V	±2.5 V 490.0 to 510.0 V

D6. Checking Base Input Impedance

Specifications:
• Input impedance is at least 100 MΩ.

D6 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

CONFIGURATION	BASE OPEN(EXT)
DISPLAY	
HORIZONTAL	2 V BASE/EMIT-
VOLT/DIV	TER
CURSOR	DOT
OUTPUTS	ENABLED
LEFT-RIGHT-STANDBY	LEFT
Protective Cover	Closed

Test Equipment Setting:

Calibrator Output	20 V DC

Checking Input Impedance

a. CHECK that the horizontal CURSOR reading is within 20 V, ±2V.

Removing Setup

b. Set the Calibrator output to 0 V.

c. Remove the resistor and Calibrator.

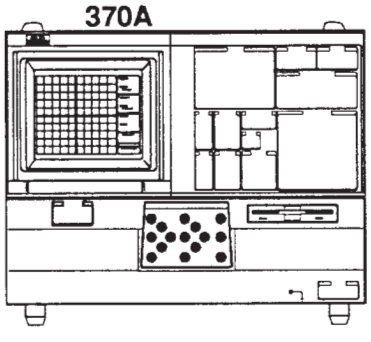
D7. Checking Horizontal Displayed Noise

Specifications:

- Displayed noise (peak-peak) in COLLECTOR VOLTS is < 0.02% of MAX PEAK VOLTS setting.

- Displayed noise (peak-peak) in BASE/EMITTER VOLTS for each COLLECTOR SUPPLY MAX PEAK VOLTS setting is less than 10 mV when a 1 MΩ resistor is connected between BASE and EMITTER terminals with BASE OPEN (EXT) CONFIGURATION and 0 NUMBER OF STEPS.

D7 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
MAX PEAK POWER	
WATTS	220
VARIABLE	
COLLECTOR SUPPLY	0 %
MAG X10	On
DISPLAY	
Mode	NON STORE
HORIZONTAL	5 mV COLLEC-
VOLT/DIV	TOR
OUTPUTS	ENABLED
Protective Cover	Closed

Checking Noise at COLLECTOR VOLTS

a. CHECK that the spot width is no more than 3.2 mV (3.2 minor divisions) peak-peak (see Table 4-8).

Table 4-8
Displayed Horizontal Noise

COLLECTOR SUPPLY MAX PEAK VOLTS	Horizontal Spot Width (Noise)	
	Collector Volts	Base/Emitter Volts
16	3.2 mV (3.2 min. div)	10 mV (2 div)
80	16 mV (3.2 div)	10 mV (2 div)
400	80 mV (16 div) (1.6 div; 50 mV/DIV)	10 mV (2 div)
2000	400 mV (8 div; 50 mV/DIV)	10 mV (2 div)

b. Change the following 370A setting:

MAX PEAK VOLTS 80

c. CHECK that the spot width is no more than 16 mV (3.2 divisions) peak-peak (see Table 4-8).

d. Change the following 370A setting:

MAG X10	Off
MAX PEAK VOLTS	400

e. CHECK that the spot width is no more than 80 mV (1.6 divisions) peak-peak (see Table 4-8).

f. Change the following 370A setting:

MAX PEAK VOLTS 2000

g. CHECK that the spot width is no more than 400 mV (8 divisions) peak-peak (see Table 4-8).

Checking Noise at BASE/EMITTER VOLTS

h. Change the following 370A setting:

MAG X10	On
HORIZONTAL	5 mV
	BASE/EMITTER
STEP GEN	
NUMBER OF STEPS	0
CONFIGURATION	BASE OPEN(EXT)
LEFT-RIGHT-STANDBY	LEFT

i. Connect a 1 MΩ resistor between LEFT BASE and LEFT EMITTER. Close protective cover.

j. CHECK that the spot width is no more than 10 mV (2 minor divisions) peak-peak (see Table 4-8).

k. Change the following 370A setting:

MAX PEAK VOLTS	400

l. CHECK that the spot width is no more than 10 mV (2 minor divisions) peak-peak (see Table 4-8), for each setting of the MAX PEAK VOLTS.

Removing Setup

m Disconnect the resistor.

E. VERTICAL

Equipment Required (see Table 4-3):

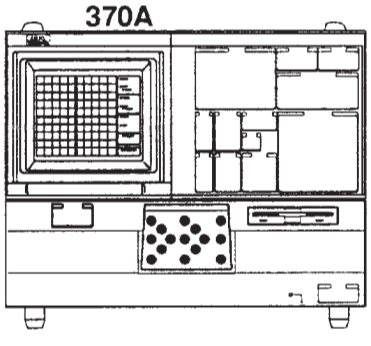
- Calibrator (Precision Voltage and Current Source)
- Resistor: 2.5 MΩ,0.1 %, 0.5W
- Resistor: 250 kΩ,0.1 %, 0.5W
- Resistor: 25 MΩ,0.1 %,0.5W
- Resistor: 0.025 Ω,0.1 %,4W

E1. Adjusting V Balance (A10R250)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R250; they are not specifications.

E1 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
MAG X10	On
CURSOR	
Mode	DOT
LEFT-RIGHT-STANDBY	LEFT or RIGHT
Protective Cover	Closed
OUTPUTS	ENABLED

Determining if Adjustment is Necessary

a. Rotate the LOOPING COMPENSATION control fully clockwise, then counterclockwise.

b. EXAMINE the vertical CURSOR readout for a reading less than 60 mA.

If the readout is not within these limits, the following adjustment is necessary.

Adjusting V Balance

NOTE

See Test Point and Adjustment Locations 2 in Section 7 for the location of the adjustment for this step.

c. ADJUST V Balance adjustment R250 on the A10 Sense Board; for a vertical CURSOR readout to 0 mA.

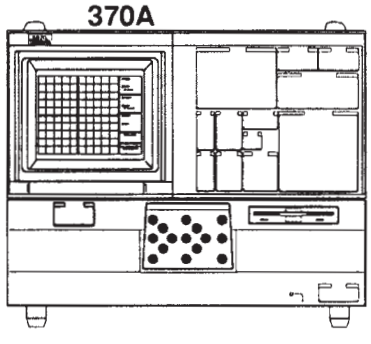
The adjustment is accessible through the right lower rail cutout.

E2. Adjusting Looping Balance (A10R238)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R238; they are not specifications.

E2 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
MAG X10	On
CURSOR	
Mode	DOT
LEFT-RIGHT-STANDBY	LEFT or RIGHT
Protective Cover	Closed
OUTPUTS	ENABLED

Determining if Adjustment is Necessary

a. Set the LOOPING COMPENSATION control fully clockwise, then counterclockwise.

b. Note the vertical CURSOR readout.

c. Set the LOOPING COMPENSATION control fully clockwise.

d. Note the vertical CURSOR readout.

e. EXAMINE the difference of the vertical CURSOR readout between noted part b and d.

If the difference of readout is not within 20 mA, the following adjustment may be necessary.

It is not specification.

Adjusting Looping Compensation

NOTE

See Test Point and Adjustment Locations 2 in Section 7 for the location of the adjustment associated with this step.

f. ADJUST Looping Balance adjustment R238 on the A10 Sense Board for a vertical CURSOR readout as noted in part b. Return the LOOPING COMPENSATION control to fully couterclockwise.

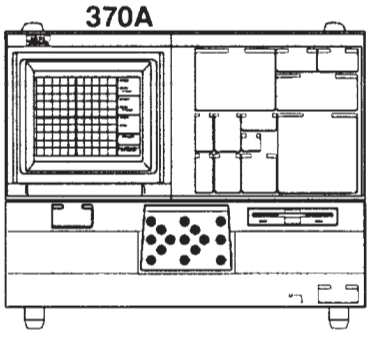
E3. Adjusting Leakage Compensation (A10R270)

IMPORTANT:

The characteristics examined in this step are provided as examples of typical instrument operation to aid in the adjustment of R270; they are not specifications.

E3 SETUP CONDITIONS

370A



370A settings:
Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	+LEAKAGE
DISPLAY	
VERTICAL	
CURRENT/DIV	1 nA EMITTER
CURSOR	
Mode	DOT
POSITION	
Mode	DISPLAY
OUTPUTS	ENABLED
Protective cover	Closed

Determining if Adjustment is Necessary

a. Press the up Position Control button to position the dot center horizontal graticule line.

b. EXAMINE the vertical CURSOR readout for a reading within 1.00 nA.

If the readout is not within these limits, the following adjustment may be necessary. Otherwise, proceed to the next step.

Adjusting Leakage Compensation

NOTE

See Test Point and Adjustment Locations 2 in Section 7 for the location of the adjustment associated with this step.

c. ADJUST Leakage Compensation adjustment R270 on the A10 Sense Board; for a Vertical CURSOR readout of 0.00 nA.

E4. Checking vertical MAG X10 Accuracy

Specification:

- OFFSET with MAG set to x10 is accurate to within (1.5% of the readout +0.3 division of the setting).

Checking vertical MAG X10 Accuracy

a. CHECK that the difference between vertical CURSOR readout and Digital Multimeter reading is within ±0.3 mA.

b. Change the following 370A setting

STEP GENERATOR	
OFFSET	–100.0 mA Use the OPPOSE button to set the STEP GENERATOR OFFSET readout.
POSITION	Use the "down" Position control button to set the spot near the vertical center.

c. CHECK that the difference between the vertical CURSOR readout and the Digital Multimeter reading is within ±1.8 mA.

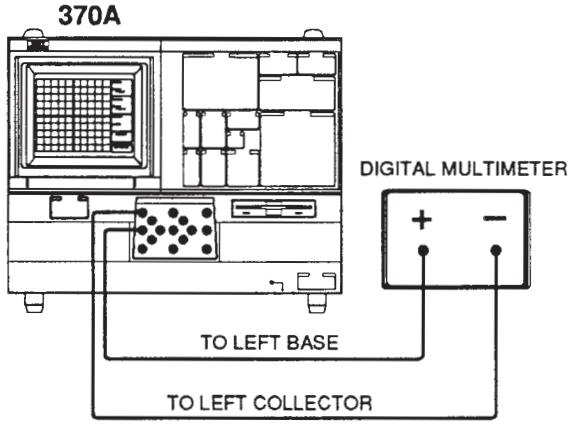
Removing the Setup

d. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

e. Remove the digital multimeter leads from the 370A.

E4 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
MAX PEAK POWER WATTS	220
MAGX10	On
DISPLAY	
HORIZONTAL	50 V COLLECTOR
VERTICAL	1 mA COLLECTOR
STEP GENERATOR	
Mode	CURRENT
STEP AMPLITUDE	10 mA
NUMBER OF STEPS	0
CURSOR	DOT
POSITION	
Mode	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment setting:

Digital Multimeter	
ModeDC	Current

E5. Checking EMITTER CURRENT Accuracy and Range in STORE Mode

Specifications:

- STORE mode EMITTER CURRENT/DIV settings are accurate to within 1.5 % of the readout + 0.05 division of the setting + 1 nA.
- The range of STORE mode EMITTER CURRENT/DIV settings is between 1 nA/division and 2 mA/division in a 1-2-5 sequence of 20 steps.

Checking 1 nA to 5 nA with 25 MΩ

a. CONNECT A 25 MΩ resistor to the Left Base and Left Emitter jacks, then close the protective cover.

b. CHECK that the vertical CURSOR readout is within the limits listed in Table 4-9 for each combination of VERTICAL CURRENT/DIV and Calibrator settings for 25 MΩ of resistance.

Checking 10 nA to 50 nA with 2.5 MΩ

c. Change the following 370A setting:

Protective Cover	Open

d. Connect the 2.5 MΩ resistor to the Left Base and Left Emitter jacks.

e. Change the following 370A setting:

Protective Cover	Closed

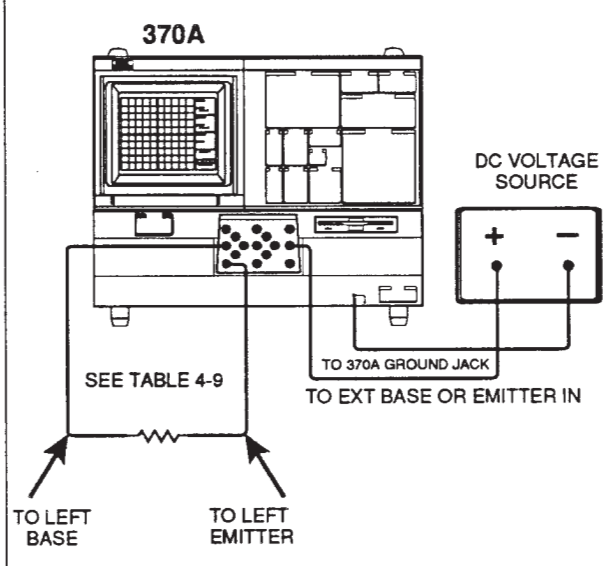
f. CHECK that the vertical CURSOR readout is within the limits listed in Table 4-9 for each combination of VERTICAL CURRENT/DIV and Calibrator settings for 2.5 MΩ of resistance.

Checking 100 nA to 500 nA with 250 kΩ

g. Change the following 370A setting:

Protective Cover	Open

E5 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	+LEAKAGE
DISPLAY	
HORIZONTAL	
VOLTS/DIV	500 V COLLECTOR
VERTICAL	
CURRENT/DIV	1 nA EMITTER
CURSOR	
Mode	DOT
CONFIGURATION	BASE OPEN(EXT)
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Calibrator Output	0.000 V

h. Connect the 250 kΩ resistor to the Left Base and Left Emitter jacks.

i. Change the following 370A setting:

Protective Cover	Closed

j. CHECK that the vertical CURSOR readout is within the limits listed in Table 4-9 for each combination of VERTICAL CURRENT/DIV and Calibrator settings for 250 kΩ of resistance.

Removing the Setup

k. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

l. Disconnect the voltage source and resistor from the 370A.

Table 4-9
Emitter Current Accuracy

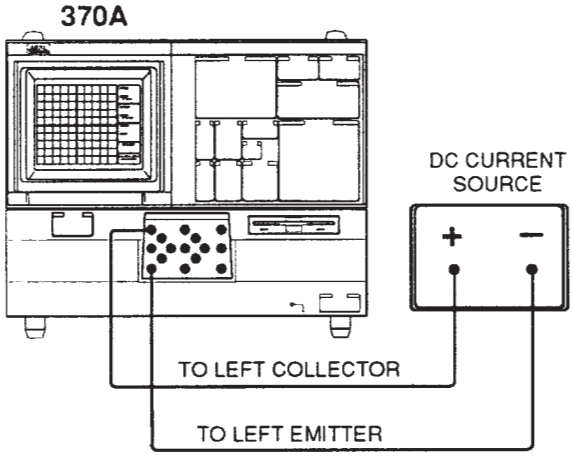
Resistor	VERTICAL CURRENT/DIV Setting	Calibrator DC Voltage	Vertical CURSOR Readout
25 MΩ	1 nA	0.000 V 0.500 V	0.00 ±1.05 nA 8.80 to 11.20 nA
	2 nA	0.000 V 1.000 V	0.00 ±1.10 nA 18.60 to 21.40 nA
	5 nA	0.000 V 2.500 V	0.00 ±1.25 nA 48.00 to 52.00 nA
2.5 MΩ	10 nA	0.000 V 0.500 V	0.0 ± 1.5 nA 97.0 to 103.0 nA
	20 nA	0.000 V 1.000 V	0.0 ± 2.0 nA 195.0 to 205.0 nA
	50 nA	0.000 V 2.500 V	0.0 ± 3.5 nA 489.0 to 511.0 nA
250 kΩ	100 nA	0.000 V 0.500 V	0 ±6 nA 979 to 1021 nA
	200 nA	0.000 V 1.000 V	± 10 nA 1960 to 2040 nA
	500 nA	0.000 V 2.500 V	0 ± 25 nA 4900 to 5100 nA

E6a. Checking COLLECTOR CURRENT Accuracy and Range in STORE Mode

Specifications:

- STORE mode COLLECTOR CURRENT/DIV settings are accurate to within 1.5 % of the readout + 0.05 division of the setting.
- The range of STORE mode COLLECTOR CURRENT/DIV settings is from 1 µA/division to 2 A/division in a 1-2-5 sequence of 20 steps.

E6a SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL	1 µA COLLEC-
CURRENT/DIV	TOR
HORIZONTAL	500 V COLLEC-
VOLTS/DIV	TOR
COLLECTOR SUPPLY	
POLARITY	– ∞
MAX PEAK POWER WATTS	220
CURSOR	
Mode	DOT
LEFT-RIGHT-STANDBY	LEFT
Protective Cover	OPEN
Test Equipment settings:	
Calibrator Output	0.00 A

a. CHECK that each setting of the VERTICAL CURRENT/DIV control listed in Table 4-10 produces a vertical CURSOR readout within the limits given for a Calibrator setting of 0.00 µA (open circuit).

b. Change the following test equipment setting:

Calibrator	
Output	10.00 µA

c. CHECK that each combination of VERTICAL CURRENT/DIV and Calibrator settings listed in Table 4-10 produces a vertical CURSOR readout within the given limits.

Removing the Setup

d. Change the following Test Equipment setting:

Calibrator	
Output	0.00 µA

e. Disconnect the DC current source from the 370A.

f. Close the Protective Cover.

Table 4-10
Collector Current Accuracy

VERTICAL CURRENT/DIV	Calibrator DC Current	Vertical CURSOR READOUT
1 µA	0.00 µA	±0.05 µA
	10.00 µA	–9.80 to –10.20 µA
2 µA	0.00 µA	± 0.10 µA
	20.00 µA	–19.60 to –20.40 µA
5 µA	0.00 µA	±0.25 µA
	50.00 µA	–49.00 to –51.00 µA
10 µA	0.00 µA	± 0.5 µA
	100.00 µA	–98.0 to –102.0 µA
20 µA	0.00 µA	±1.0 µA
	200.00 µA	–196.0 to –204.0 µA
50 µA	0.00 µA	±2.5 µA
	500.00 µA	–490.0 to –510.0 µA
100 µA	0.00 µA	±5 µA
	1000 µA	–980 to –1020 µA
200 µA	0.00 µA	±10 µA
	2000 µA	–1960 to –2040 µA
500 µA	0.00 µA	±25 µA
	5000 µA	–4900 to –5100 µA
1 mA	0.00 µA	±0.05 mA
	10.00 mA	–9.80 to –10.20 mA
2 mA	0.00 µA	±0.10 mA
	20.00 mA	–19.60 to –20.40 mA
5 mA	0.00 µA	±0.25 mA
	50.00 mA	–49.00 to –51.00 mA
10 mA	0.00 µA	± 0.5 mA
	100.0 mA	–98.0 to –102.0 mA
20 mA	0.00 µA	±1.0 mA
	200.0 mA	–196.0 to –204.0 mA
50 mA	0.00 µA	±2.5 mA
	500.0 mA	–490.0 to –510.0 mA
100 mA	0.00 µA	±5 mA
	1000 mA	–980 to –1020 mA
200 mA	0.00 uA	±10 mA
	1999 mA	–1960 to –2040 mA
500 mA	0.00 µA	±25 mA
	1999 mA	1945 to –2055 mA
1 A	0.00 µA	±0.05 A
	1.999 A	–1.92 to –2.08 A
2 A	0.00 µA	±0.10 A
	1.999 A	–1.87 to –2.13 A

E6b. Checking COLLECTOR CURRENT Accuracy for 500 mA/DIV through 2 A/DIV (Alternate Method)

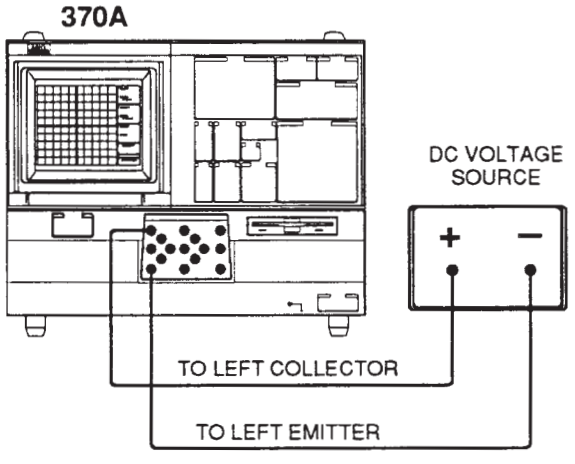
Specification:

- STORE mode COLLECTOR CURRENT/DIV, MAG mode X10 settings are accurate to within 1.5 % of readout + 0.3 division of setting.

NOTE

This step is recommended for full scale measurement of CURRENT/DIV settings greater than 500 mA/DIV.

E6b SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL	
CURRENT/DIV	500 mA COLLECTOR
HORIZONTAL	
VOLTS/DIV	50 mV COLLECTOR
COLLECTOR SUPPLY	
POLARITY	+ DC
MAX PEAK POWER	
VOLTS	400
CURSOR	
Mode	DOT
POSITION	
Mode	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUT PUT	ENABLED
Protective Cover	Open

Test Equipment settings:

Calibrator Output	125 mV

Checking Accuracy

a. Move the spot to the graticule center with the Position Control buttons.

b. Change the following 370A setting:

MAG X10	On

c. Note the Horizontal CURSOR readout.

d. Change the following Test equipment and 370A settings:

Calibrator	
Output	250 mV
370A	
MAG X10	Off
POSITION	Move the spot to the graticule center with the Position Control buttons.

e. Change the following 370A setting:

370A	
MAG X10	On

f. Note the Horizontal CURSOR readout.

g. Change the following Test Equipment and 370A settings:

Calibrator	
Output	Standby
370A	
MAG X10	Off
COLLECTOR SUPPLY	
MAX PEAK VOLTS	16
MAX PEAK POWER WATTS	220
POSITION	Simultaneously press the up and down Position Control buttons, then simultaneously press the left and right Position Control buttons.

h. Disconnect the Calibrator.

i. Connect the 0.025 Ω resistor as shown in Figure 4-3, then close the Protective Cover.

j. Change the following 370A setting:

VARIABLE COLLECTOR SUPPLY	Clockwise until the Horizontal CURSOR readout to about 125 mV.

k. Move the spot to the graticule center with the Position Control buttons.

l. Change the following 370A setting:

MAG X10	On
VARIABLE COLLECTOR SUPPLY	Set so the Horizontal CURSOR readout is nearest that noted in part c.

Difference value should be within 0.5 mV.

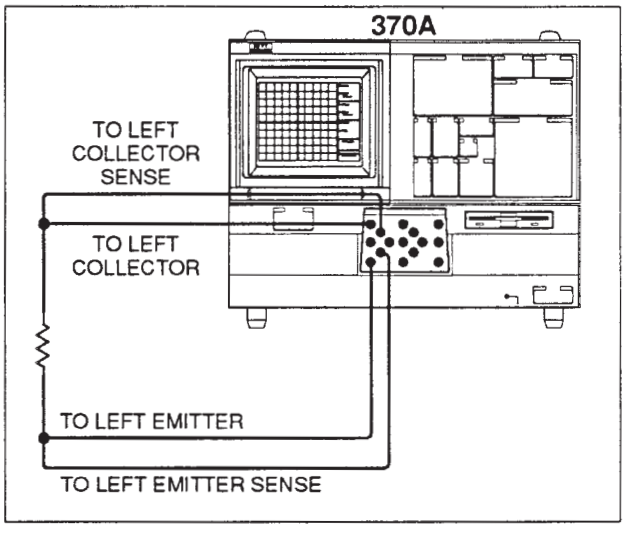


Figure 4-3. Checking Collector high current range.

m. CHECK that the Vertical CURSOR readout is within the limits given in Table 4-11 for 50 mA/DIV.

Table 4-11
Collector High Current Accuracy

VERTICAL CURRENT/DIV Setting	Calibrator DC Voltage	Vertical CURSOR Readout
50 mA/DIV	125 mV	4910 to 5090 mA
100 mA/DIV	250 mV	9820 to 10180 mA
200 mA/DIV	250 mV	9790 to 10210 mA

Checking 1 A/DIV Accuracy

n. Change the following 370A settings:

MAG X10	Off
POSITION	Simultaneously press the up and down Position Control buttons, then simultaneously press the left and right Position Control buttons.
DISPLAY	
VERTICAL	
CURRENT/DIV	1 A COLLECTOR
VARIABLE COLLECTOR SUPPLY	Clockwise until the Horizontal CURSOR readout to about 250 mV.

o. Move the spot to the graticule center with the Position Control buttons.

p. Change the following 370A settings:

MAG X10	On
VARIABLE COLLECTOR SUPPLY	Set so the Horizontal CURSOR readout is nearest that noted in part f.

Difference value should be within 0.5 mV.

Checking 2 A/DIV Accuracy

q. Change the following 370A settings:

MAG X10	Off
DISPLAY	
VERTICAL	
CURRENT/DIV	2 A COLLECTOR
POSITION	Move the spot to the graticule center with the Position Control buttons.

r. Change the following 370A settings:

MAG X10	On
VARIABLE COLLECTOR SUPPLY	Set so the Horizontal CURSOR readout is nearest that noted in part f.

Difference value should be within 0.5 mV.

s. CHECK that the Vertical CURSOR readout is within the limits given in Table 4-11 for 200 mA/DIV when the Horizontal CURSOR readout is the same as that in part f.

Removing the Setup

t. Change the following 370A setting:

LEFT-RIGHT-STANDBY	STANDBY

u. Open the Protective Cover.

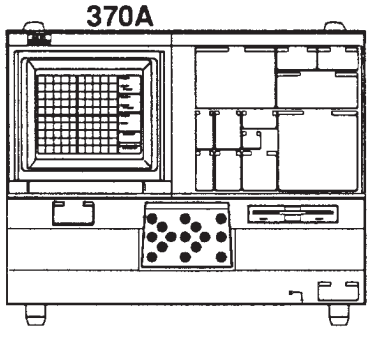
v. Remove the resistor.

E7. Checking Vertical Displayed Noise

Specifications:

- Collector and Base Current Mode Vertical Displayed noise are accurate to within 1 µA at 16 V and 80 V, 2 µA at 400 V, 5 µA at 2000 V MAX PEAK VOLTS setting, except for switching noise at + ⌓ and – ⌔ mode.
- Emitter Current Mode Vertical Displayed noise are accurate to within 1 nA at 16 V and 80 V, 2 nA at 400 V, 5 nA at 2000 V MAX PEAK VOLTS setting.

E7 SETUP CONDITIONS



370A settings:

Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
VERTICAL	
CURRENT/DIV	1 µA COLLECTOR
POSITION	
Mode	DISPLAY
OUTPUTS	ENABLED
VARIABLE COLLECTOR SUPPLY	100 %
Protective Cover	Closed

Checking Collector Vertical Displayed Noise in CONFIGURATION COLLECTOR to COLLECTOR SUPPLY mode

a. Press the up Position Control button to move the displayed waveform to center graticule.

b. Set the front-panel LOOPING COMPENSATION to minimum looping.

c. CHECK that vertical width of the displayed waveform is within the limits given in Table 4-12 for each combination of settings for the MAX PEAK VOLTS and the HORIZONTAL VOLTS/DIV controls with the 100 % of VARIABLE COLLECTOR SUPPLY setting.

Table 4-12
Displayed Vertical Collector Noise in CONFIGURATION COLLECTOR to COLLECTOR SUPPLY mode

COLLECTOR SUPPLY MAX PEAK VOLTS	HORIZONTAL COLLECTOR VOLTS/DIV Setting	Vertical width of the waveform
16	2 V/DIV	1 µA (1 div)
80	10 V/DIV	1 µA (1 div)
400	50 V/DIV	2 µA (2 div)
2000	500 V/DIV	5 µA (5 div)

Checking Collector Vertical Displayed Noise in CONFIGURATION BASE to COLLECTOR SUPPLY mode

d. Change the following 370A setting:

CONFIGURATION	BASE COLLECTOR SUPPLY

e. Set the front-panel LOOPING COMPENSATION to minimum looping.

f. CHECK that vertical width of the displayed waveform is within the limits given in Table 4-13 for each combination of settings for the MAX PEAK VOLTS and the HORIZONTAL VOLTS/DIV controls with the 100 % of VARIABLE COLLECTOR SUPPLY setting.

Table 4-13
Displayed Vertical Collector Noise in CONFIGURATION BASE to COLLECTOR SUPPLY mode

COLLECTOR SUPPLY MAX PEAK VOLTS	HORIZONTAL COLLECTOR VOLTS/DIV Setting	Vertical width of the waveform
16	2 V/DIV	1 μA (1 div)
80	10 V/DIV	1 μA (1 div)
400	50 V/DIV	2 μA (2 div)

Checking Emitter Vertical Displayed Noise

g. Change the following 370A settings:

CONFIGURATION BASE STEP GEN
COLLECTOR SUPPLY
  POLARITY +LEAKAGE
  MAX PEAK POWER
    WATTS 220
  MAX PEAK VOLTS 16
DISPLAY
  HORIZONTAL
    VOLTS/DIV 2 V COLLECTOR

h. CHECK that vertical width of the displayed waveform is within the limits given in Table 4-14 for each combination of settings for the MAX PEAK VOLTS and the HORIZONTAL VOLTS/DIV controls with the 100 % of VARIABLE COLLECTOR SUPPLY setting.

Table 4-14
Displayed Vertical Emitter Noise

COLLECTOR SUPPLY MAX PEAK VOLTS	HORIZONTAL COLLECTOR VOLTS/DIV Setting	Vertical width of the waveform
16	2 V/DIV	1 nA (1 div)
80	10 V/DIV	1 nA (1 div)
400	50 V/DIV	2 nA (2 div)
2000	500 V/DIV	5 nA (5 div)

F. STEP GENERATOR

Equipment Required (see Table 4-3):

- Digital Multimeter
- Resistor, 1 MΩ, 5 %, 0.5 W
- Resistor, 100 Ω, 5%, 0.5 W
- Resistor, 0.025 ohm, 0.1%, 4 W

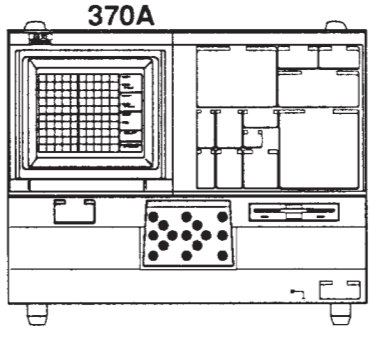
F1. Adjusting .1X Balance (A3R332) and Step Generator Offset (A3R360)

IMPORTANT:

The characteristic examined in this step is provided as an example of typical instrument operation to aid in the adjustment of R332,R360 ; it is not a specification.

F1 SETUP CONDITIONS

370A



370A settings:

Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
STEP GENERATOR	
Mode	VOLTAGE
STEP MULTI .1X	On
STEP AMPLITUDE	200 mV
NUMBER OF STEPS	0
MAG X10	On
DISPLAY	
HORIZONTAL	5 mV BASE/EMITTER
OUTPUTS	ENABLED
Protective Cover	Closed

NOTE

See Test Point and Adjustment Location 1 in Section 7 for the location of the adjustment associated with this step.

Examining and Adjusting for Zero Output Volts

a. Note the horizontal spot position.

b. Change the following 370A setting:

STEP GENERATOR	
STEP MULTI .1X	Off

c. EXAMINE that the spot moves within ± 1 divisions from the noted position of step a.

If the spot is not within this limit, the following adjustment is necessary.

d. ADJUST .1X Balance adjustment R332 on the A3 A/D board for minimum horizontal display shift, when STEP MULTI .1X is set between On and Off.

Examining and Adjusting for Step Generator Offset

e. Set the following Test Equipment setting:

Digital Multimeter	
Mode	DC Volts

f. Connect the Digital Multimeter between the TP310 (SG) and the TP 500(A GND) on the A3 A/D board as shown in Figure 4-4.

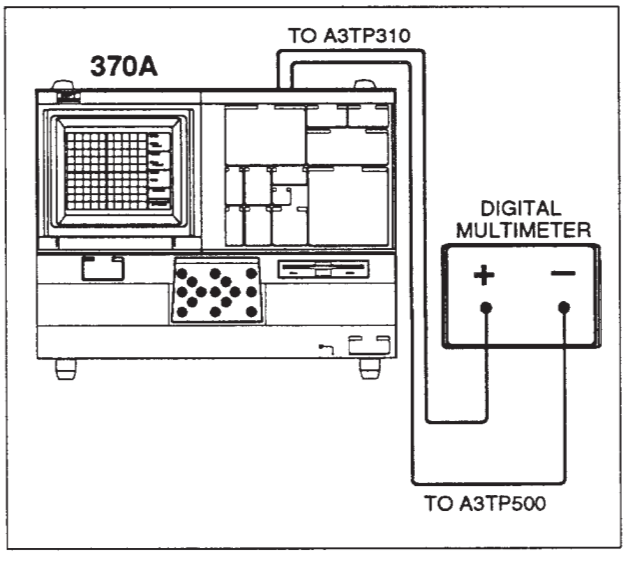


Figure 4-4. Examining and Adjusting for Step Generator Offset.

g. EXAMINE the Digital Multimeter for reading of 0 mV, ± 1 mV.

If the Digital Multimeter reading is not within this limit, the following adjustment is necessary.

h. ADJUST the Step Generator Offset adjustment R360 on the A3 A/D board for 0 mV of Digital Multimeter reading.

Removing Setup

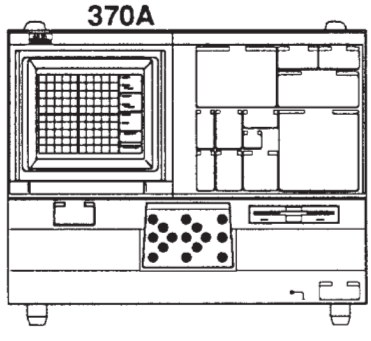
i. Disconnect the Digital Multimeter from 370A.

F2. Adjusting Step Generator Zero (A7R310) Current Amplifier Bias (A7R467) Current Zero (A7R603)

IMPORTANT:

The characteristic examined in this step is provided as an example of typical instrument operation to aid in the adjustment of R310,R467,R603; it is not a specification.

F2 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
STEP GENERATOR	
VOLTAGE	On
STEP AMPLITUDE	500 mV
NUMBER OF STEPS	0
MAG X10	On
DISPLAY	
Mode	NON STORE
HORIZONTAL	
VOLTS/DIV	5 mV
	BASE/EMITTER
OUTPUTS	ENABLED
Protective Cover	Closed

NOTE

See Test Point and Adjustment Location 2 in Section 7 for the location of the adjustment associated with this step.

Examining and Adjusting for Zero Output Volts

a. EXAMINE that the spot moves within ± 0.5 divisions, between the 500 mV and 200 mV of STEP AMPLITUDE setting.

If the spot is not within this limit, the following adjustment is necessary.

b. Set the STEP AMPLITUDE to 200 mV, then note the spot position.

c. Set the STEP AMPLITUDE to 500 mV.

d. ADJUST SG ZERO adjustment R310 on the A7 Step Generator Board to the noted position of part b.

Adjusting for Current Amplifier Bias

e. Set the following 370A and Test Equipment settings:

STEP GENERATOR	
Mode	CURRENT
Digital Multimeter	
Mode	DC Volts

f. Connect the Digital Multimeter across R491 on the A7 Step Generator Board as shown in Figure 4-5.

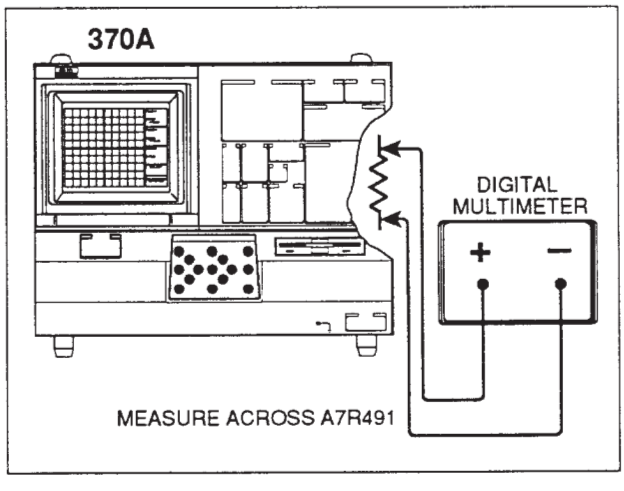


Figure 4-5. Adjusting for Current Amplifier Bias.

NOTE

See Test Points and Adjustment Locations 2 for the location of the adjustment made in this step.

g. ADJUST BIAS adjustment R467 on the A7 Step Generator Board for a Digital Multimeter reading of 6 mV.

This adjustment sets bias current to the optimum level for long term reliability.

Removing Setup

h. Disconnect the Digital Multimeter from R491.

Checking and Adjusting for Zero Output Current

i. Connect the 100 Ω resistor to the Left Base and Left Emitter jacks, then close the protective cover.

j. Change the following 370A settings:

DISPLAY	
HORIZONTAL	
VOLTS/DIV	100 mV BASE/EMITTER
STEP GENERATOR	
STEP AMPLITUDE	100 mA
LEFT-RIGHT-STANDBY	LEFT

k. Note the horizontal position of the spot.

l. Change the following 370A settings:

DISPLAY	
HORIZONTAL	
VOLTS/DIV	50 mV BASE/EMITTER
STEP GENERATOR	
STEP AMPLITUDE	50 mA

m. EXAMINE that the spot moves within ± 0.5 divisions, between the setting of part j and l.

If the spot is not within this limit, the following adjustment is necessary.

n. ADJUST Current Zero adjustment R603 on the A7 Step Generator Board to move the spot one-half over the noted position of part k.

o. If necessary, repeat steps j through n.

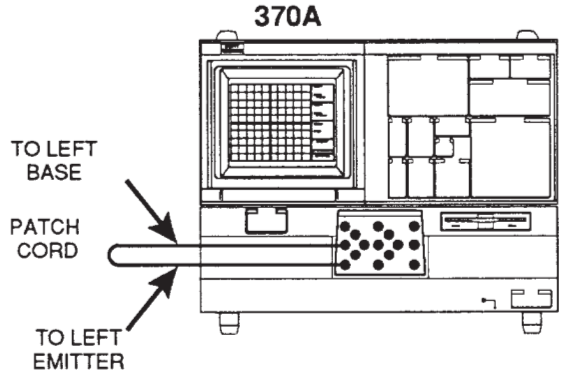
Removing the Setup

p. Remove the 100 Ω resistor.

F3. Adjusting Current Balance (A7R325)

IMPORTANT:
The characteristics examined in this step is provided as an example of typical instrument operation to aid in the adjustment of R325; it is not a specification.

F3 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
MAX PEAK POWER WATTS	220
STEP GENERATOR	
STEP AMPLITUDE	10 mA
NUMBER OF STEPS	0
PULSE	LONG
DISPLAY	
VERTICAL	
CURRENT/DIV	1 mA COLLECTOR
CURSOR	DOT
POSITION	DISPLAY
OUTPUTS	ENABLED
LEFT-RIGHT-STANDBY	LEFT
Protective Cover	Closed

NOTE

See Test Point and Adjustment Location 2 in Section 7 for the location of the adjustment associated with this step.

Examining for Current Balance

a. Move the spot to vertical graticule center while pressing the "up" Position Control button.

b. Note the vertical CURSOR readout.

c. Turn the VARIABLE COLLECTOR SUPPLY for a horizontal cursor readout of 10.00 V.

d. EXAMINE the vertical CURSOR readout for the difference in value from part c is between 0.00 and 0.30 mA.

If it is not within this limit, the following adjustment is necessary.

Adjusting for Current Balance

e. Adjust R325 on A7 Step Generator board to the value noted in part c.

Removing the Setup

f. Remove the patch cord.

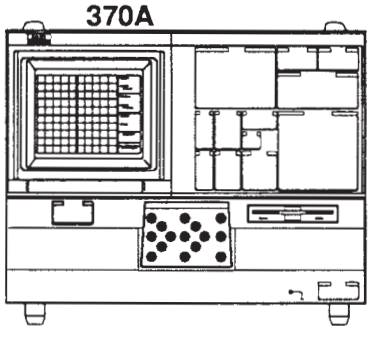
F4. Checking VOLTAGE Mode Ripple and Noise

Specifications:

- Voltage Mode Ripple and Noise is less than 0.5 % of the STEP AMPLITUDE setting +10 mV.

F4 SETUP CONDITIONS

370A



370A settings:
Initialize the 370A: then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	50 mV
NUMBER OF STEPS	0
OFFSET	500 mV
DISPLAY	
Mode	NON STORE
HORIZONTAL	
VOLTS/DIV	50 mV
	BASE/EMITTER
POSITION	DISPLAY
OUTPUTS	ENABLED
Protective Cover	Closed

Checking Ripple and Noise

a. Move the spot to the graticule center with the left Position Control button, then press the MAG X10 button to On.

b. CHECK that the spot width is within 2 horizontal divisions.

c. Change the following 370A settings:

MAG X10	Off
STEP GENERATOR	
POLARITY INVERT	On

d. Move the spot to the graticule center with the right Position Control button then press the MAG X10 button to On.

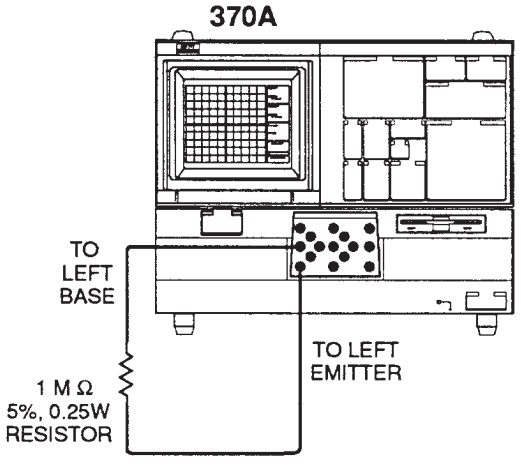
e. CHECK that the spot width is within 2 horizontal divisions.

F5. Checking CURRENT Mode Ripple and Noise

Specifications:

- Current Mode Ripple and Noise is less than 0.5 % of the STEP AMPLITUDE setting + 10 nA.

F5 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
POLARITY	AC
STEP GENERATOR	
Mode	CURRENT
STEP AMPLITUDE	50 nA
NUMBER OF STEPS	0
OFFSET	500 nA
DISPLAY	
Mode	NON STORE
HORIZONTAL	
VOLTS/DIV	50 mV
	BASE/EMITTER
POSITION	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Checking Ripple and Noise

a. Move the spot to the graticule center with the left Position Control button then press the MAG X10 button to On.

b. CHECK that the spot width is within 2 horizontal divisions.

c. Change the following 370A settings:

MAG X10	Off
STEP GENERATOR	
POLARITY INVERT	On

d. Move the spot to the graticule center with the right Position Control button then press the MAG X10 button to On.

e. CHECK that the spot width is within 2 horizontal divisions.

Removing setup

f. Change the following 370A setting:

LEFT-RIGHT-STANDBY	LEFT

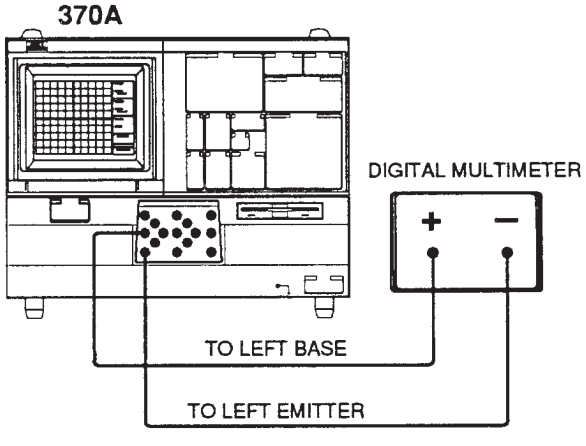
g. Remove the 1 MΩ resistor.

F6. Checking OFFSET Accuracy in VOLTAGE Mode

Specification:

- Absolute accuracy is less than (1.5 % of the total output + 3 % of the STEP AMPLITUDE setting + 1 mV).
- OFFSET Control Range is variable from –10 times to + 10 times the STEP AMPLITUDE setting.
- AMPLITUDE Range is 50 mV to 2 V in a 1-2-5 sequence of 6 steps.

F6 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
HORIZONTAL	
VOLTS/DIV	5 V BASE/EMITTER
STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	1 V
NUMBER OF STEPS	0
COLLECTOR SUPPLY	
POLARITY	AC
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Digital Multimeter:	
Mode	DC Voltage

Checking OFFSET resolution

a. CHECK that the readings on the Digital Multimeter correspond to the accuracy values listed in Table 4-15, when changing the STEP GENERATOR OFFSET settings.

Table 4-15
OFFSET Resolution

STEP GENERATOR OFFSET	Accuracy
0.00 V	0 mV ± 30 mV
0.01 V	10 mV ± 30 mV
0.02 V	20 mV ± 30 mV
0.04 V	40 mV ± 31 mV
0.08 V	80 mV ± 31 mV
0.16 V	160 mV ± 32 mV
0.32 V	320 mV ± 35 mV
0.64 V	640 mV ± 40 mV
1.28 V	1.280 V ± 0.049 V
2.56 V	2.560 V ± 0.068 V
5.12 V	5.120 V ± 0.107 V

Checking Zero OFFSET without INVERT

b. Change the following 370A settings:

STEP GENERATOR	
STEP AMPLITUDE	50 mV
OFFSET	0.0 mV
LEFT-RIGHT-STANDBY	LEFT

c. CHECK that the digital multimeter measurement is within the limits shown in Table 4-16 under No OFFSET for each setting of the STEP AMPLITUDE control.

Checking Zero OFFSET Within INVERT

d. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT On

The indicator above the INVERT button will light up.

e. CHECK that the digital multimeter measurement is within the limits shown in Table 4-16 under No OFFSET for each setting of the STEP AMPLITUDE control.

Checking Maximum OFFSET with INVERT

f. Change the following 370A settings:

STEP GENERATOR
STEP AMPLITUDE 50 mV
OFFSET AID –500 mV

g. CHECK that the Digital Multimeter measurement is within the limits shown in Table 4-16 under Maximum OFFSET for each setting of the STEP AMPLITUDE control.

Checking Maximum OFFSET without INVERT

h. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT Off

The INVERT indicator will go out.

i. CHECK that the digital multimeter measurement is within the limits shown in Table 4-16 under Maximum OFFSET for each setting of the STEP AMPLITUDE control.

Table 4-16
OFFSET Voltage

STEP AMPLITUDE	Digital Multimeter Reading (Zero OFFSET)	Digital Multimeter Reading (Max OFFSET)
50 mV	0.0 ± 2.5 mV	±490 to ± 510 mV
100 mV	0.0 ± 4 mV	± 981 to ± 1019 mV
200 mV	0.0 ± 7 mV	± 1963 to ± 2037 mV
500 mV	0.0 ± 16 mV	± 4909 to ± 5091 mV
1 V	0.0 ±31 mV	± 9.82 to ± 10.18 V
2 V	0.0 ± 61 mV	± 19.64 to ± 20.36 V

Removing the Setup

j. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

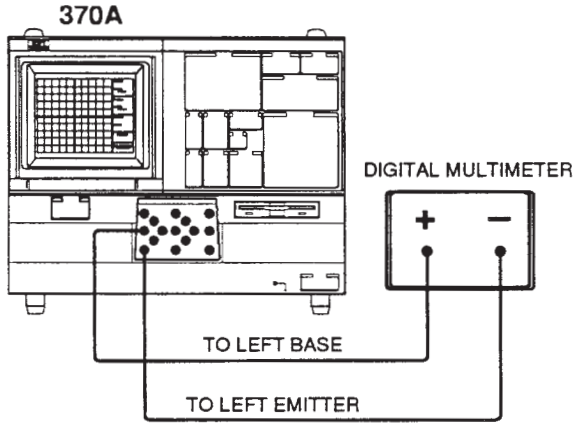
k. Remove the digital multimeter leads from the 370A.

F7. Checking OFFSET Accuracy in CURRENT Mode

Specifications:

- Absolute Accuracy is less than (1.5 % of the total output + 3 % of the STEP AMPLITUDE setting + 1 nA).
- OFFSET Control Range is variable from –10 times to + 10 times the STEP AMPLITUDE setting.
- AMPLITUDE Range is 50 nA to 200 mA in a 1-2-5 sequence of 21 steps.

F7 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL	
CURRENT/DIV	STEP GEN
STEP GENERATOR	
Mode	CURRENT
STEP AMPLITUDE	50 nA
NUMBER OF STEPS	0
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Digital Multimeter:	
Mode	DC Current

NOTE

Before checking these parameters, note the count error of the Digital Multimeter and subtract it from the reading obtained in the procedure.

Use a TEKTRONIX DM501A for measuring the 200 mA range.

Checking Zero OFFSET without INVERT

a. Change the following 370A setting:

LEFT-RIGHT-STANDBY LEFT

b. CHECK that the digital multimeter measurement is within the limits shown in Table 4-17 under No OFFSET for each setting of the STEP AMPLITUDE control.

Checking Zero OFFSET Within INVERT

c. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT On

The indicator above the INVERT button will light up.

d. CHECK that the digital multimeter measurement is within the limits shown in Table 4-17 under No OFFSET for each setting of the STEP AMPLITUDE control.

Checking Maximum OFFSET with INVERT

e. Change the following 370A settings:

STEP GENERATOR	
STEP AMPLITUDE	50 nA
OFFSET AID	–500 nA

f. CHECK that the Digital Multimeter measurement is within the limits shown in Table 4-17 under Maximum OFFSET for each setting of the STEP AMPLITUDE control.

Checking Maximum OFFSET without INVERT

g. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT Off

The INVERT indicator will go out.

h. CHECK that the digital multimeter measurement is within the limits shown in Table 4-17 under Maximum OFFSET for each setting of the STEP AMPLITUDE control.

Removing the Setup

i. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

j. Remove the Digital Multimeter.

Alternate Method

k. Change the following Test Equipment setting:

Digital Multimeter
Mode Volts

l. Connect a 0.025 Ω Resistor to the Left Base jack (B) to the Left Emitter jack (E) and connect the Digital Multimeter to the leads of the Resistor as shown in Figure 4-6.

Table 4-17
OFFSET Current

STEP AMPLITUDE Setting (±)	Digital Multimeter Reading Limits with zero OFFSET (±)	Digital Multimeter Reading Limits with max OFFSET (±)
50 nA	0 ± 2.5 nA	490 nA to 510 nA
100 nA	0 ± 4 nA	981 nA to 1019 nA
200 nA	0 ± 7 nA	1963 nA to 2037 nA
500 nA	0 ± 16 nA	4909 nA to 5091 nA
1 µA	0 ± 31 nA	9.82 µA to 10.18 µA
2 µA	0 ± 61 nA	19.64 µA to 20.36 µA
5 µA	0 ± 0.15 µA	49.1 µA to 50.9 µA
10 µA	0 ± 0.3 µA	98.2 µA to 101.8 µA
20 µA	0 ± 0.6 µA	196.4 µA to 203.6 µA
50 µA	0 ± 1.5 µA	491 µA to 509 µA
100 µA	0 ± 3 µA	982 µA to 1018 µA
200 µA	0 ± 6 µA	1964 µA to 2036 µA
500 µA	0 ± 15 µA	4910 µA to 5090 µA
1 mA	0 ± 30 µA	9.82 mA to 10.18 mA
2 mA	0 ± 60 µA	19.64mA to 20.36mA
5 mA	0 ± 150 µA	49.1 mA to 50.9 mA
10 mA	0 ± 0.3 mA	98.2 mA to 101.8 mA
20 mA	0 ± 0.6 mA	196.4mA to 203.6mA
50 mA	0 ± 1.5 mA	491 mA to 509 mA
100 mA	0 ± 3 mA	982 mA to 1018 mA
200 mA	0 ±6 mA	1974 mA to 2036 mA

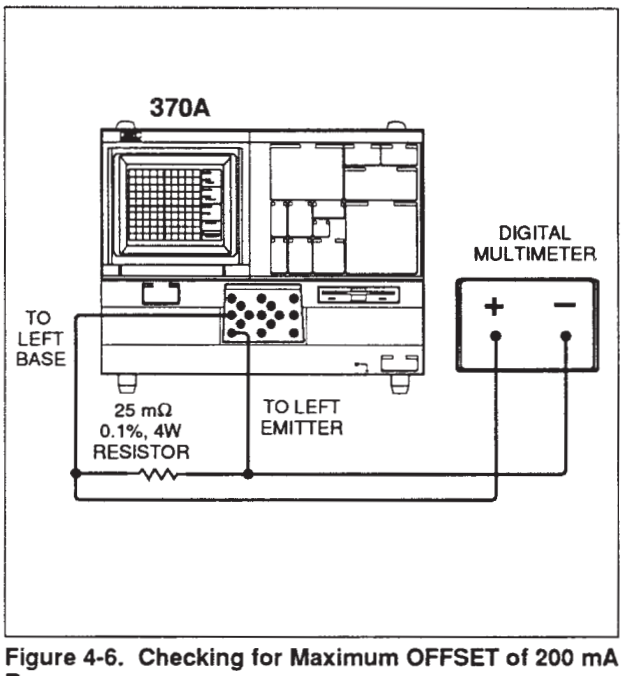


Figure 4-6. Checking for Maximum OFFSET of 200 mA Range.

Checking Maximum OFFSET of 200 mA Range

m. Change the following 370A settings:

STEP GENERATOR	
POLARITY INVERT	Off
STEP AMPLITUDE	200 mA
OFFSET	2000 mA

n. CHECK the digital multimeter for a reading between 49.1 mV to 50.9 mV.

o. Change the following 370A setting:

STEP GENERATOR	
POLARITY INVERT	Off

p. CHECK that the Digital Multimeter readout is –49.1 mV to –50.9 mV.

Removing Setup

q. Change the following 370A setting:

LEFT-RIGHT-STANDBY	STANDBY

r. Remove the Digital Multimeter.

F8. Checking Step Incremental Accuracy in VOLTAGE Mode

Specifications:

- Absolute accuracy of the Step Generator is less than 1.5 % of the output voltage +3 % of the STEP AMPLITUDE setting + 1 mV.
- Incremental accuracy is 1.5 %.

NOTE

See Test Point and Adjustment Locations 1 for the location of the circuit board and jumper associated with this step.

Moving the Store/Non-Store Jumper

a. Change the following 370A setting:

POWER	OFF

b. Remove the A3 A/D Board from the card cage located on the right side of the 370A.

See Test Point and Adjustment Locations 1 for the location of A3 and jumper J34. For details on removing and replacing Plug-In Boards, see the instructions under "Component Removal and Replacement" in Section 3, Maintenance.

c. Change the position of Jumper J34 from pins 1-2 to pins 2-4 (CAL position).

When the jumper is moved from pins 1-2 to pins 2-4, STORE Mode is disabled.

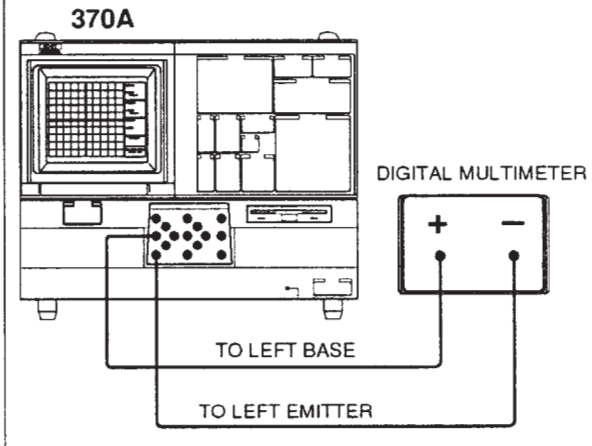
d. Replace the A3 A/D Board in the 370A card cage. Do not re-install the circuit board retainers.

e. Change the following 370A setting:

POWER	ON

f. Press the up and right Position Control buttons to moved the displayed spot to the graticule center (V:5.0 H:5.0).

F8 SETUP CONDITIONS



370A settings:
Set the following controls as indicated.

DISPLAY	
Mode	NON STORE
HORIZONTAL	
VOLTS/DIV	2 V BASE/EMITTER
COLLECTOR SUPPLY	
POLARITY	+ DC
STEP GENERATOR	
Mode	VOLTAGE
NUMBER OF STEPS	10
STEP AMPLITUDE	1 V
POSITION	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Digital Multimeter	
Mode	DC Voltage

Checking Step 0 and 1

f. CHECK that the digital multimeter reading is 0.000 V ± 31 mV (as shown in Table 4-18).

g. Change the following 370A setting:

MEASUREMENT	Press the MEASUREMENT REPEAT button to move the displayed spot 0.5 division to the right.

h. CHECK that the digital multimeter reading is 1.000 V ± 46 mV and that the reading for Step 1 differs from the reading for Step 0 by 1.000 V ± 15 mV (as shown in Table 4-18).

Checking Steps 2 through 10

i. CHECK that for each time the spot is advanced 0.5 division with the MEASUREMENT REPEAT button, the new digital multimeter reading and the voltage difference from the previous reading are within the limits given in Table 4-18.

Checking INVERT

j. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT On

Step Generator output should be automatically return to Step 0.

k. CHECK STEP GENERATOR step accuracy for INVERT by repeating parts f through i (For INVERT, the spot will move in the opposite direction).

IMPORTANT:

If steps F 9, F10, F11, F12 and F13 will not be performed, complete the instructions given under Replacing the Store/Non-Store Jumper, at the end of Step F13, before proceeding to another step or ending the procedure.

Table 4-18
Incremental Accuracy in Voltage Mode

Step	Digital Multimeter Reading (±)	Difference between Adjacent Steps (±)
0	–31 to 31 mV	
1	0.954 V to 1.046 V	1.000 V ± 15 mV
2	1.939 V to 2.061 V	1.000 V ± 15 mV
3	2.924 V to 3.076 V	1.000 V ± 15 mV
4	3.909 V to 4.091 V	1.000 V ± 15 mV
5	4.894 V to 5.106 V	1.000 V ± 15 mV
6	5.879 V to 6.121 V	1.000 V ± 15 mV
7	6.864 V to 7.136 V	1.000 V ± 15 mV
8	7.849 V to 8.151 V	1.000 V ± 15 mV
9	8.834 V to 9.166 V	1.000 V ± 15 mV
10	9.819 V to 10.181 V	

F9. Checking Step Multi .1X Accuracy in VOLTAGE Mode

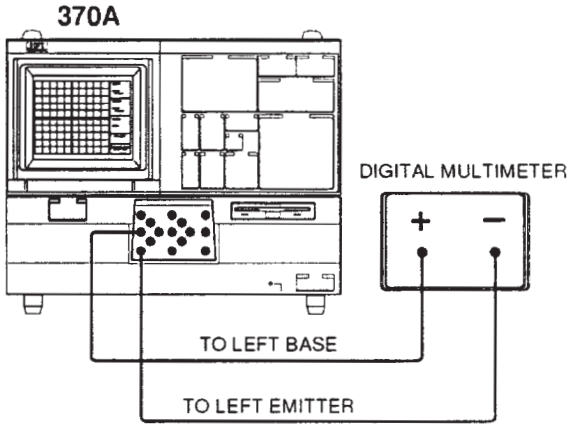
Specification:

- Accuracy with STEP MULTI .1X pressed is less than (1.5 % of total output + 10 % of the STEP AMPLITUDE setting + 1 mV).
- Incremental accuracy is 1.5 %.

IMPORTANT:

If the previous step was not performed, complete the instructions given under Moving the Store/Non-Store Jumper, at the beginning of Step F8, before proceeding with this step.

F9 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
HORIZONTAL	
VOLTS/DIV	2 V BASE/EMITTER
COLLECTOR SUPPLY	
POLARITY	+ DC
STEP GENERATOR	
Mode	VOLTAGE
NUMBER OF STEPS	10
STEP AMPLITUDE	1 V
POSITION	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test equipment settings:

Digital Multimeter	
Mode	DC voltage

Press the up and right Position Control buttons to move the displayed spot to the graticule center (V:5.0 H:50).

Checking Step 0 and 1

a. Change the following 370A settings:

STEP GENERATOR	
STEP MULTI .1X	On
MAG X10	On

b. CHECK the digital multimeter for a reading of 0.00 mV ± 11 mV (as shown in Table 4-19 for Step 0).

c. Change the following 370A setting:

MEASUREMENT	Press the REPEAT button to move the spot 0.5 division to the right.

d. CHECK the digital multimeter for a reading of 100 mV ± 12.5 mV and that the reading for Step 1 differs from the reading for Step 0 by 100 mV ± 1.5 mV (as shown in Table 4-19 for Step 1).

Checking Steps 2 through 10

e. CHECK that for each time the spot is advanced 0.5 division with the MEASUREMENT REPEAT button, the new digital multimeter reading and the voltage difference from the previous reading are within the limits given in Table 4-19.

Checking INVERT

f. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT On

Step Generator output should be automatically return to Step 0.

g. CHECK STEP GENERATOR step accuracy for INVERT by repeating parts b through e (For INVERT, the spot will move in the opposite direction).

IMPORTANT:

If steps F10, F11, F12 and F13 will not be performed, complete the instructions given under Replacing the Store/Non-Store Jumper, at the end of Step F13, before proceeding to another step or ending the procedure.

Table 4-19
Incremental .1X Accuracy in Voltage Mode

Step	Digital Multimeter Reading	Difference between Adjacent Steps
0	–11.5 mV to 11.5 mV	
1	87.5 mV to 112.5 mV	100 mV ± 1.5 mV
2	186.0 mV to 214.0 mV	100 mV ± 1.5 mV
3	284.5 mV to 315.5 mV	100 mV ± 1.5 mV
4	383.0 mV to 417.0 mV	100 mV ± 1.5 mV
5	481.5 mV to 518.5 mV	100 mV ± 1.5 mV
6	580.0 mV to 620.0 mV	100 mV ± 1.5 mV
7	678.5 mV to 721.5 mV	100 mV ± 1.5 mV
8	777.0 mV to 823.0 mV	100 mV ± 1.5 mV
9	875.5 mV to 924.5 mV	100 mV ± 1.5 mV
10	974.0 mV to 1026.0 mV	

F10. Checking Step Incremental Accuracy in CURRENT Mode

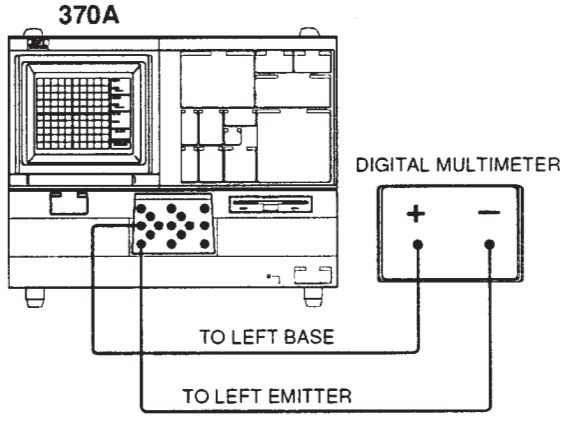
Specifications:

- Absolute Accuracy is less than (1.5 % of the total output + 3 % of the STEP AMPLITUDE setting + 1 nA).
- Incremental Accuracy is 1.5 %.

IMPORTANT:

If previous step was not performed, complete the instruction given under Moving the Store/Non-Store Jumper, at the beginning of Step F8, before proceeding with this step.

F10 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
VERTICAL	
CURRENT /DIV	STEP GEN
COLLECTOR SUPPLY	
POLARITY	+DC
STEP GENERATOR	
Mode	CURRENT
STEP AMPLITUDE	1 mA
NUMBER OF STEPS	10
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test equipment settings:

Digital Multimeter	
Mode	DC Current

Checking Accuracy of Steps 0 and 1

a. CHECK that the digital multimeter reading is 0 mA, ±0.03 mA.

b. Press MEASUREMENT REPEAT once. Note that the displayed spot moves one division higher.

c. CHECK that the digital multimeter reading is between 0.955 and 1.045 mA and the difference between Step 0 and Step 1 is 1 mA ± 0.015 mA.

Checking Accuracy of Steps 2 through 10

d. CHECK that each time MEASUREMENT REPEAT is pressed the displayed spot moves one division higher and the new digital multimeter current reading is within the limits given in Table 4-20.

Table 4-20
Incremental Accuracy in Current Mode

Step	Digital Multimeter Reading	Difference between Adjacent Steps
0	0.000 mA ± 0.030 mA	
		1.000 mA ± 0.015 mA
1	0.955 mA to 1.045 mA	
		1.000 mA ± 0.015 mA
2	1.94 mA to 2.06 mA	
		1.000 mA ± 0.015 mA
3	2.92 mA to 3.08 mA	
		1.000 mA ± 0.015 mA
4	3.91 mA to 4.09 mA	
		1.000 mA ± 0.015 mA
5	4.90 mA to 5.11 mA	
		1.000 mA ± 0.015 mA
6	5.88 mA to 6.12 mA	
		1.000 mA ± 0.015 mA
7	6.86 mA to 7.14 mA	
		1.000 mA ± 0.015 mA
8	7.85 mA to 8.15 mA	
		1.000 mA ± 0.015 mA
9	8.83 mA to 9.17 mA	
		1.000 mA ± 0.015 mA
10	9.82 mA to 10.18 mA	

IMPORTANT:

If step F11,F12 and F13 will not be performed, complete the instructions given under Replacing the Store/Non-Store Jumper, at the end of Step F13 before proceeding to another step or ending the procedure.

Removing Setup

f. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

g. Remove the Digital Multimeter.

F11. Checking Step Multi .1X Accuracy in CURRENT Mode

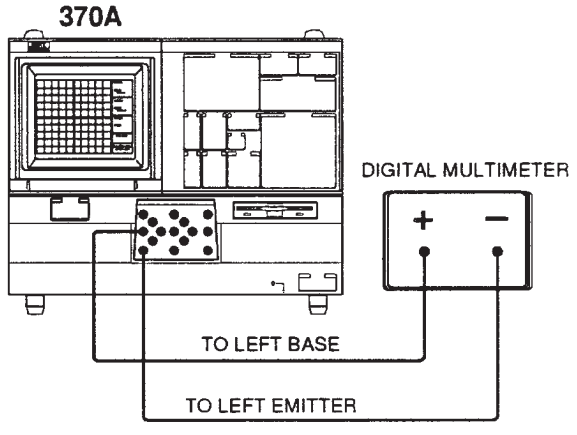
Specifications:

- Accuracy with STEP MULTI .1X pressed is less than (1.5 % of the total output + 10 % of the STEP AMPLITUDE setting + 1 nA).
- Incremental Accuracy is 1.5 %.

IMPORTANT:

If previous step was not performed, complete the instructions given under Moving the Store/Non-Store Jumper, at the beginning of Step F8, before proceeding with this step.

F11 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
VERTICAL	
CURRENT /DIV	STEP GEN
COLLECTOR SUPPLY	
POLARITY	+ DC
STEP GENERATOR	
Mode	CURRENT
STEP MULTI .1X	On
STEP AMPLITUDE	1 mA
NUMBER OF STEPS	10
MAG X10	On
POSITION	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test equipment settings:

Digital Multimeter	
Mode	DC Current

Checking Accuracy of Steps 0 and 1

a. Press the up and right Position Control buttons to position the spot on the bottom horizontal graticule line (V:45 H:50).

b. CHECK that the digital multimeter reading is 0 mA, ±0.1 mA.

c. Press MEASUREMENT REPEAT once. Note that the displayed spot moves one division higher.

d. CHECK that the digital multimeter reading is between 0.885 and 1.115 mA and the difference between Step 0 and Step 1 is 1 mA ± 0.015 mA.

Checking Accuracy of Steps 2 through 10

e. CHECK that each time MEASUREMENT REPEAT is pressed the displayed spot moves one division higher and the new digital multimeter current reading is within the limits given in Table 4-21.

Table 4-21
Incremental .1X Accuracy in Current Mode

Step	Digital Multimeter Reading	Difference between Adjacent Steps
0	–0.100 mA ± 0.100 mA	
		1.000 mA ± 0.015 mA
1	0.885 mA to 1.115 mA	
		1.000 mA ± 0.015 mA
2	1.870 mA to 2.130 mA	
		1.000 mA ± 0.015 mA
3	2.855 mA to 3.145 mA	
		1.000 mA ± 0.015 mA
4	3.840 mA to 4.160 mA	
		1.000 mA ± 0.015 mA
5	4.825 mA to 5.175 mA	
		1.000 mA ± 0.015 mA
6	5.810 mA to 6.190 mA	
		1.000 mA ± 0.015 mA
7	6.795 mA to 7.205 mA	
		1.000 mA ± 0.015 mA
8	7.780 mA to 8.220 mA	
		1.000 mA ± 0.015 mA
9	8.765 mA to 9.235 mA	
		1.000 mA ± 0.015 mA
10	9.750 mA to 10.250 mA	

IMPORTANT:

If step F12 and F13 will not be performed,complete the instructions given under Replacing the Store/Non-Store Jumper,at the end of Step F13 before proceeding to another step or ending the procedure.

Removing Setup

g. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

h. Remove the Digital Multimeter.

F12. Checking Maximum Voltage Output in VOLTAGE Mode

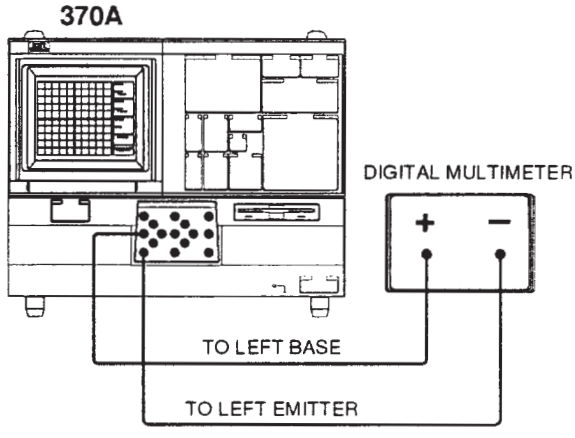
Specifications:

- Absolute accuracy of the Step Generator is less than 1.5 % of the output voltage +3 % of the STEP AMPLITUDE setting + 1 mV.
- Maximum voltage output is 20 times the STEP AMPLITUDE setting.
- STEP AMPLITUDE control range is 50 mV to 2 V in a 1-2-5 sequence of 6 steps.

IMPORTANT:

If previous step was not performed, complete the instructions given under Moving the Store/Non-Store Jumper, at the beginning of Step F8, before proceeding with this step.

F12 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
HORIZONTAL	
VOLTS/DIV	STEP GEN
COLLECTOR SUPPLY	
POLARITY	+ DC
STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	50 mV
NUMBER OF STEPS	10
OFFSET	500 mV
POSITION	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test equipment settings:

Digital Multimeter	
Mode	DC Voltage

Checking Maximum Voltage

a. Simultaneously press the FAST/SHIFT and left Position Control buttons to move the displayed spot to the left-most graticule line.

b. Change the following 370A setting:

MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the right-most graticule line.

The Digital Multimeter reading should be approximately 1.000 V.

c. Check that the digital multimeter reading is between 0.983 and 1.017 V (see Table 4-22).

Table 4-22
Maximum Voltage Output

STEP AMPLITUDE	Digital Multimeter Reading (±)
50 mV	0.983 to 1.017 V
100 mV	1.966 to 2.034 V
200 mV	3.933 to 4.067 V
500 mV	9.834 to10.166 V
1 V	19.67 to 20.33 V
2 V	39.34 to 40.66 V

d. Change the following 370A setting:

STEP AMPLITUDE	Next setting (see Table 4-22).
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the right-most graticule line.

e. CHECK that the digital multimeter is within the tolerance given for the STEP AMPLITUDE setting in Table 4-22.

f. Repeat part d and e for each STEP AMPLITUDE setting in the Table 4-22.

Checking INVERT

g. Press the STEP GENERATOR INVERT button to On.

Step Generator output should be automatically return to Step 0.

h. Simultaneously press the FAST/SHIFT and right Position Control buttons to move the displayed spot to the right-most graticule line.

i. Change the following 370A settings:

STEP AMPLITUDE	50 mV
MEASUREMENT	Press the REPEAT button several times tomove the displayed spot to the left-most graticule line.

The Digital Multimeter reading should be approximately 1.000 V.

j. Check that the digital multimeter reading is between 0.983 and 1.017 V (see Table 4-22).

k. Change the following 370A settings:

STEP GENERATOR STEP AMPLITUDE	Next setting (see Table 4-22).
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the left-most graticule line.

l. CHECK that the digital multimeter is within the tolerance given for the STEP AMPLITUDE setting in Table 4-22.

m. Repeat k and l for each STEP AMPLITUDE setting in the Table 4-22.

Removing the Setup

n. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

o. Disconnect the digital multimeter leads from the 370A.

IMPORTANT:

If step F13 will not be performed, complete the instructions given under Replacing the Store/Non-Store Jumper, at the end of Step F13, before proceeding to another step or ending the procedure.

F13. Checking Maximum Current Output in CURRENT Mode

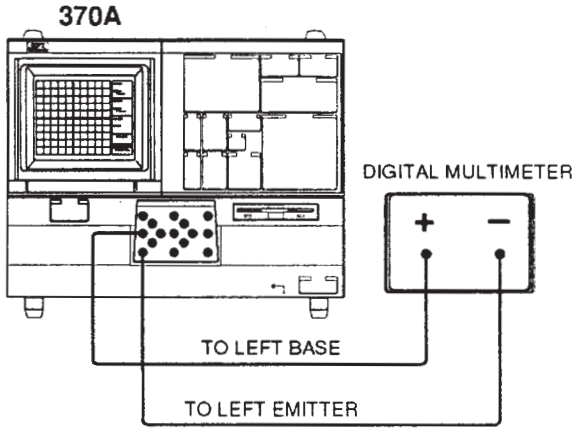
Specification:

- Absolute Accuracy is less than (1.5 % of the total output + 3 % of the STEP AMPLITUDE setting + 1 nA).
- Maximum current output is 20 times the STEP AMPLITUDE setting, except at 200 mA, where it is 10 times the setting.

IMPORTANT:

If the previous step was not performed, complete the instructions given under Moving the Store/Non-Store Jumper, at the beginning of Step F8, before proceeding with this step.

F13 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
HORIZONTAL	
VOLTS/DIV	STEP GEN
COLLECTOR SUPPLY	
POLARITY	+ DC
STEP GENERATOR	
Mode	CURRENT
STEP AMPLITUDE	50 nA
NUMBER OF STEPS	10
OFFSET	500 nA
POSITION	DISPLAY
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Digital Multimeter	
Mode	DC Current

NOTE

Before checking these parameters, note the count error of the Digital Multimeter and subtract it from the reading obtained in the procedure.

Checking 50 nA Through 50 mA

a. Simultaneously press the FAST/SHIFT and left Position Control buttons to move the displayed spot to the left-most graticule line.

b. Change the following 370A setting:

MEASUREMENT — Press the REPEAT button several times to move the displayed spot to the right-most graticule line.

The Digital Multimeter reading should be approximately 1.00 µA.

c. Check that the digital multimeter reading is between 0.983 and 1.017 µA (see Table 4-23).

Table 4-23
Maximum Current Output

STEP AMPLITUDE	Digital Multimeter
50 nA	.983 to 1.017 µA
100 nA	1.966 to 2.034 µA
200 nA	3.933 to 4.067 µA
500 nA	9.834 to 10.166 µA
1 µA	19.67 to 20.33 µA
2 µA	39.34 to 40.66 µA
5 µA	98.35 to 101.65 µA
10 µA	196.7 to 203.3 µA
20 µA	393.4 to 406.6 µA
50 µA	983.5 to 1016.5 µA
100 µA	1.967 to 2.033 mA
200 µA	3.934 to 4.066 mA
500 µA	9.835 to 10.165 mA
1 mA	19.67 to 20.33 mA
2 mA	39.34 to 40.66 mA
5 mA	98.35 to 101.65 mA
10 mA	196.7 to 203.3 mA
20 mA	393.4 to 406.6 mA
50 mA	983.5 to 1016.5 mA
100 mA	1967 to 2033 mA
200 mA	1964 to 2036 mA

d. Change the following 370A settings:

STEP AMPLITUDE	Next setting (see Table 4-23).
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the right-most graticule line.

e. CHECK that the digital multimeter is within the tolerance given for the STEP AMPLITUDE setting in Table 4-23.

f. Repeat part d and e for each STEP AMPLITUDE setting in Table 4-23, except the 200 mA position. In the 200 mA position, set the offset to zero.

NOTE

Use a TEKTRONIX DM501A to check the 100 mA and 200 mA ranges.

Checking INVERT

g. Press the STEP GENERATOR INVERT button to on.

Step Generator output should be automatically return to Step 0.

h. Simultaneously press the FAST/SHIFT and right Position Control buttons to move the displayed spot to the right-most graticule line.

i. Change the following 370A settings:

STEP AMPLITUDE	50 nA
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the left-most graticule line.

The Digital Multimeter reading should be approximately 1.00 µA.

j. Check that the digital multimeter reading is between 0.983 and 1.017 µA (see Table 4-23).

k. Change the following 370A settings:

STEP AMPLITUDE	Next setting (see Table 4-23).
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the left-most graticule line.

l. CHECK that the digital multimeter is within the tolerance given for the STEP AMPLITUDE setting in Table 4-23.

m. Repeat part d and e for each STEP AMPLITUDE setting in Table 4-23, except the 200 mA position. In the 200 mA position, set the offset to zero.

Removing the Setup

n. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

o. Disconnect the digital multimeter leads from the 370A.

Alternate Method

p. Change the following 370A and Test Equipment settings:

STEP GENERATOR	
POLARITY INVERT	Off
STEP AMPLITUDE	100 mA
Digital Multimeter	
Mode	Volts

q. Connect a 0.025 Ω Resistor between the Left Base jack (B) and the Left Emitter jack (E) and connect the Digital Multimeter to the leads of the Resistor as shown in Figure 4-7.

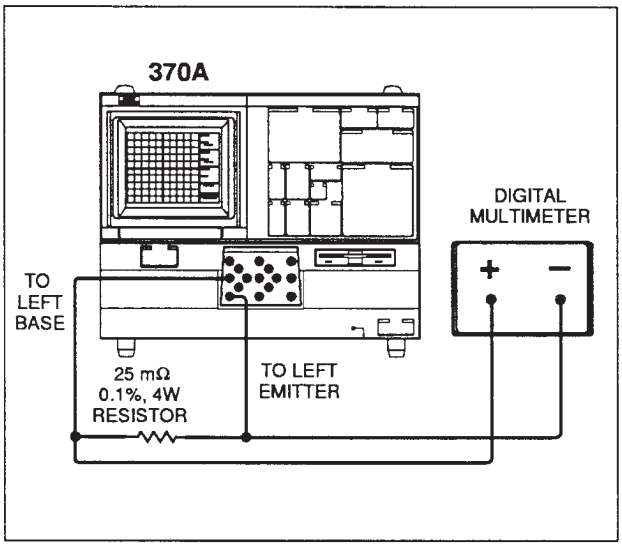


Figure 4-7. Checking for Maximum Current Output of 100 mA and 200 mA range.

Checking 100 mA

r. Simultaneously press the FAST/SHIFT and left Position Control buttons to move the displayed spot to the left-most graticule line.

s. Change the following 370A settings:

LEFT-RIGHT-STANDBY	LEFT
Protective Cover	Closed
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the right-most graticule line.

t. CHECK that the Digital Multimeter readout is 49.175 mV to 50.825 mV.

Checking 200 mA

u. Change the following 370A settings:

STEP AMPLITUDE	200 mA
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the right-most graticule line.

v. CHECK that the Digital Multimeter readout is more than 50 mV.

Checking –100 mA

w. Change the following 370A settings:

STEP GENERATOR	
POLARITY INVERT	On
STEP AMPLITUDE	100 mA

x. Simultaneously press the FAST/SHIFT and right Position Control buttons to move the displayed spot to the right-most graticule line.

y. CHECK that the Digital Multimeter readout is –49.175 mV to –50.825 mV.

Checking –200 mA

z. Change the following 370A settings:

STEP AMPLITUDE	200 mA
MEASUREMENT	Press the REPEAT button several times to move the displayed spot to the left-most graticule line.

aa. CHECK that the Digital Multimeter readout is more than –50 mV.

Removing the Setup

ab. Change the following 370A setting:

LEFT-RIGHT-STANDBY	STANDBY

ac. Remove the resistor and the Digital Multimeter.

NOTE

Maximum 370A Step Generator current is 2 A; therefore, the 100 mA and 200 mA STEP GENERATOR STEP AMPLITUDE setting have the same performance requirement.

Replacing the Store/Non-Store Jumper

ad. Change the following 370A setting:

POWER	OFF

ae. Remove the A3 A/D Board.

See Test Point and Adjustment Locations 1 for the location of A3 and jumper J34. For details on removing and replacing Plug-in Boards, see the instructions under "Component Removal and Replacement" in Section 3, Maintenance.

af. Move jumper J34 from pins 2-4 to pins 1-2 (ZERO position).

ag. Replace the A3 A/D Board and the circuit board retainers across the top of the card cage.

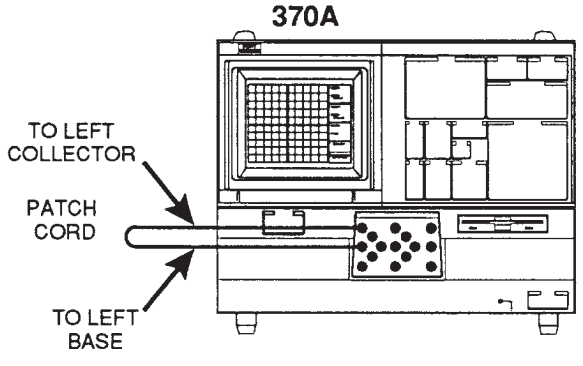
ah. Change the following 370A setting:

POWER	ON

F14. Checking Maximum Current in VOLTAGE Mode

Specification:
- Maximum Current in Voltage Mode is 500 mA for 10 volts or less, 200 mA for 15 V, 10 mA for 40 V.

F14 SETUP CONDITIONS



370A settings:
Initialize the 370A: then set the following controls as indicated.

DISPLAY	
HORIZONTAL	
VOLTS/DIV	10 V COLLECTOR
VERTICAL	
CURRENT/DIV	5 mA COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	80 V
MAX PEAK POWER	
WATTS	0.4
POLARITY	AC
STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	2 V
NUMBER OF STEPS	10
OFFSET	20 V
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Checking 40 V without INVERT

a. Set the VARIABLE COLLECTOR SUPPLY control so the negative travel of the outside right vertical line of the displayed waveform extends past the second horizontal graticule line below graticule center (see Figure 4-8).

b. CHECK that the outside right vertical line of the displayed waveform extends past the second horizontal graticule line below graticule center.

Checking 40 V with INVERT

c. Change the following 370A setting:

STEP GENERATOR	
POLARITY INVERT	On

d. CHECK that the outside left vertical line of the displayed waveform extends past the second horizontal graticule line above graticule center.

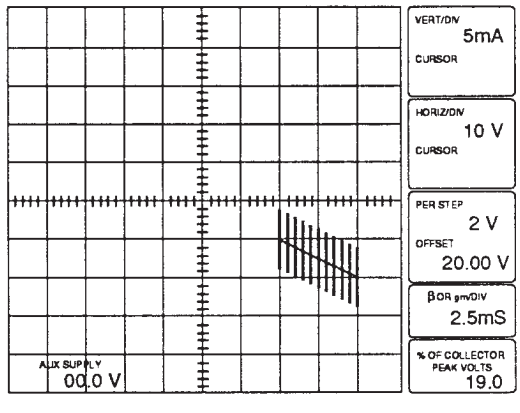


Figure 4-8. First test display for Maximum Current check, left collector and left base connected.

Checking 15 V without INVERT

e. Change the following 370A settings:

DISPLAY	
VERTICAL	
CURRENT/DIV	100 mA COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK POWER	
WATTS	10
STEP GENERATOR	
POLARITY INVERT	Off
OFFSET	5.00 V

f. Set the VARIABLE COLLECTOR SUPPLY control so the negative travel of the center vertical line of the displayed waveform extends past the second horizontal graticule line below graticule center (see figure 4-8).

g. CHECK that the center vertical line of the displayed waveform extends past the second horizontal graticule line below graticule center(see Figure 4-9).

Checking 15 V with INVERT

h. Change the following 370A setting:

STEP GENERATOR	
POLARITY INVERT	On

i. CHECK that the center vertical line of the displayed waveform is keep straight on extends past the second horizontal graticule line above graticule center.

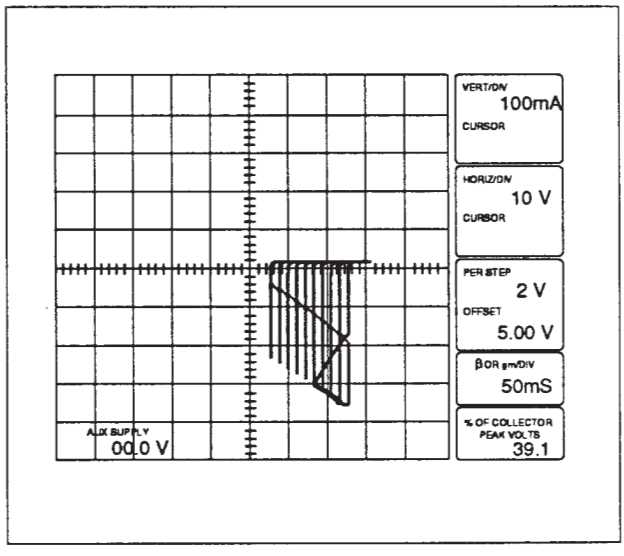


Figure 4-9. Second test display for Maximum Current check.

Checking 10 V without INVERT

j. Change the following 370A settings:

DISPLAY	
VERTICAL	
CURRENT/DIV	200 mA COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK POWER	
WATTS	50
STEP GENERATOR	
AMPLITUDE	1 V
OFFSET	5 V
POLARITY INVERT	Off

k. Set the VARIABLE COLLECTOR SUPPLY control so the negative travel of the center vertical line of the displayed waveform extends past 2.5 divisions below graticule center (see Figure 4-10).

l. CHECK that the center vertical line of the displayed waveform extends past 2.5 divisions below graticule center.

Checking 10 V with INVERT

m. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT On

n. CHECK that the center vertical line of the displayed waveform extends past 2.5 divisions above graticule center.

Removing the Setup

o. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

p. Remove the patch cord from the 370A.

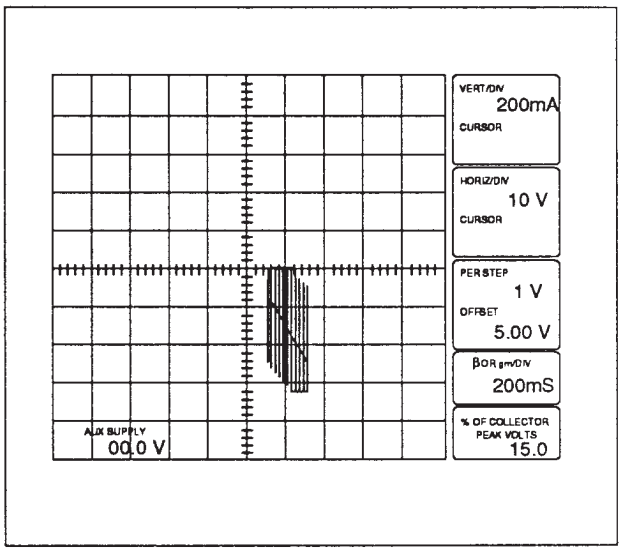
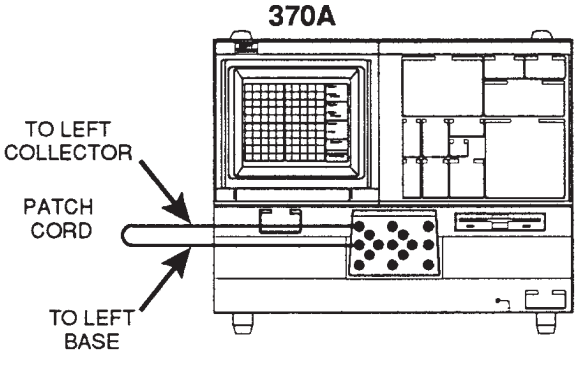


Figure 4-10. Third test display for Maximum Current check.

F15. Checking Maximum Opposing Offset Current in VOLTAGE Mode

Specification:
• Maximum opposing offset current is less than 10 mA.

F15 SETUP CONDITIONS



370A settings:
Initialize the 370A: then set the following controls as indicated.

DISPLAY	
VERTICAL	
CURRENT/DIV	5 mA COLLECTOR
COLLECTOR SUPPLY	
POLARITY	AC
MAX PEAK POWER	
WATTS	220
STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	2 V
NUMBER OF STEPS	0
OFFSET	–20V
CURSOR	DOT

Checking without INVERT

a. Set the LEFT-RIGHT-STANDBY switch to LEFT.

b. CHECK for vertical CURSOR reading of less than 20 mA.

Checking With INVERT

c. Change the following 370A setting:

STEP GENERATOR
POLARITY INVERT On

The INVERT indicator will light up.

d. CHECK for vertical CURSOR reading less than –20 mA.

Removing the Setup

e. Change the following 370A setting:

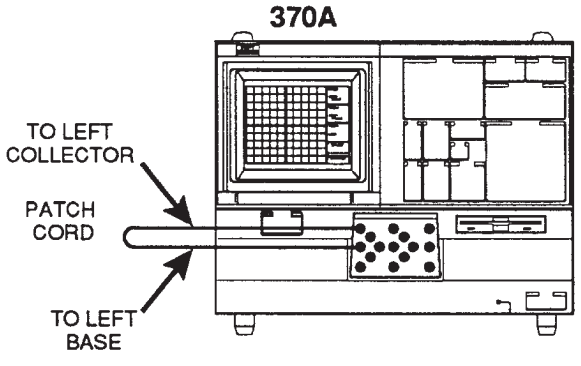
LEFT-RIGHT-STANDBY STANDBY

f. Disconnect the Patch Cord from the 370A.

F16. Checking Maximum Voltage in CURRENT Mode

Specification:
• Maximum Voltage is at least 10 volts.

F16 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL	
CURRENT/DIV	1 A COLLECTOR
HORIZONTAL	
VOLTS/DIV	5 V COLLECTOR
COLLECTOR SUPPLY	
POLARITY	AC
MAX PEAK POWER	
WATTS	50
STEP GENERATOR	
AMPLITUDE	200 mA
NUMBER OF STEPS	10
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Checking Maximum Voltage without INVERT

a. Set the VARIABLE COLLECTOR SUPPLY control so the positive travel of the bottom horizontal line of the displayed waveform extends past the second vertical graticule line to the right of graticule center (see Figure 4-11).

b. CHECK that the bottom horizontal line of the displayed waveform is kept straight and that it extends past the right-hand of second vertical graticule line from graticule center.

Checking Maximum Voltage Within INVERT

c. Change the following 370A setting:

STEP GENERATOR	
POLARITY INVERT	On

d. CHECK that the top horizontal line of the displayed waveform extends past the second vertical graticule line to the left of center.

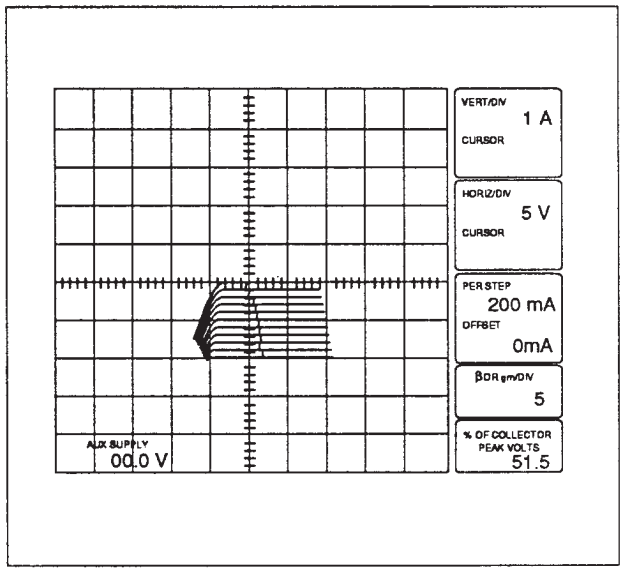


Figure 4-11. Display for Maximum Voltage check, left collector and left base connected.

Removing the Setup

e. Change the following 370A setting:

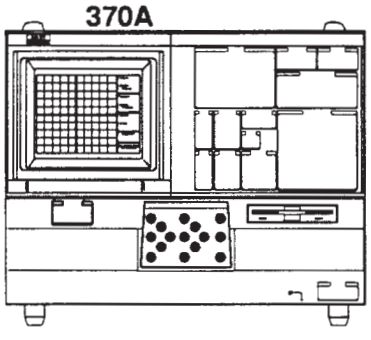
LEFT-RIGHT-STANDBY	STANDBY

f. Disconnect the Patch Cord from the 370A.

F17. Checking Maximum Opposing Offset Volts in CURRENT Mode

Specification:
- Maximum Opposing Volts in Current Mode is less than 7 volts.

F17 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
HORIZONTAL	
VOLTS/DIV	2 V BASE/EMITTER
COLLECTOR SUPPLY	
POLARITY	AC
STEP GENERATOR	
Mode	CURRENT
AMPLITUDE	200 mA
NUMBER OF STEPS	0
OFFSET	–2000 mA
CURSOR	DOT
OUTPUTS	ENABLED
Protective Cover	Closed

Checking Maximum Opposing Volts without INVERT

a. Set the LEFT-RIGHT-STANDBY switch to LEFT.

b. CHECK that the horizontal CURSOR readout is no more than –7.0 V

Checking Maximum Opposing Volts Within INVERT

c. Change the following 370A setting:

STEP GENERATOR	
POLARITY INVERT	On

The indicator beside the INVERT button will light.

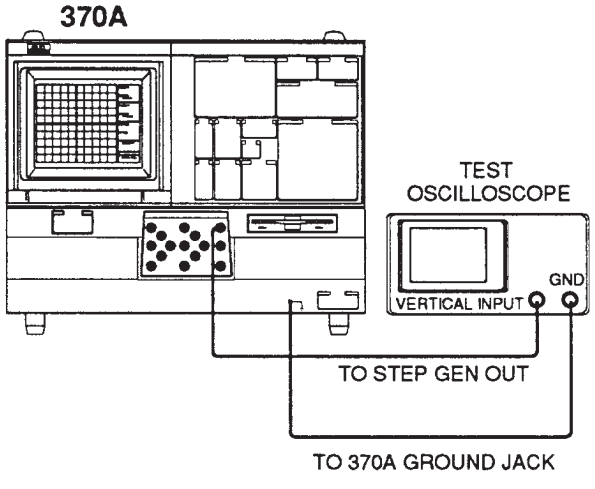
d. CHECK that the horizontal CURSOR readout is no more than +7.0 V

F18. Checking PULSE Width

Specification:

- Pulse Width is 80 µs ± 10 % for the SHORT setting of the PULSE selector and 300 µs ± 10 % for the LONG setting at half amplitude.

F18 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	2 V
NUMBER OF STEPS	1
PULSE	LONG
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Test Oscilloscope	
Vertical sensitivity	500 mV/division DC
Horizontal	50 µs/division
Trigger mode	Auto
Trigger slope	+

Checking LONG PULSE Width

a. CHECK that the pulse width is 300 µs ±10 % (as measured by the test oscilloscope).

Checking SHORT PULSE Width

b. Change the following 370A and Test Equipment settings:

370A:

STEP GENERATOR	
PULSE	SHORT

Test Equipment:

Test Oscilloscope	
horizontal	10 µs/division

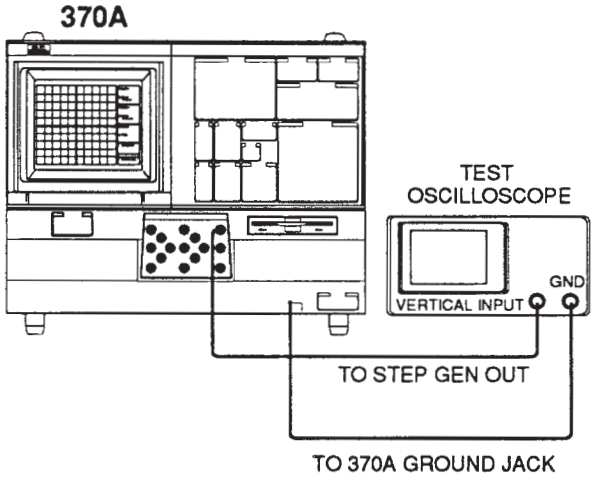
c. CHECK that the pulse width is 80 µs ±10 %.

F19. Checking Step Rate

Specifications:

- Step Rate is twice the line frequency when COLLECTOR SUPPLY POLARITY is set to + ⌓ or – ⌔.
- Step Rate is equal to the line frequency when COLLECTOR SUPPLY POLARITY is set to AC.

F19 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	2 V
NUMBER OF STEPS	1
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Test Oscilloscope:	
Vertical sensitivity	1 V/division DC
Horizontal	10 ms/division
Trigger mode	auto
Trigger source	line

Checking + ⌓ Step Rate

a. CHECK that the interval between steps displayed on the Test Oscilloscope is approximately 8.3 ms (when the power line frequency is 60 Hz) or approximately 10 ms (when the power line frequency is 50 Hz).

Checking AC Step Rate

b. Change the following 370A setting:

COLLECTOR SUPPLY POLARITY	AC

c. CHECK that the interval between steps displayed on theTest Oscilloscope is approximately 16.6 ms (when line frequency is 60 Hz) or approximately 20 ms (when line frequency is 50 Hz).

Checking – ⌔ Step Rate

d. Change the following 370A setting:

COLLECTOR SUPPLY POLARITY	– ⌔

e. CHECK that is the interval between steps displayed on the Test Oscilloscope is approximately 8.3 ms (when the power line frequency is 60 Hz) or approximately 10 ms (when the power line frequency is 50 Hz), and that the staircase waveform displayed on CRT is inverted.

Removing the Setup

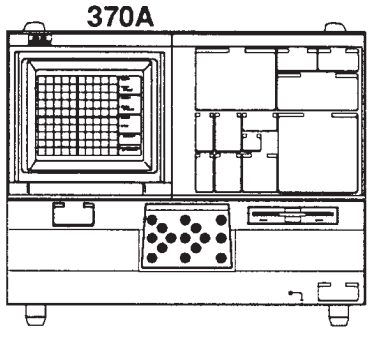
f. Disconnect the Test Oscilloscope from the 370A.

F20. Examining Step Generator Polarity Operation

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

F20 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
HORIZONTAL	
VOLTS/DIV	500 mV BASE/EMITTER
COLLECTOR SUPPLY	
POLARITY	AC
STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	100 mV
OFFSET	1000 mV
OUTPUTS	ENABLED
Protective Cover	Closed

Examining POLARITY INVERT Operation

a. Press the POLARITY INVERT button.

b. EXAMINE that the red INVERT LED for lights and the green LED in the STEP GENERATOR POLARITY window changes from + to –, and the CRT to see that the displayed waveform changes from right to left from graticule center.

c. Press the POLARITY INVERT button to OFF.

Examining the CONFIGURATION BASE COMMON Operation

d. Change the following 370A setting:

CONFIGURATION EMITTER STEP GEN

e. EXAMINE the green LED in the STEP GENERATOR POLARITY window changes from + to –, and the CRT to see that the displayed waveform changes from right to left from graticule center.

The red INVERT LED will not light.

f. Change the following 370A setting:

CONFIGURATION BASE STEP GEN

Examining the COLLECTOR SUPPLY POLARITY Operation

g. Change the following 370A setting:

COLLECTOR SUPPLY
POLARITY –

h. EXAMINE the green LED in the STEP GENERATOR POLARITY window changes from + to –, and the CRT to see that the displayed waveform is above the horizontal center graticule line.

The red INVERT LED will not light.

G. COLLECTOR SUPPLY

Equipment Required(see Table 4-3):
- Digital Multimeter

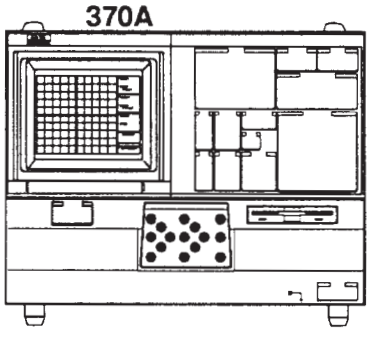
G1. Adjusting Collector Supply Amplifier Offset (A6R412)

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

G1 SETUP CONDITIONS

370A



370A settings:

POWER	OFF

Removing the Electrical Shield

a. Change the following 370A setting:

POWER	OFF

WARNING

To avoid electric shock hazard, be certain the 370A POWER switch is set to OFF before removing or replacing the electrical shield and connecting the digital multimeter to the 370A.

b. Use a #1 Pozidrive screwdriver to remove the electric shield on the left side of the 370A that covers the A6 Collector Supply Board. (These are three shield on the left side; remove the rear shield.)

Adjusting Collector Supply Offset

c. Change the following Test Equipment setting:

Digital Multimeter

Mode	DC Voltage

d. Connect the Digital Multimeter test leads to pin 1 and pin 3 of P62 as shown in Figure 4-12. (These are the COLLECT-OUT and ground pins.)

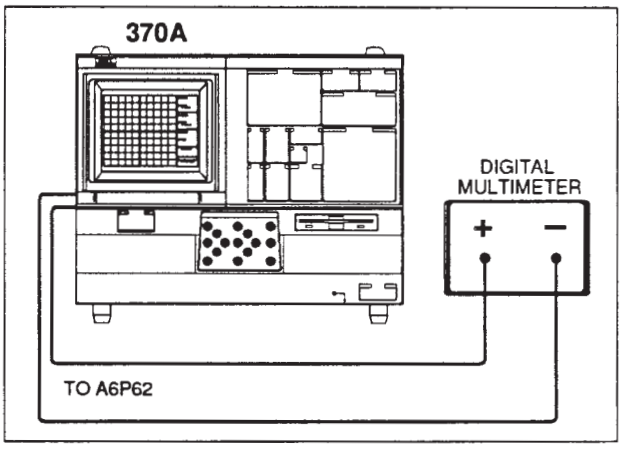


Figure 4-12. Adjusting for Collector Supply Amplifier Offset.

e. Change the following 370A setting:

POWER	ON

f. ADJUST CS OFFSET adjustment R412 on the A6 Collector Supply Board for a digital multimeter readout of 0.0 mV ± 1 mV.

Removing the Setup

g. Change the following 370A setting:

POWER	OFF

h. Remove the digital multimeter test leads from the 370A.

i. Replace the electrical shield.

j. Change the following 370A setting:

POWER	ON

✓ ⊘

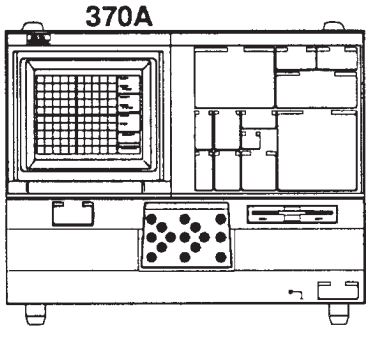
G2. Checking MAX PEAK VOLTS Accuracy

Adjusting Collector Supply Gain (A6R401)

Specification:
- MAX PEAK VOLTS selection include 16, 80, 400, and 2000.
- MAX PEAK VOLTS accuracy for the COLLECTOR SUPPLY is +15 % and −0 % for 16, 80, 400, and 2000 V settings.

G2 SETUP CONDITIONS

370A



370A settings:
Initialize the 370A; then set the following controls as indicated.

COLLECTOR SUPPLY	
MAX PEAK POWER	
WATTS	220
POLARITY	+DC
CURSOR Mode	DOT
OUTPUTS	ENABLED
VARIABLE	
COLLECTOR SUPPLY	100 %
Protective Cover	Closed

Checking 16 Max Peak Volts

a. CHECK the horizontal CURSOR readout for a reading within the limits given in Table 4-24 for 16 MAX PEAK VOLTS.

Checking 80, 400, 2000 MAX PEAK VOLTS

b. Change the following 370A settings:

DISPLAY	
HORIZONTAL	
VOLTS/DIV	10 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	80
VARIABLE	
COLLECTOR SUPPLY	100 %

c. CHECK the horizontal CURSOR readout for a reading within the limits given in Table 4-24 for 80 MAX PEAK VOLTS.

d. CHECK that the horizontal CURSOR readout is accurate within the limits given in Table 4-24 by repeating steps b and c for each HORIZONTAL VOLTS/DIV and MAX PEAK VOLTS setting in Table 4-24.

MAX PEAK POWER WATTS should automatically change to 50 when the MAX PEAK VOLTS setting is changed from 400 to 2000.

If not within these limits, the following adjustment is necessary.

Adjusting Collector Supply Gain

e. Change the following 370A settings:

DISPLAY	
HORIZONTAL	2 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	16
MAX PEAK POWER WATTS	220
VARIABLE COLLECTOR SUPPLY	100%

f. ADJUST CS Gain adjustment R401 on the A6 Collector Supply Board for a horizontal CURSOR readout of 17.2 V.

R401 can be adjusted through the access hole in the protective shield.

NOTE

See Test Point and Adjustment Location 2 in Section 7 for the location of the adjustment associated with this step.

g. Recheck from a to d.

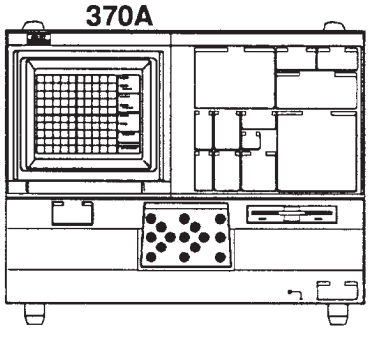
Table 4-24
Max Peak Volts

MAX PEAK VOLTS	HORIZONTAL VOLTS/DIV setting	MAX PEAK POWER WATTS setting	Horizontal CURSOR Readout Limits setting
16	2 V	220	16.0 V to 18.4 V
80	10 V	220	80.0 V to 92.0 V
400	50 V	220	400 V to 460 V
2000	500 V	50	2000 V to 2300 V

G3. Checking DC Mode Ripple

• DC Mode Ripple for 2 % of the full range voltage.

G3 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY Mode	NON STORE
COLLECTOR SUPPLY	
MAX PEAK POWER WATTS	220
POLARITY	+DC
POSITION	DISPLAY
OUTPUTS	ENABLED
VARIABLE COLLECTOR SUPPLY	100 %
Protective Cover	Closed

Checking 16 MAX PEAK VOLTS DC Mode Ripple

a. Move the spot to graticule center with the Position Control buttons.

b. Change the following 370A setting:

MAG X10	On

c. CHECK the display spot for its width to be within the limit given in Table 4-25 for 16 MAX PEAK VOLTS.

Checking 80, 400, 2000 MAX PEAK VOLTS DC Mode Ripple

d. Change the following 370A settings:

DISPLAY	
HORIZONTAL VOLTS/DIV	1 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	80
VARIABLE COLLECTOR SUPPLY	100 %

e. Move the spot to graticule center with the right Position Control button.

f. CHECK the display spot for its width to be within the limit given in Table 4-25 for 80 MAX PEAK VOLTS.

g. CHECK that the horizontal CURSOR readout is accurate within the limits given in Table 4-25 by repeating steps from d to f for each HORIZONTAL VOLTS/DIV and MAX PEAK VOLTS setting in Table 4-25.

MAX PEAK POWER WATTS should be automatically change to 50 when the MAX PEAK VOLTS setting is changed from 400 to 2000.

Table 4-25
DC Mode Ripple

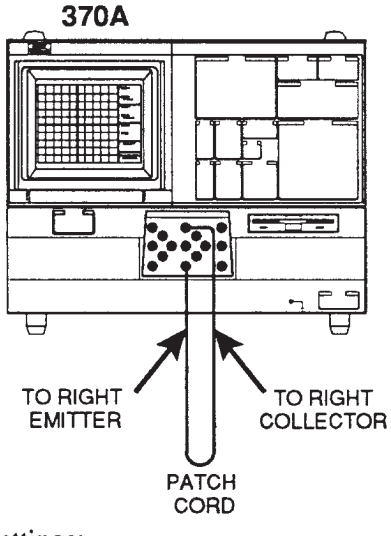
MAX PEAK VOLTS setting	HORIZONTAL VOLTS/DIV setting	MAX PEAK POWER WATTS	Maximum Spot Width (Ripple)
16	200 mV	220	320 mV (1.6 div)
80	1 V	220	1.6 V (1.6 div)
400	5 V	220	8.0 V (1.6 div)
2000	50 V	50	40 V (0.8 div)

G4. Checking Maximum Peak Currents

Specification:

- Minimum Current Available Current is ≥10 A for the 16 V COLLECTOR SUPPLY, ≥ 2 A for 80 V, 400 mA for 400 V, and 50 mA for 2000 V.

G4 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
HORIZONTAL	
VOLTS/DIV	500
COLLECTOR SUPPLY	
MAX PEAK POWER	
WATTS	220 W
POLARITY	+DC
CURSOR MODE	DOT
OUTPUTS	ENABLED
LEFT-RIGHT-STANDBY	RIGHT
Protective Cover	Closed

Checking 16 V Maximum Current

a. CHECK that the trace can reach the value specified in Table 4-26 when VARIABLE COLLECTOR SUPPLY control is turned clockwise.

Checking 80, 400, 2000 V Maximum Current

b. Change the following 370A settings:

DISPLAY	
VERTICAL CURRENT/DIV	500 mA
COLLECTOR SUPPLY	
MAX PEAK VOLTS	80

c. CHECK that the trace can reach the value specified in Table 4-26 when VARIABLE COLLECTOR SUPPLY control is turned clockwise.

d. CHECK that the trace can reach the value specified in Table 4-26 by repeating steps b and c for each VERTICAL CURRENT/DIV and MAX PEAK VOLTS setting in Table 4-26.

MAX PEAK POWER WATTS should be automatically change to 50 when the MAX PEAK VOLTS setting is changed from 400 to 2000.

Removing the Setup

e. Change the following 370A settings:

COLLECTOR SUPPLY	
MAX PEAK VOLTS	16 V
LEFT-RIGHT-STANDBY	STANDBY

f. Remove the patch cord from the 370A.

Table 4-26
Maximum Peak Currents

MAX PEAK VOLTS Settings	MAX PEAK POWER WATTS	VERTICAL A/DIV Setting	VERTICAL CURSOR Readout
16 V	220 W	2 A	≥10 A (5 div)
80 V	220 W	500 mA	≥2 A (4 div)
400 V	220 W	100 mA	≥ 400 mA (4 div)
2000 V	50 W	10 mA	≥50 mA (5 div)

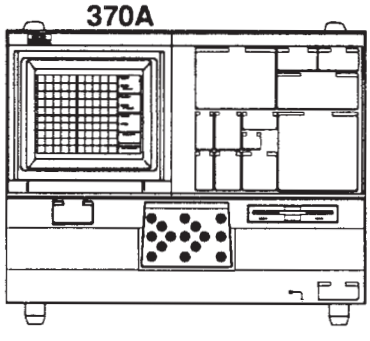
G5. Examining the Interlock system and POLARITY Settings

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

G5 SETUP CONDITIONS

370A



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
Mode	NON STORE
OUTPUTS	ENABLED
LEFT-RIGHT-STANDBY	LEFT
Protective Cover	Closed

Examining Collector Supply Variable Operation and + ⌒ POLARITY

a. EXAMINE the display, as the VARIABLE COLLECTOR SUPPLY control is rotated clockwise, for the trace to become a horizontal line starting in the lower left corner and extending continuously to right along the bottom horizontal graticule.

Examining Interlock system and Warning LED

b. EXAMINE that the red LED beside the WARNING lettering is lit.

c. Open the Protective Cover.

d. EXAMINE that the red LED display turns off and that the displayed trace is go back to lower left corner.

Examining OUTPUTS Operation

e. Close the Protective Cover.

f. EXAMINE the displayed spot extends toward 100 % as the VARIABLE COLLECTOR SUPPLY control is rotated clockwise.

g. Set the OUTPUTS to DISABLED.

h. EXAMINE that the displayed trace goes back to lower left corner and that the OUTPUT DISABLED message appears for a few seconds in the lower left corner of the display.

i. Set the OUTPUTS to ENABLED.

j. EXAMINE that the OUTPUT ENABLED message appears in the the lower left corner of the display for a few seconds.

Examining +DC POLARITY

k. Change the following 370A and Test Equipment settings:

370A:

COLLECTOR SUPPLY	
POLARITY	+DC
VARIABLE	
COLLECTOR SUPPLY	100 %

Test Oscilloscope:

Vertical	5 V/division DC
Trigger Mode	auto

l. Connect the Test Oscilloscope as shown in Figure 4-13 and close the Protective Cover.

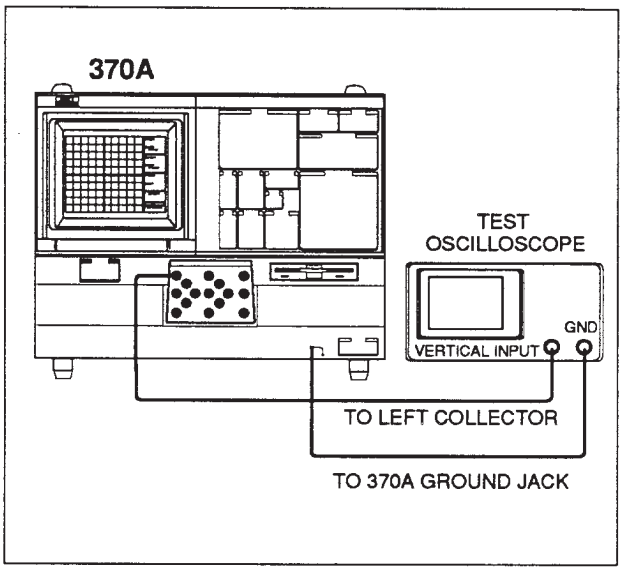


Figure 4-13. Examining for DC and LEAKAGE operation.

m. EXAMINE the display for the spot to move from the lower left corner along the bottom horizontal graticule line as the VARIABLE COLLECTOR SUPPLY control is rotated clockwise to 100 %.

n. EXAMINE the Test Oscilloscope display for DC.

Examining +LEAKAGE POLARITY

o. Change the following 370A setting:

COLLECTOR SUPPLY POLARITY	+LEAKAGE

p. EXAMINE the display for the spot to position the same as in part m.

q. EXAMINE the Test Oscilloscope display for DC.

Examining AC POLARITY

r. Change the following 370A settings:

COLLECTOR SUPPLY POLARITY	AC
VARIABLE COLLECTOR SUPPLY	100 %

s. EXAMINE the display for a horizontal trace starting from graticule center and extending out of the display area.

Examining – ⩛ POLARITY

t. Change the following 370A settings:

COLLECTOR SUPPLY POLARITY	– ⩛
VARIABLE COLLECTOR SUPPLY	100 %

u. EXAMINE the display for a horizontal trace extending along the top horizontal graticule line from the upper right corner.

Examining –DC POLARITY

v. Change the following 370A setting:

COLLECTOR SUPPLY POLARITY	–DC

w. EXAMINE the display for the spot to position the peak of part u.

x. EXAMINE the Test Oscilloscope display for DC.

Examining –LEAKAGE POLARITY

y. Change the following 370A setting:

COLLECTOR SUPPLY POLARITY	–LEAKAGE

z. EXAMINE the display for the spot to position the same as part w.

aa. EXAMINE the Test Oscilloscope display for DC.

Removing setup

ab. Change the following 370A setting:

LEFT-RIGHT-STANDBY	STANDBY

ac. Disconnect the Test Oscilloscope.

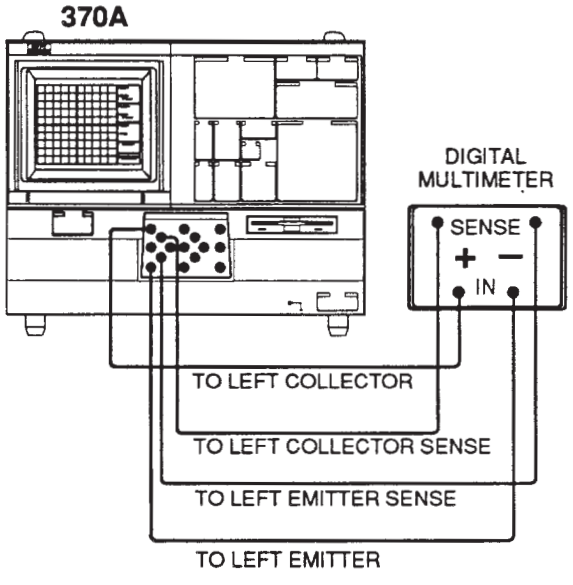
G6. Checking Series Resistances

Specification:

- Minimum series resistance values for the 16, 80, 400 and 2000 MAX PEAK VOLTS settings are 0.26 Ω, 6.4 Ω, 160 Ω, and 20 kΩ respectively.
- Maximum series resistance values are 800 Ω, 20 kΩ, 500 kΩ, and 12.5 MΩ.
- Series Resistance accuracy is the greater of ± 5 % or 0.2 Ω, and applies to the following resistance values (in Ω): 0.26, 1.3, 6.4, 32, 160, 800, 4 K, 20 K, 100 K,

  500 K, 2.5,M, 12.5 M.
- The MAX PEAK POWER WATTS selector selects the following settings (in W): 220, 50, 10, 2, 0.4, 0.08.

G6 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL	2A COLLECTOR
HORIZONTAL	500 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK POWER WATTS	220 W
POLARITY	AC
OUTPUTS	DISABLED
Protective Cover	Open
LEFT-RIGHT-STANDBY	LEFT

Test Equipment settings:

Digital Multimeter:	
Mode	4 Wired Resistance

Checking Resistance Accuracy

a. CHECK that the digital multimeter reading is within the limits specified in Table 4-27 for every MAX PEAK VOLTS and MAX PEAK POWER WATTS setting.

Removing the Setup

b. Disconnect the digital multimeter from the 370A.

Table 4-27
Series Resistances

MAX PEAK VOLTS Setting	MAX PEAK POWER WATTS Setting	SERIES RESISTORS	Digital Multi Meter Reading
16	220	0.26 Ω	0.06 to 0.46Ω
16	50	1.3 Ω	1.1 to 1.5Ω
16	10	6.4 Ω	6.08 to 6.72Ω
16	2	32 Ω	30.4 to 33.6Ω
16	0.4	160 Ω	152 to 168Ω
16	0.08	800 Ω	760 to 840Ω
400	10	4 kΩ	3.8 to 4.2 kΩ
400	2	20 kΩ	19 to 21 kΩ
400	0.4	100 kΩ	94.6 to104.6 kΩ*
400	0.08	500 kΩ	466 to 514 kΩ*
2000	0.4	2.5 MΩ	2.17 to 2.38 MΩ*
2000	0.08	12.5 MΩ	8.05 to 8.61 MΩ*

* Includes 25 MΩ horizontal sense attenuator resistance in parallel.

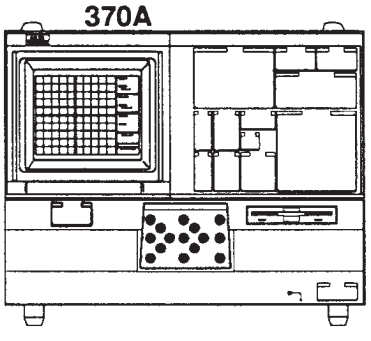
G7. Examining the LIMITER Indicator in Voltage Mode

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

G7 SETUP CONDITIONS

370A



370A settings:
Initialize the 370A; then set the following control as indicated.

COLLECTOR SUPPLY	
MAX PEAK VOLTS	400
OUTPUTS	ENABLED
Protective Cover	Closed

Examining the Limiter Indicator for 400 MAX PEAK VOLTS Range

a. EXAMINE the LIMITER indicator besides the LEFT-RIGHT-STANDBY for turn on when the VARIABLE COLLECTOR SUPPLY control is rotated clockwise.

Examining the Limiter Indicator for 2000 MAX PEAK VOLTS Range

b. Change the following 370A settings:

COLLECTOR SUPPLY	
MAX PEAK VOLTS	2000
MAX PEAK POWER WATTS	2

c. EXAMINE the LIMITER indicator for turn on when the VARIABLE COLLECTOR SUPPLY control is rotated clockwise.

d. Change the following 370A setting:

HORIZONTAL VOLTS/DIV 5 V COLLECTOR

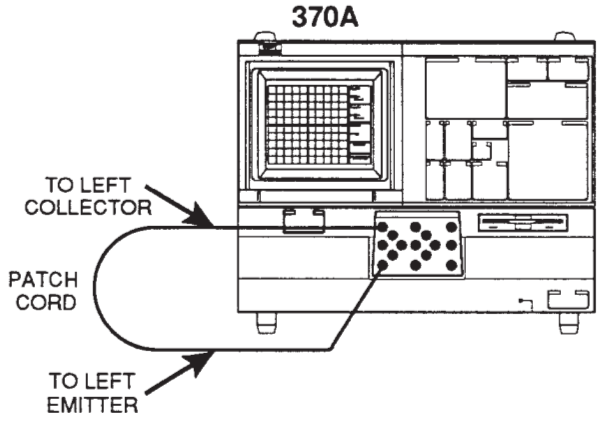
e. EXAMINE the LIMITER indicator for turn on when the VARIABLE COLLECTOR SUPPLY control is rotated clockwise.

G8. Examining the LIMITER Indicator in Current Mode

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

G8 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL CURRENT/DIV	100 µA COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK VOLTS	400
OUTPUTS	ENABLED
LEFT-RIGHT-STANDBY	LEFT
Protective Cover	Closed

Examining the Limiter for 0.08 MAX PEAK POWER WATTS Range

a. EXAMINE that the LIMITER indicator next to the LEFT-RIGHT-STANDBY lights when the VARIABLE COLLECTOR SUPPLY control is rotated clockwise and watch for the peak of the trace to be brightening.

Examining the Limiter for 0.4 MAX PEAK POWER WATTS Range

b. Change the following 370A settings:

DISPLAY	
VERTICAL CURRENT/DIV	500 µA COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK POWER WATTS	0.4

c. EXAMINE that the LIMITER indicator lights when the VARIABLE COLLECTOR SUPPLY control is rotated clockwise and that the peak of the trace brightens.

Examining the Limiter for 10 MAX PEAK POWER WATTS Range

d. Change the following 370A settings:

DISPLAY	
VERTICAL CURRENT/DIV	5 mA COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK POWER WATTS	10

e. EXAMINE that the LIMITER indicator lights when the VARIABLE COLLECTOR SUPPLY control is rotated clockwise and that the peak of the trace brightens.

Removing the Setup

f. Change the following 370A setting:

LEFT-RIGHT-STANDBY	STANDBY

g. Remove the Patch Cord from the 370A.

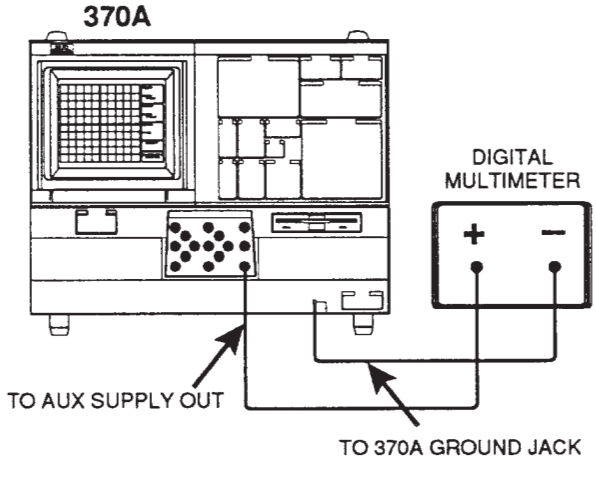
H. AUX SUPPLY

Equipment Required(see Table 4–3):
- Test Oscilloscope
- Digital Multimeter

H1. Checking AUX SUPPLY Accuracy, Resolution, and Range

Specifications:
- The Aux Supply is accurate to less than (50 mV + 1.5 % of the total output).
- Resolution is 20 mV.
- Range is from – 40 V to + 40 V.

H1 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Digital Multimeter	
Mode	DC Voltage

Checking Accuracy

a. CHECK that the AUX SUPPLY readout on the 370A display is 0.00 V. (AUX SUPPLY will not show on screen for 0.00 V.)

b. CHECK that the digital multimeter reading is within the limits given in Table 4-28 for 0.00 V.

Table 4–28
Auxiliary Supply Accuracy

AUX readout	Digital Multimeter Reading
0.00 V (no display)	± 0.05 V
–40.00 V	–39.35 to –40.65 V
+40.00 V	+39.35 to +40.65 V

Checking Resolution

c. CHECK that each time one of the AUX SUPPLY arrow buttons (up or down) is pressed, the AUX SUPPLY readout and digital multimeter reading change by 20 mV.

Checking Range

d. Change the following 370A setting:

AUX SUPPLY	–40.00 V (as indicated in the AUX SUPPLY readout)

e. CHECK that the digital multimeter measurement is within the limits given in Table 4-23 for –40.00 V.

f. Change the following 370A setting:

AUX SUPPLY	+40.00 V (as indicated in the AUX SUPPLY readout)

g. CHECK that the digital multimeter measurement is within the limits given in Table 4-23 for +40.00 V

Removing the Setup

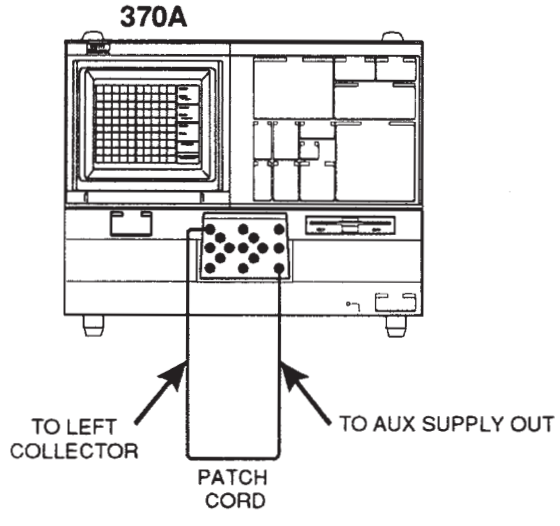
h. Disconnect the digital multimeter leads from the 370A.

H2. Checking AUX SUPPLY Maximum Output Current

Specification:

- Output Current is at least 10 mA for AUXILIARY SUPPLY output between –40 V and +40 V, and at least 100 mA between –20 V and +20 V.

H2 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

DISPLAY	
VERTICAL	
CURRENT/DIV	5 mA COLLECTOR
HORIZONTAL	
VOLTS/DIV	10 V COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK POWER	
WATTS	2
MAX PEAK VOLTS	80
POLARITY	AC
AUX	40.0 V
LEFT–RIGHT–STANDBY	LEFT
CURSOR Mode	DOT
OUTPUTS	ENABLED
Protective Cover	Closed

Checking 10 mA at ± 40 V

a. CHECK that the vertical CURSOR readout is –10 mA.

b. Change the following 370A setting:

AUX	–40.00 V

Press and hold the FAST/SHIFT and down-arrow AUX buttons to set AUX to –40.00 V.

c. CHECK that the vertical CURSOR readout is at least 10 mA. If the readout is flashing, you will have exceeded the specification. This is normal.

Checking 100 mA at ± 20 V

d. Change the following 370A settings:

DISPLAY	
VERTICAL	
CURRENT/DIV	50 mA COLLECTOR
COLLECTOR SUPPLY	
MAX PEAK POWER	
WATTS	10
AUX	+ 20.00 V

e. CHECK that the vertical CURSOR readout is at least –100 mA. If the readout is flashing, you will have exceeded the specification. This is normal.

f. Change the following 370A setting:

AUX	–20.00 V

Press and hold the FAST/SHIFT and down-arrow AUX buttons to set AUX to –20.00 V.

g. CHECK that the vertical CURSOR readout is at least 100 mA.

Removing the Setup

h. Change the following 370A settings:

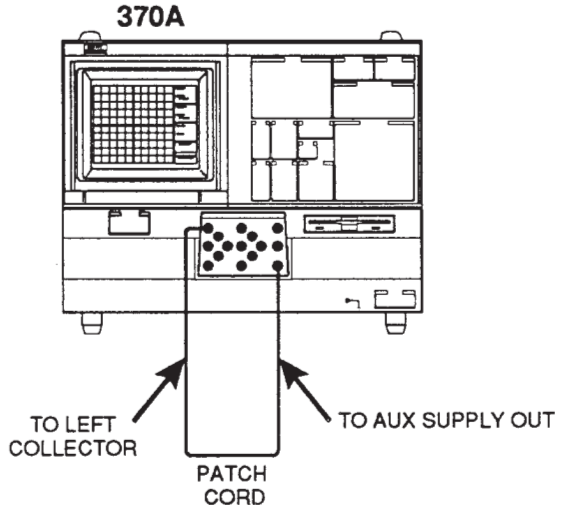
AUX	0 V (no AUX readout)
LEFT–RIGHT–STANDBY	STANDBY

i. Remove the patch cord from the 370A.

H3. Checking AUX SUPPLY Ripple and Noise

Specification:
•Displayed Ripple and Noise is less than 50 mV peak to peak.

H3 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following control as indicated.

DISPLAY	
Mode	NONSTORE
HORIZONTAL	50 mV COLLECTOR
COLLECTOR SUPPLY	
POLARITY	AC
LEFT -RIGHT-STANDBY	LEFT

Checking Ripple and Noise

a. CHECK that the spot width is within 1 horizontal division.

Removing the Setup

b. Disconnect the patch cord from the 370A.

■ I. CONFIGURATION

Equipment Required (see Table 4-3):
- Digital Multimeter
- Test Oscilloscope

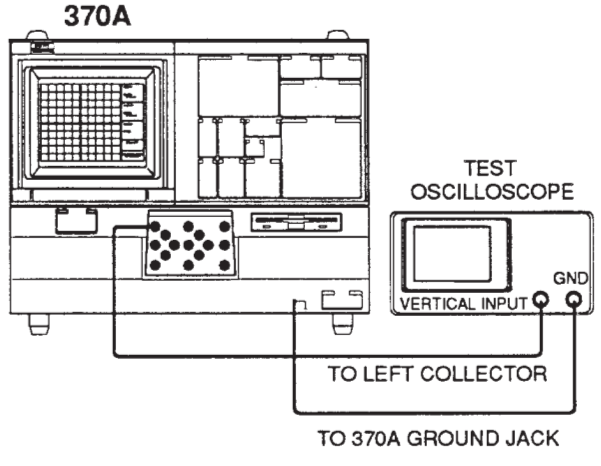
I1. Examining Collector Configuration

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

The following procedure checks operation of the relays that carry the Collector Supply to the Test Fixture Adapter Jacks.

I1 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED

Test Equipment settings:

Test Oscilloscope:	
Vertical sensitivity	5 V/division DC
Horizontal	2 ms/division
Trigger mode	Auto
Trigger source	Line

Examing Internal Operation for LEFT

a. Connect a test lead with a banana plug to the LEFT C(Collector) jack. Connect a Probe hook from the Test Oscilloscope to the test leads clip, and ground lead to the Ground plug.

b. Close the Protective Cover and turn the VARIABLE COLLECTOR SUPPLY control.

c. EXAMINE the test oscilloscope for rectified waveform to be displayed.

d. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

e. EXAMINE the test oscilloscope for no waveform to be displayed.

A small waveform may be displayed by stray capacitance.

Examining Internal Operation for RIGHT

f. Move the test lead with banana plug to the RIGHT C(Collector) and close the Protective Cover.

g. EXAMINE the test oscilloscope for no waveform to be displayed

A small waveform may be displayed by stray capacitance.

h. Change the following 370A setting:

LEFT-RIGHT-STANDBY RIGHT

i. EXAMINE the test oscilloscope for rectified waveform to be displayed.

Examining the Collector for OPEN

j. Change the following 370A setting:

CONFIGURATION	COLLECTOR OPEN
VARIABLE COLLECTOR SUPPLY	100 %

k. EXAMINE the test oscilloscope for no waveform display.

A small waveform may be displayed by stray capacitance.

Removing the Setup

l. Change the following 370A setting:

LEFT-RIGHT-STANDBY	STANDBY

m. Disconnect the test lead and probe from the 370A.

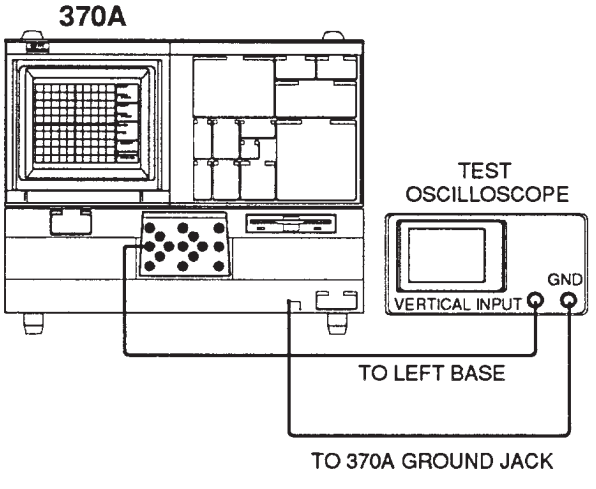
I2. Examining Base Configuration

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

The following procedure checks operation of the relays that carry the Step Generator signal and Collector Supply to the Test Fixture Adapter Jacks.

I2 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	2 V
LEFT-RIGHT-STANDBY	LEFT
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Test Oscilloscope:	
Vertical sensitivity	5 V/division DC
Horizontal	10 ms/division
Trigger mode	Auto
Trigger slope	–

Examing Internal Operation for LEFT

a. EXAMINE the test oscilloscope display for a step waveform.

b. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

c. EXAMINE the test oscilloscope for no step waveform display.

A small waveform may be displayed by stray capacitance.

Examining Internal Operation for RIGHT

d. Connect the test oscilloscope between the RIGHT B(BASE) and ground jacks, and close the protective cover

e. EXAMINE the test oscilloscope for no step waveform display.

A small waveform may be displayed by stray capacitance.

f. Change the following 370A setting:

LEFT-RIGHT-STANDBY RIGHT

g. EXAMINE the test oscilloscope for a step waveform to be displayed.

Examing External Base Input

h. Change the following 370A setting:

CONFIGURATION BASE OPEN(EXT)

i. EXAMINE the test oscilloscope for no step waveform display.

j. Use a patch cord to connect the STEP GEN OUT and EXT BASE or EMITTER IN jacks, and close the protective cover.

k. EXAMINE the test oscilloscope for a step waveform to be displayed.

Checking Base SHORT (EMITTER) Configuration

l. Disconnect the patch cord and connect the test oscilloscope between the STEP GEN OUT and ground jacks.

m. Change the following 370A and Test Equipment settings:

370A:

CONFIGURATION	BASE SHORT (EMITTER)
Protective Cover	Closed

Digital Multimeter:

Mode	Ω

n. EXAMINE the test oscilloscope does not display a step waveform.

o. Disconnect the Test Oscilloscope and connect the Digital Multimeter to the RIGHT B(BASE) and E(EMITTER) jacks.

p. EXAMINE that the RIGHT B and E are shorted.

Resistance is approximately 1 Ω or less.

q. Change the following 370A setting:

LEFT-RIGHT-STANDBY LEFT

r. Connect the Digital Multimeter to the LEFT B(BASE) and E(EMITTER) jacks.

s. EXAMINE that the LEFT B and E are shorted.

Resistance is approximately 1 Ω or less.

Checking Base COLLECTOR SUPPLY CONFIGURATION

t. Disconnect the Digital Multimeter.

u. Change the following 370A and Test Equipment settings:

370A:

CONFIGURATION	BASE COLLECTOR SUPPLY
OUTPUTS	ENABLED

Test Oscilloscope:

Vertical sensitivity	5 V/division DC
Horizontal	2 ms/division
Trigger mode	Auto
Trigger source	Line

v. Connect a test leads with banana plug to the LEFT B jack. Connect a probe hook from the Test Oscilloscope to the test lead clip, and the ground lead to to the Ground jack.

w. Close the Protective Cover and turn the VARIABLE COLLECTOR SUPPLY control.

x. EXAMINE the test oscilloscope for rectified waveform to be displayed.

Removing the Setup

y. Change the following 370A setting:

LEFT-RIGHT-STANDBY STANDBY

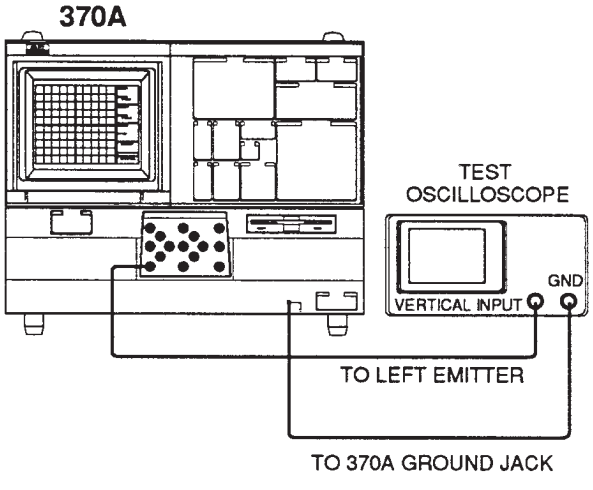
z. Disconnect the Test Lead and Probe from the 370A.

I3. Examining Emitter Configuration

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation; they are not specifications.

I3 SETUP CONDITIONS



370A settings:
Initialize the 370A; then set the following controls as indicated.

STEP GENERATOR	
Mode	VOLTAGE
STEP AMPLITUDE	1 V
CONFIGURATION	EMITTER STEP GEN
OUTPUTS	ENABLED
Protective Cover	Closed

Test Equipment settings:

Test Oscilloscope:	
Vertical sensitivity	2 V/division
Horizontal	10 ms/division
Trigger Mode	Auto
Slope	+

Examining Internal Operation for LEFT

a. EXAMINE the test oscilloscope display for a step waveform.

Examining Internal Operation for RIGHT

b. Connect the test oscilloscope between the RIGHT E (Emitter) and ground jacks and close the protective cover.

c. EXAMINE the test oscilloscope display for a step waveform.

Examining External Operation

d. Change the following 370A setting:

CONFIGURATION EMITTER OPEN (EXT)

e. EXAMINE the test oscilloscope for no step waveform display.

f. Use a patch cord to connect the STEP GEN OUT and EXT BASE or EMITTER IN jacks, and close the protective cover.

g. EXAMINE the test oscilloscope display for a step waveform.

Removing the Setup

h. Disconnect the test oscilloscope and remove the patch cord from the 370A.

J. KEY OPERATION AND FLOPPY DISK DRIVE

Equipment Required (see Table 4-3):
- Double-sided Micro Floppy Disk

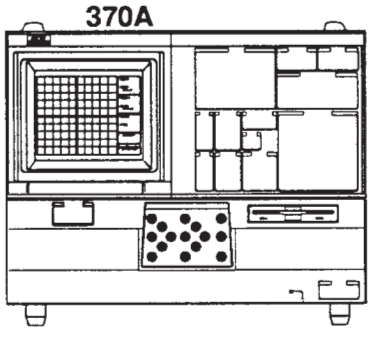
J1. Examining Key Operation

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation;they are not specifications.

J1 SETUP CONDITIONS

370A



370A settings:
Initial setting

Examining Key Operation

a. Simultaneously press the FAST/SHIFT and the POSITION DISPLAY buttons to enter "KEY CHECK MODE".

b. EXAMINE all buttons and knobs while pressing or turning them to change the display.

Except the INTENSITY, FOCUS, GRAT ILLUM, POSITION, and TRACE ROTATION controls.

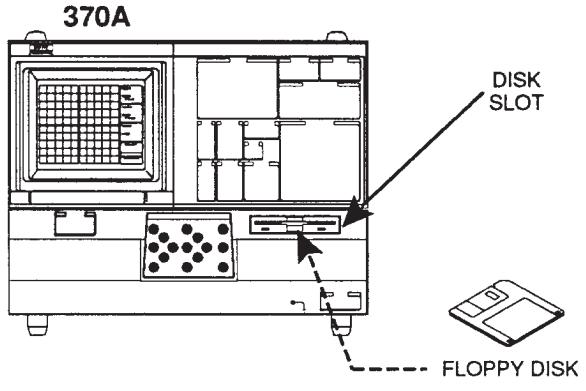
c. Simultaneously press the FAST/SHIFT and the POSITION DISPLAY buttons to exit "KEY CHECK MODE".

J2. Examining Floppy Disk Drive Operation

IMPORTANT:

The characteristics examined in this step are examples of typical instrument operation;they are not specifications.

J2 SETUP CONDITIONS



370A settings:
Initialize the 370A

Installing the Micro Floppy Disk

a. Set the write-protect tab of the doubl -sided micro floppy disk to write -enable position.

b. Install the double-sided micro floppy disk in the floppy disk slot of the 370A.

CAUTION

The following step for data formatting will erase all data on the micro floppy disk.

Formatting the Micro Floppy Disk

c. Press the SAVE/FORMAT button while holding down the FAST/SHIFT button, then press the SAVE/FORMAT button.

d. EXAMINE the "FORMAT END" message is displayed after formatting.

Examining Read Write Operation

e. Press the RECALL/DIRECTORY button while holding down the FAST/SHIFT button.

f. Press the up MEMORY button to set the DIRECTORY PAGE to 7.

g. EXAMINE the <READ ERROR> message is not displayed at any of the memory locations.

h. EXAMINE the <READ ERROR> message is not displayed at any of the memory locations when repeating steps f and g from DIRECTORY PAGE 8 to 28.

i. Press the STORE button to exit from the directory display mode.

Options

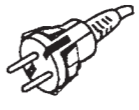
5 Options

Your instrument may be equipped with one or more instrument options. A brief description of each available option is given in the following discussion. Option information is incorporated into the appropriate sections of the manual. For further information on instrument options, see your Tektronix Products catalog or contact your Tektronix Field Office.

Option 1R Rack Mounting Adapter

Option A1 - A5 International Power Cords: See Table 5-1

Table 5-1
Option A1 - A5

Plug Configuration	Usage (Max Rating)	Reference Standards & Certification	Option #
	North American 125V/6A	1 ANSI C73.11 2 NEMA 5-15-P 3 IEC 83 10 UL 11 CSA	Standard
	European 220V/6A	4 CEE(7),II, IV,VII 3 IEC 83 8 VDE 9 SEMKO	A1
	United Kingdom 240V/6A3	5 BS 1363 IEC 83	A2
	Australian 240V/6A	6 AS C112 12 ETSA	A3
	North American 250V/10A	1 ANSI C73.20 2 NEMA 6-15-P 3 IEC 83 10 UL 11 CSA	A4
	Switzerland 240V/6A	7 SEV	A5

1 ANSI - American National Standards Institute
2 NEMA - National Electrical Manufacturer's Association
3 IEC - International Electrotechnical Commission
4 CEE - International Commission on Rules for the Approval of Electrical Equipment
5 BS - British Standards Institution
6 AS - Standards Association of Australia
7 SEV - Schweizevischer Electrotechischer Verein
8 VDE - Verband Deutscher Elektrotechniker
9 SEMKO - Swedish Institute for Testing and Approval of Electrical Equipment
10 UL - Underwriters Laboratories
11 CSA - Canadian Standards Association
12 ETSA - Electricity Trust of South Australia

Replaceable Electrical Parts

Replaceable Electrical Parts

This section contains a list of the electrical components for the 370A. Use this list to identify and order replacement parts.

Parts Ordering Information

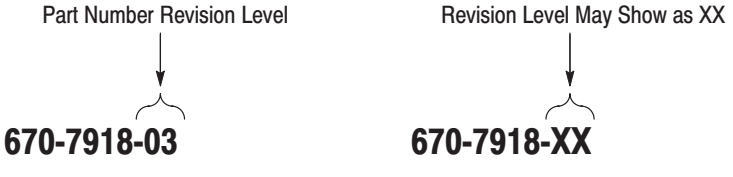
Replacement parts are available through your local Tektronix field office or representative.
Changes to Tektronix products are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest improvements. Therefore, when ordering parts, it is important to include the following information in your order.

- Part number (see Part Number Revision Level below)
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

If you order a part that has been replaced with a different or improved part, your local Tektronix 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.

Part Number Revision Level

Tektronix part numbers contain two digits that show the revision level of the part. For most parts in this manual, you will find the letters XX in place of the revision level number.



When you order parts, Tektronix will provide you with the most current part for your product type, serial number, and modification (if applicable). At the time of your order, Tektronix will determine the part number revision level needed for your product, based on the information you provide.

Using the Replaceable Electrical Parts List

The tabular information in the Replaceable Electrical Parts List is arranged for quick retrieval. Understanding the structure and features of the list will help you find all of the information you need for ordering replacement parts. The following table describes each column of the electrical parts list.

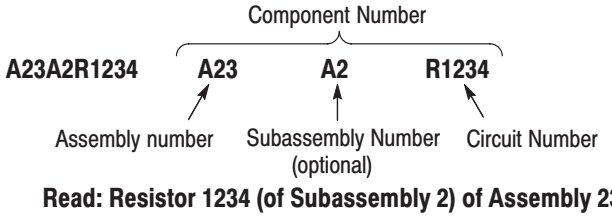
Parts List Column Descriptions

Column	Column Name	Description
1	Component Number	The component number appears on diagrams and circuit board illustrations, located in the diagrams section. Assembly numbers are clearly marked on each diagram and circuit board illustration in the *Diagrams* section, and on the mechanical exploded views in the *Replaceable Mechanical Parts* list section. The component number is obtained by adding the assembly number prefix to the circuit number (see Component Number illustration following this table). The electrical parts list is arranged by assemblies in numerical sequence (A1, with its subassemblies and parts, precedes A2, with its subassemblies and parts). Chassis-mounted parts have no assembly number prefix, and they are located at the end of the electrical parts list.
2	Tektronix Part Number	Use this part number when ordering replacement parts from Tektronix.
3 and 4	Serial Number	Column three indicates the serial number at which the part was first effective. Column four indicates the serial number at which the part was discontinued. No entry indicates the part is good for all serial numbers.
5	Name & Description	An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.
6	Mfr. Code	This indicates the code number of the actual manufacturer of the part.
7	Mfr. Part Number	This indicates the actual manufacturer's or vendor's part number.

Abbreviations

Abbreviations conform to American National Standard ANSI Y1.1–1972.

Component Number



Read: Resistor 1234 (of Subassembly 2) of Assembly 23

List of Assemblies

A list of assemblies is located at the beginning of the electrical parts list. The assemblies are listed in numerical order. When a part's complete component number is known, this list will identify the assembly in which the part is located.

Chassis Parts

Chassis-mounted parts and cable assemblies are located at the end of the Replaceable Electrical Parts List.

Mfr. Code to Manufacturer Cross Index

The table titled Manufacturers Cross Index shows codes, names, and addresses of manufacturers or vendors of components listed in the parts list.

CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
S0167	FUJITSU LTD	2–3–13 TORANOMON MINATO–KU	TOKYO JAPAN
S0293	MATSUSHITA ELECTRIC WORKS LTD	1048 KADOMA KADOMA–SHI	OSAKA 571 JAPAN
S3385	SANKEN ELECTRIC CO LTD	1–22–8 NISHI–IKEBUKURO TOSHIMA–KU	TOKYO JAPAN
S3774	OSHINO ELECTRIC LAMP WORKS LTD	5 2 MINAMI SHINAGAWA 2 CHORE SHINAGAWA KU	TOKYO JAPAN
S4431	MURATA MFG CO LTD	16 KAIDEN NISHIJM CHO NAGAOKAKY–CITY	KYOTO JAPAN
S4549	JAPAN AVIATION ELECTRONICS IND LTD	21 6 DOGUZAKA SHILHUYA QU 1 CHOME	TOKYO JAPAN
S4997	HITACHI KOKI CO LTD ELECTRONICS DEVICES GROUP	6–2 OTEMACHI 2 CHOME CHIYODA KU	TOKYO 100 JAPAN
S5011	ISHIZUKA ELECTRONICS CORP	16–7 HIGASHIKOIWA 3 CHOME EDOGAWA–KU	TOKYO JAPAN
S5302	KOA CO LTD	3672 INA NATANO–PREF 396	JAPAN
S5518	ROHM CO LTD	21 SAIIN MIZOSAKI CHO UKYO KU	KYOTO 615 JAPAN
TK0AB	NATIONAL SEMICONDUCTOR CORP	4–403 IKEBUKURO TOSHIMA–KU	TOKYO JAPAN
TK0AC	ANALOG DEVICES INC	4–7–8 KOUJIMACHI CHIYODA–KU	TOKYO JAPAN
TK0BZ	SANSHIN DENKI CO LTD	4–12 SHIBA, 4–CHOME MINATO–KU	TOKYO JAPAN
TK0CJ	NIKO DENSHI CO LTD	23–15 OHARA 2–CHOME SETAGAYA–KU	TOKYO JAPAN
TK0HD	TOKIN CORP	2–5–8 KITA–AOYAMA MINATO–KU	TOKYO JAPAN
TK00L	TOSHIBA CO LTD	1–1–1 SHIBAURA MINATO–KU	TOKYO JAPAN
TK00M	NIPPON CHEMI–CON COPR.	2–7–8 TOYOMACHI SHINAGAWA–KU	TOKYO JAPAN
TK0191	SONY/TEKTRONIX	5–9–31 KITASHINAGAWA, SHINAGAWA–KU, TOKYO	TOKYO JAPAN 141–0001
TK0770	CARLYLE INC (DIST)	17620 W VALLEY HSY	TUKWILA WA 98188
TK0891	MICONICS	1 FAIRCHILD AVE	PLAINVIEW NY 11803
TK0974	SANGSHIN CORP	26830 PACIFIC HWY SOUTH	KENT WA 98031
TK1442	TAIYO–YUDEN (USA) INC	ARLINGTON CENTER 714 W ALGONQUIN RD	ARLINGTON HEIGHTS IL 60005
TK1727	PHILIPS NEDERLAND BV AFD ELONCO	POSTBUS 90050	5600 PB EINDHOVEN THE NETHERLANDS
TK1743	UNITRODE (UK) LTD	6 CRESSWELL PARK BLACKHEATH	LONDON SE 3 9RD ENGLAND
TK2058	TDK CORPORATION OF AMERICA	1600 FEEHANVILLE DRIVE	MOUNT PROSPECT, IL 60056

CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
TK2611	STACKPOLE CORPORATION	PO BOX 14466	RALEIGH, NC 27610
0C8T6	CITEL AMERICA INC	1111 PARK CENTRE BLVD SUITE 474	MIAMI, FL 33169
0H1N5	TOSHIBA MARCON ELECTRONICS AMERICA CORPORATION	998 FIRST EDGE DRIVE	VERNON HILLS IL 60061
0J260	COMTEK MANUFACTURING OF OREGON (METALS)	PO BOX 4200	BEAVERTON OR 97076–4200
00213	MSD INC	700 ORANGE ST	DARLINGTON, SC 29532
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPY PO BOX 655303	DALLAS TX 75262–5303
02114	PHILIPS COMPONENTS AMPEREX ELECTRONICS CORP FERROXCUBE DIV	5083 KINGS HWY	SAUGERTIES, NY 12477
04222	AVX/KYOCERA DIV OF AVX CORP	19TH AVE SOUTH P O BOX 867	MYRTLE BEACH SC 29577
04713	MOTOROLA INC SEMICONDUCTOR PRODUCTS SECTOR	5005 E MCDOWELL RD	PHOENIX AZ 85008–4229
07716	IRC, INC	2850 MT PLEASANT AVE	BURLINGTON IA 52601
14552	MICROSEMI CORP	2830 S FAIRVIEW ST	SANTA ANA CA 92704–5948
19701	PHILIPS COMPONENTS DISCRETE PRODUCTS DIV RESISTIVE PRODUCTS FACILITY AIRPORT ROAD	PO BOX 760	MINERAL WELLS TX 76067–0760
22526	BERG ELECTRONICS INC (DUPONT)	857 OLD TRAIL RD	ETTERS PA 17319
23875	M–TRON INDUSTRIES INC	PO BOX 630 100 DOUGLAS ST	YANKTON SD 57078–0630
24355	ANALOG DEVICES INC	1 TECHNOLOGY DRIVE	NORWOOD MA 02062
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051–0606
32997	BOURNS INC TRIMPOT DIV	1200 COLUMBIA AVE	RIVERSIDE CA 92507–2114
34371	HARRIS CORP HARRIS SEMICONDUCTOR PRODUCTS GROUP	200 PALM BAY BLVD PO BOX 883	MELBOURNE FL 32919
50139	ALLEN–BRADLEY CO ELECTRONIC COMPONENTS	1414 ALLEN BRADLEY DR	EL PASO TX 79936
50434	HEWLETT–PACKARD CO OPTOELECTRONICS DIV	370 W TRIMBLE RD	SAN JOSE CA 95131–1008
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195–4526
56845	DALE ELECTRONICS INC	2300 RIVERSIDE BLVD PO BOX 74	NORFOLK NE 68701–2242
57668	ROHM CORPORATION	15375 BARRANCA PARKWAY SUITE B207	IRVINE CA 92718
59660	TUSONIX INC	7741 N BUSINESS PARK DR PO BOX 37144	TUCSON AZ 85740–7144

CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
61058	MATSUSHITA ELECTRIC CORP OF AMERICA PANASONIC INDUSTRIAL CO DIV	TWO PANASONIC WAY	SECAUCUS NJ 07094
62643	UNITED CHEMICON INC	9801 W HIGGINS ST SUITE 430	ROSEMONT, IL 60018–4771
7W718	MARQUARDT SWITCHES INC	2711 ROUTH 20 EAST	CAZENOVIA NY 13035–1219
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077–0001
91637	DALE ELECTRONICS INC	2064 12TH AVE PO BOX 609	COLUMBUS NE 68601–3632

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1	671−0236−XX			CIRCUIT BD ASSY:MOTHER	80009	6710236XX
A2	671−1064−XX			CIRCUIT BD ASSY:CPU	80009	6711064XX
A3	671−1044−XX			CKT BD ASSY:A/D	80009	6711044XX
A4	670−9306−XX			CIRCUIT BD ASSY:DIGITAL DISPLAY	80009	6709306XX
A5	670−9307−XX			CIRCUIT BD ASSY:DISPLAY CONTROL	80009	6709307XX
A6	670−9308−XX			CIRCUIT BD ASSY:COLLECTOR SUPPLY	80009	6709308XX
A7	670−9309−XX			CIRCUIT BD ASSY:STEP GENERATOR	80009	6709309XX
A9	671−1183−XX			CIRCUIT BD ASSY:LV RELAY	80009	6711183XX
A10	671−1150−XX			CIRCUIT BD ASSY:SENSE BOARD	80009	6711150XX
A11	671−1152−XX			CIRCUIT BD ASSY:MAIN KEY	80009	6711152XX
A12	671−1149−XX			CIRCUIT BD ASSY:SUB KEY	80009	6711149XX
A13	671−1238−XX			CIRCUIT BD ASSY:KEY INTERFACE	80009	6711238XX
A14	671−1115−XX			CIRCUIT BD ASSY:LOR KEY	80009	6711115XX
A15	671−1095−XX			CIRCUIT BD ASSY:CONFIGURATION LED	80009	6711095XX
A18	670−9319−XX			CIRCUIT BD ASSY:CRT OUTPUT	80009	6709319XX
A19	670−9320−XX			CIRCUIT BD ASSY:LV SUPPLY	80009	6709320XX
A20	670−9321−XX			CIRCUIT BD ASSY:H.V. REGULATOR	TK0191	ORDER BY DESC
A22	671−1182−XX			CIRCUIT BD ASSY:INTERFACE	80009	6711182XX
A23	671−1094−XX			CIRCUIT BD ASSY:FDD INTERFACE	80009	6711094XX
A24	119−3456−XX			FLOPPY DISK UNI:3.5 INCH W/INTERFACE (STANDARD ACCESSORY)	80009	1193456XX
A27	670−9323−XX			CIRCUIT BD ASSY:PRIMARY	80009	6709323XX
A28	670−9324−XX			CIRCUIT BD ASSY:LAMP	80009	6709324XX
A29	670−9324−XX			CIRCUIT BD ASSY:LAMP	80009	6709324XX
A33	671−1096−XX			CIRCUIT BD ASSY:CONFIGURATION RELAY	80009	6711096XX
A34	671−1140−XX			CIRCUIT BD ASSY:LOR RELAY	80009	6711140XX
A35	671−1147−XX			CIRCUIT BD ASSY:LOOPING	80009	6711147XX

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1	671−0236−XX			CIRCUIT BD ASSY:MOTHER	80009	6710236XX
A1J10	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A1J12	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A1J20	131−3651−00			CONN,RCPT,ELEC:HEADER,2 X 32,0.1 SPACING	80009	131365100
A1J22	131−3649−00			CONN,RCPT,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364900
A1J30	131−3651−00			CONN,RCPT,ELEC:HEADER,2 X 32,0.1 SPACING	80009	131365100
A1J32	131−3649−00			CONN,RCPT,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364900
A1J40	131−3651−00			CONN,RCPT,ELEC:HEADER,2 X 32,0.1 SPACING	80009	131365100
A1J42	131−3649−00			CONN,RCPT,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364900
A1J50	131−3651−00			CONN,RCPT,ELEC:HEADER,2 X 32,0.1 SPACING	80009	131365100
A1J52	131−3649−00			CONN,RCPT,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364900
A1J110	131−3660−00			CONN,RCPT,ELEC:HEADER,2 X 20	80009	131366000
A1J180	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A1J190	131−3668−00			CONN,RCPT,ELEC:CKT BD,4 PIN	80009	131366800
A1J220	131−3661−00			CONN,RCPT,ELEC:HEADER,2 X 13	80009	131366100
A1J400	131−3662−00			CONN,RCPT,ELEC:HEADER,2 X 17	80009	131366200
A1J410	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A1J412	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A1W60	174−0291−00			CA ASSY,SP,ELEC:16,28 AWG,18.5 L,RIBBON	80009	174029100
A1W70	174−0292−00			CA ASSY,SP,ELEC:16,28 AWG,4.3 L,RIBBON	80009	174029200
A1W100	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A1W192	174−0294−00			CA ASSY,SP,ELEC:16,28 AWG,12.6 L,RIBBON	80009	174029400
A1W200	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A1W300	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A2	671−1064−XX			CIRCUIT BD ASSY:CPU	80009	6711064XX
A2BT740	146−0078−00			BATTERY,STORAGE:8.6V,0.25AH,@8.3MA,NI CAD	80009	146007800
A2C20	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A2C120	290−0778−00			CAP,FXD,ALUM:;1UF,20%,50V,5 X 11 MM	62643	SMEBP50VB1R0M5X
A2C400	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A2C404	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C410	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A2C412	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C460	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A2C740	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A2C741	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C900	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A2C902	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C904	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C906	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C908	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C910	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C920	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A2C922	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C924	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C926	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C928	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C930	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C932	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C934	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C936	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C938	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C940	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A2C942	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C944	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C946	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C948	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C954	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C956	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C958	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C970	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C972	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C974	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C976	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C978	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A2C980	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C982	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C984	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C986	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C988	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2CR120	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A2CR740	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A2CR742	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A2E710	276−0524−00			SHLD BEAD,ELEK:FERRITE	80009	276052400
A2E720	276−0524−00			SHLD BEAD,ELEK:FERRITE	80009	276052400
A2E750	276−0524−00			SHLD BEAD,ELEK:FERRITE	80009	276052400
A2FL400	119−1762−00			FILTER,RFI:0.022UF,+50/−20%,50VW/FERRITE	80009	119176200
A2L900	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A2L900	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A2L920	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A2L920	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A2L940	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A2L940	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A2P20	131−3650−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 32,0.1 SP	80009	131365000
A2P22	131−3648−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364800
A2Q400	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A2Q747	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A2R110	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R121	315−0203−00			RES,FXD,FILM:20K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R122	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R300	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R406	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R408	315−0103−00	J301393	J301992	RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R408	315−0102−00	J301993		RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R409	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R410	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R412	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R414	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R416	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R418	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R420	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R422	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R450	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R452	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R454	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A2R456	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R458	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R460	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R462	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2R465	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R466	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R740	321−0217−00			RES,FXD,FILM:1.78K OHM,1%,0.125W,TC=T0	TK1727	MR25−2322−151−1
A2R741	321−0332−00			RES,FXD,FILM:28.0K OHM,1%,0.125W,TC=T0	19701	5043ED28K00F
A2R742	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A2R744	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R745	315−0510−00			RES,FXD,FILM:51 OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R747	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R750	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A2R770	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A2TP100	214−0579−00	J301393	J302394	TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A2TP400	214−0579−00	J301393	J302394	TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A2U100	119−1408−00			OSC,XTAL CLOCK:16MHZ,0.01%,TTL,4 PIN 14 PIN	23875	792−010
A2U120	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A2U200	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156231600
A2U210	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156231600
A2U240	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A2U250	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A2U260	156−2833−00			IC,DIGITAL:HCMOS,MUX/ENCODER	80009	156283300
A2U270	156−2820−00			IC,DIGITAL:HCMOS,GATE;TRIPLE 3−INPUT NAND	80009	156282000
A2U300	156−2026−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NOR	04713	MC74HC02AN
A2U310	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A2U340	156−2813−00			IC,DIGITAL:HCMOS,COUNTER;DUAL 4−BIT BINARY	80009	156281300
A2U400	156−2396−00			IC,MISC:BIPOLAR,PWR SUPPLY SUPERVISOR	01295	TL7705ACP
A2U410	156−1445−04			IC,PROCESSOR:NMOS,MICROPROCESSOR	80009	156144504
A2U430	156−2253−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NAND	80009	156225300
A2U450	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U452	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U454	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U456	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U458	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U460	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U462	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U480	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U482	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A2U484	156−1921−00			IC,DIGITAL:HCTCMOS,TRANSCEIVER;OCTAL	04713	MC74HCT245AN

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A2U486	156−1921−00			IC,DIGITAL:HCTCMOS,TRANSCEIVER;OCTAL	04713	MC74HCT245AN
A2U500	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;DUAL	80009	156282500
A2U520	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156231600
A2U540	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156231600
A2U600	160−6101−01	J301393	J301399	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610101
A2U600	160−6101−02	J301400	J301557	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610102
A2U600	160−6101−03	J301558	J301652	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610103
A2U600	160−6101−04	J301653	J301702	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610104
A2U600	160−6101−05	J301703	J301932	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610105
A2U600	160−6101−06	J301933	J301942	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610106
A2U600	160−6101−07	J301943	J302057	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610107
A2U600	160−6101−08	J302058	J302590	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610108
A2U600	160−6101−09	J302591	J302952	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610109
A2U600	160−6101−10	J302953		MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610110
A2U610	160−6102−01	J301393	J301399	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610201
A2U610	160−6102−02	J301400	J301557	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610202
A2U610	160−6102−03	J301558	J301652	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610203
A2U610	160−6102−04	J301653	J301702	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610204
A2U610	160−6102−05	J301703	J301932	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610205
A2U610	160−6102−06	J301933	J301942	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610206
A2U610	160−6102−07	J301943	J302057	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610207
A2U610	160−6102−08	J302058	J302590	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610208
A2U610	160−6102−09	J302591	J302952	MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610209
A2U610	160−6102−10	J302953		MICROCKT,DGTL:128K X 8 EPROM,PRGM	80009	160610210
A2U720	156−2808−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT	80009	156280800
A2U740	156−2445−00			IC,LINEAR:BIPOLAR,PWR SUPPLY SUPERVISOR	34371	ICL8212CPA
A2U770	156−3681−00			IC,DIGITAL:HCMOS,BUFFER;HEX, 3−STATE	80009	156368100
A2U800	156−3399−00	J301393	J302122	IC,MEMORY:CMOS,SRAM;128K X 8,120NS,MODULE	S4997	H66204 L−12 32
A2U800	156−4279−00	J302123		IC,MEMORY:CMOS,SRAM;128K X 8,85NS,MODULE	80009	156427900
A2U810	156−3399−00	J301393	J302122	IC,MEMORY:CMOS,SRAM;128K X 8,120NS,MODULE	S4997	H66204 L−12 32
A2U810	156−4279−00	J302123		IC,MEMORY:CMOS,SRAM;128K X 8,85NS,MODULE	80009	156427900

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A3	671−1044−XX			CKT BD ASSY:A/D	80009	6711044XX
A3C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C102	290−0746−00			CAP,FXD,ALUM:;47UF,+50%−20%,16V	55680	UVX1J470MPA
A3C104	283−0603−00			CAP,FXD,MICA DI:113PF,2%,300V	TK0891	RDM15FD1130G03
A3C110	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C120	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C130	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C150	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C151	285−1117−00			CAP,FXD,PLASTIC:0.018UF,2%,100V	80009	285111700
A3C152	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C153	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A3C160	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C170	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C180	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C190	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C200	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C210	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C220	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C230	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C240	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C250	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C260	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C270	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C280	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C290	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C300	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C301	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C302	290−0804−00			CAP,FXD,ELCTLT:10UF,+50−20%,25V	0H1N5	CEUSM1E100
A3C320	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C325	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C340	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C350	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C360	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C361	281−0823−00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A3C362	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A3C365	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C371	281−0759−00			CAP,FXD,CERAMIC:MLC;22PF,10%,100V	04222	SA102A220KAA
A3C374	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C380	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C381	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA

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A3C382	281−0768−00			CAP,FXD,CER DI:470PF,20%,100V	04222	SA101A471KAA
A3C385	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C400	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C410	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C420	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C430	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C440	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C445	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C460	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C465	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C470	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C471	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C472	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C473	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C474	283−0603−00			CAP,FXD,MICA DI:113PF,2%,300V	TK0891	RDM15FD1130G03
A3C475	290−0746−00			CAP,FXD,ALUM:;47UF,+50%−20%,16V	55680	UVX1J470MPA
A3C480	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C500	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C511	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C512	290−0804−00			CAP,FXD,ELCTLT:10UF,+50−20%,25V	0H1N5	CEUSM1E100
A3C513	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C540	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C545	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C551	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A3C552	281−0823−00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A3C560	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C561	283−0167−00			CAP,FXD,CER DI:0.1UF,10%,100V	04222	SR211C104KAA
A3C562	281−0850−00		J310319	CAP,FXD,CERAMIC:MLC;820PF,5%,50VDC	TK1743	CGC821JDN
A3C562	281−0345−00	J310320		CAP,FXD,CER DI;820PF,10%,50VDC	80009	281034500
A3C563	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C564	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C565	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C566	283−0027−00			CAP,FXD,CER DI:0.02UF,20%,50V	04222	SR265C203MAA
A3C570	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C571	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C575	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C580	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C581	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C582	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C585	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA

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A3C591	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A3C592	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A3C600	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C601	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A3C602	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A3C605	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C620	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C621	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A3C625	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C626	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A3C631	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C632	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C633	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C634	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C635	281−0762−00			CAP,FXD,CERAMIC:MLC;27PF,10%,100V,NPO,0.100	04222	SA102A270KAA
A3C636	281−0762−00			CAP,FXD,CERAMIC:MLC;27PF,10%,100V,NPO,0.100	04222	SA102A270KAA
A3C650	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C651	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C652	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C653	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C660	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C670	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C680	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C690	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C700	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C720	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C730	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C740	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C742	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C750	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C760	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C770	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C790	283−0059−00			CAP,FXD,CER DI:1UF,+80−20%,50V	04222	SR305C105MAA
A3C800	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C810	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C910	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C920	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A3C930	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A3C940	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A3C960	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101

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A3CR150	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A3CR280	152−0322−00			DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF	50434	5082−2672−T25
A3CR310	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A3CR511	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A3CR512	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A3CR550	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A3CR580	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A3CR581	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A3CR900	152−0832−00	J302953		SEMICOND DVC,DI:SIG,SI,120MA,50V	80009	152083200
A3J34	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A3J150	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A3J310	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A3L578	108−1490−00			COIL,RF:FXD,8MH,20T	80009	108149000
A3L650	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A3L650	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A3L651	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A3L651	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A3L910	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A3L910	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A3L920	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A3L920	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A3L930	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A3L930	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A3L940	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A3L940	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A3L950	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A3L950	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A3P30	131−3650−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 32,0.1 SP	80009	131365000
A3P32	131−3648−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364800
A3P34	131−4311−00			BUS,CONDUCTOR:WHITE,SHUNT ASSY	80009	131431100
A3P150	131−4311−00			BUS,CONDUCTOR:WHITE,SHUNT ASSY	80009	131431100
A3P310	131−4311−00			BUS,CONDUCTOR:WHITE,SHUNT ASSY	80009	131431100
A3R100	321−0331−00			RES,FXD,FILM:27.4K OHM,1%,0.125W,TC=T0	91637	CMF55116G27401F
A3R104	321−0353−00			RES,FXD,FILM:46.4K OHM,1%,0.125W,TC=T0	19701	5043ED46K40F
A3R106	315−0473−00			RES,FXD,FILM:47K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R108	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R130	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R140	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R141	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R142	315−0303−00			RES,FXD,FILM:30K OHM,5%,0.25W	TK1727	SFR25 2322−181

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A3R144	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R150	321−0306−00			RES,FXD,FILM:15.0K OHM,1%,0.125W,TC=T0	19701	5043ED15K00F
A3R151	321−0258−00			RES,FXD,FILM:4.75K OHM,1%,0.125W,TC=T0	19701	5043ED4K750F
A3R152	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R154	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R156	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R170	307−0729−00			RES NTWK,FXD,FI:4,10K OHM,10%,0.125W	80009	307072900
A3R230	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R250	307−0921−00			RES NTWK,FXD,FI:(8)33K OHM,5%,0.125W	80009	307092100
A3R290	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R300	321−0816−07			RES,FXD,FILM:5K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A3R301	321−0105−00			RES,FXD,FILM:121 OHM 1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A3R302	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R310	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R311	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R312	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R313	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R320	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R321	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R322	321−0481−07			RES,FXD,FILM:1M OHM,0.1%,0.125W,TC=T9	19701	5033RE1M000B
A3R323	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A3R324	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A3R330	321−0222−07			RES,FXD,FILM:2.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE2K000B
A3R331	321−0222−07			RES,FXD,FILM:2.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE2K000B
A3R332	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A3R360	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A3R370	315−0333−00			RES,FXD,FILM:33K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R371	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A3R372	321−0229−00			RES,FXD,FILM:2.37K OHM,1%,0.125W,TC=T0	TK1727	2322−151−2K37
A3R380	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R381	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R390	321−0256−00			RES,FXD,FILM:4.53K OHM,1%,0.125W,TC=T0	19701	5033ED4K530F
A3R391	321−0414−07			RES,FXD,FILM:200K OHM,0.1%,0.125W,TC=T9	07716	CEA 200 KOHM 0.
A3R400	307−0882−00			RES NTWK,FXD,FI:8,100K OHM,10%,0.125W	80009	307088200
A3R401	307−0882−00			RES NTWK,FXD,FI:8,100K OHM,10%,0.125W	80009	307088200
A3R402	307−0882−00			RES NTWK,FXD,FI:8,100K OHM,10%,0.125W	80009	307088200
A3R403	307−0882−00			RES NTWK,FXD,FI:8,100K OHM,10%,0.125W	80009	307088200
A3R450	315−0473−00			RES,FXD,FILM:47K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R451	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A3R452	321−0229−00			RES,FXD,FILM:2.37K OHM,1%,0.125W,TC=T0	TK1727	2322−151−2K37

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A3R453	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A3R470	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R471	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R472	321−0331−00			RES,FXD,FILM:27.4K OHM,1%,0.125W,TC=T0	91637	CMF55116G27401F
A3R473	321−0353−00			RES,FXD,FILM:46.4K OHM,1%,0.125W,TC=T0	19701	5043ED46K40F
A3R474	315−0473−00			RES,FXD,FILM:47K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R475	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R500	307−0729−00			RES NTWK,FXD,FI:4,10K OHM,10%,0.125W	80009	307072900
A3R515	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A3R516	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A3R517	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R518	315−0304−00			RES,FXD,FILM:300K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R519	315−0304−00			RES,FXD,FILM:300K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R520	315−0302−00			RES,FXD,FILM:3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R531	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R541	321−0403−00			RES,FXD,FILM:154K OHM,1%,0.125W,TC=T0	19701	5043ED154K0F
A3R542	321−0357−00			RES,FXD,FILM:51.1K OHM,1%,0.125W,TC=T0	19701	5043ED51K10F
A3R543	321−0337−00			RES,FXD,FILM:31.6K OHM,1%,0.125W,TC=T0	19701	5043ED31K60F
A3R544	321−0325−00			RES,FXD,FILM:23.7K OHM,1%,0.125W,TC=T0	19701	5043ED23K70F
A3R545	321−0316−00			RES,FXD,FILM:19.1K OHM,1%,0.125W,TC=T0	07716	CEAD19101F
A3R546	321−0311−00			RES,FXD,FILM:16.9K OHM,1%,0.125W,TC=T0	19701	5043ED16K90F
A3R547	321−0307−00			RES,FXD,FILM:15.4K OHM,1%,0.125W,TC=T0	TK1727	MR25−2322−151−1
A3R548	321−0306−00			RES,FXD,FILM:15.0K OHM,1%,0.125W,TC=T0	19701	5043ED15K00F
A3R560	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R561	321−0424−00			RES,FXD,FILM:255K OHM,1%,0.125W,TC=T0	19701	5043ED255K0F
A3R562	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R563	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R564	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R565	321−0424−00			RES,FXD,FILM:255K OHM,1%,0.125W,TC=T0	19701	5043ED255K0F
A3R566	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A3R567	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A3R568	321−0424−00			RES,FXD,FILM:255K OHM,1%,0.125W,TC=T0	19701	5043ED255K0F
A3R570	321−0612−03			RES,FXD,FILM:500 OHM,0.25%,0.125W,TC=T2	19701	5033RC500R0C
A3R578	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R579	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R580	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R581	315−0113−00			RES,FXD,FILM:11K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R582	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R583	315−0113−00			RES,FXD,FILM:11K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R589	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A3R590	311−1740−02			RES,VAR,NONWW:1K OHM,20%,0.5W	80009	311174002
A3R591	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R592	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R593	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R600	311−1740−02			RES,VAR,NONWW:1K OHM,20%,0.5W	80009	311174002
A3R601	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R602	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R610	311−1740−02			RES,VAR,NONWW:1K OHM,20%,0.5W	80009	311174002
A3R611	321−0202−00			RES,FXD,FILM:1.24K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A3R612	321−0280−00			RES,FXD,FILM:8.06K OHM,1%,0.125W,TC=T0	19701	5033ED8K060F
A3R620	321−0291−00			RES,FXD,FILM:10.5K OHM,1%,0.125W,TC=T0	19701	5033ED10K50F
A3R621	315−0822−00			RES,FXD,FILM:8.2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R622	321−0309−00			RES,FXD,FILM:16.2K OHM,1%,0.125W,TC=T0	19701	5033ED16K20F
A3R623	321−0340−00			RES,FXD,FILM:34.0K OHM,1%,0.125W,TC=T0	TK1727	2322−151−34K0
A3R630	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R780	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R781	315−0112−00			RES,FXD,FILM:1.1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R782	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R790	315−0225−00	J301393	J302162	RES,FXD,FILM:2.2M OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R790	315−0105−00	J302163		RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R792	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R800	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R810	315−0225−00			RES,FXD,FILM:2.2M OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R830	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A3R900	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322−182
A3TP200	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A3TP290	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A3TP310	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A3TP380	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A3TP500	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A3TP580	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A3U100	156−0704−00			IC,MISC:CMOS,PLL;LOW SPEED	04713	MC14046BCP
A3U110	156−2835−00			IC,DIGITAL:HCMOS,COUNTER;12−BIT BINARY	80009	156283500
A3U120	156−1825−00			MICROCKT,DGTL:C2MOS,DUAL 4 TO 1 LINE MULT	80009	156182500
A3U130	156−2809−00			MICROCKT,DGTL:6 BIT 3 STATE BUFFER	80009	156280900
A3U140	156−1778−00			MICROCKT,LINEAR:DUAL COMPARATOR	80009	156177800
A3U150	156−0402−04			MICROCKT,LINEAR:TIMER	80009	156040204
A3U160	156−2798−00			MICROCKT,DGTL:SYNC,4 BIT COUNTER	80009	156279800
A3U170	156−2798−00			MICROCKT,DGTL:SYNC,4 BIT COUNTER	80009	156279800
A3U180	156−1824−00			MICROCKT,DGTL:C2MOS,QUAD 2 TO 1 LINE MULT	80009	156182400

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A3U190	156−1828−00			MICROCKT,DGTL:C2MOS,DUAL D−TYPE FLIP FLOP	80009	156182800
A3U200	156−1828−00			MICROCKT,DGTL:C2MOS,DUAL D−TYPE FLIP FLOP	80009	156182800
A3U210	156−1824−00			MICROCKT,DGTL:C2MOS,QUAD 2 TO 1 LINE MULT	80009	156182400
A3U220	156−1828−00			MICROCKT,DGTL:C2MOS,DUAL D−TYPE FLIP FLOP	80009	156182800
A3U230	156−1828−00			MICROCKT,DGTL:C2MOS,DUAL D−TYPE FLIP FLOP	80009	156182800
A3U240	156−1831−00			MICROCKT,DGTL:C2MOS,GATE 2 INP NOR	80009	156183100
A3U250	156−1766−00			MICROCKT,DGTL:CMOS,QUAD 2 INPUT NAND	80009	156176600
A3U260	156−1831−00			MICROCKT,DGTL:C2MOS,GATE 2 INP NOR	80009	156183100
A3U270	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A3U280	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A3U290	156−2791−00			MICROCKT,DGTL:QUAD,2 INPUT	80009	156279100
A3U300	156−1589−00			IC,CONVERTER:BIPOLAR,D/A;12 BIT,CURRENT	24355	DAC312HP
A3U310	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A3U320	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A3U330	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A3U340	156−2810−00			MICROCKT,LINEAR:12 BIT,D/A CONV	80009	156281000
A3U350	156−2810−00			MICROCKT,LINEAR:12 BIT,D/A CONV	80009	156281000
A3U360	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A3U370	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A3U380	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A3U390	156−1699−00			IC,LINEAR:BIFET,OP−AMP;DUAL,LOW OFFSET	27014	LF412CN
A3U400	156−2798−00			MICROCKT,DGTL:SYNC,4 BIT COUNTER	80009	156279800
A3U410	156−1828−00			MICROCKT,DGTL:C2MOS,DUAL D−TYPE FLIP FLOP	80009	156182800
A3U420	156−2796−00			MICROCKT,DGTL:HEX INVERTER	80009	156279600
A3U430	156−1827−00			MICROCKT,DGTL:C2MOS,3 LINE TO 8 LINE	80009	156182700
A3U440	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A3U450	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A3U470	156−0704−00			IC,MISC:CMOS,PLL;LOW SPEED	04713	MC14046BCP
A3U480	156−2835−00			IC,DIGITAL:HCMOS,COUNTER;12−BIT BINARY	80009	156283500
A3U490	156−1778−00			MICROCKT,LINEAR:DUAL COMPARATOR	80009	156177800
A3U500	156−2836−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT	80009	156283600
A3U510	156−0158−00			IC,LINEAR:BIPOLAR,OP−AMP;DUAL	01295	MC1458P
A3U530	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A3U540	156−0513−00			IC,MISC:CMOS,ANALOG MUX;8 CHANNEL	04713	MC14051BCP
A3U550	156−2810−00			MICROCKT,LINEAR:12 BIT,D/A CONV	80009	156281000
A3U560	156−0495−00			IC,LINEAR:BIPOLAR,OP−AMP;QUAD	01295	LM324N
A3U565	156−0158−00			IC,LINEAR:BIPOLAR,OP−AMP;DUAL	01295	MC1458P
A3U570	156−3568−01			MICROCKT,LINEAR:MULTIPLIER,DUAL CHANNEL	80009	156356801
A3U580	156−0158−00			IC,LINEAR:BIPOLAR,OP−AMP;DUAL	01295	MC1458P
A3U590	156−2812−00			IC,MISC:SAMPLE/HOLD	80009	156281200

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A3U600	156−2812−00			IC,MISC:SAMPLE/HOLD	80009	156281200
A3U610	156−0514−00			IC,MISC:CMOS,ANALOG MUX;DUAL 4 CHANNEL	04713	MC14052BCP
A3U620	156−2832−01			MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A3U630	156−3195−00			IC,CONVERTER:TTL,A/D;12−BIT,5US,SAR	TK0AC	AD7572JN05
A3U650	156−3196−00			MICROCKT,DGTL:DC−DC CONVERTER	TK2058	RZC15N20
A3U660	156−2814−00			IC,DIGITAL:HCMOS,GATE;TRIPLE 3−INPUT NAND	80009	156281400
A3U670	156−2310−00			IC,DIGITAL:HCMOS,FLIP FLOP;HEX, D−TYPE	80009	156231000
A3U680	156−2813−00			IC,DIGITAL:HCMOS,COUNTER;DUAL 4−BIT BINARY	80009	156281300
A3U690	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A3U700	156−2027−00			IC,DIGITAL:HCMOS,GATE;HEX INV	01295	SN74HC04N
A3U710	156−2088−00			IC,DIGITAL:HCMOS,MUX/ENCODER;QUAD	80009	156208800
A3U720	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156231600
A3U730	156−1767−00			MICROCKT,DGTL:CMOS,OCTAL BUS XCVR	80009	156176700
A3U740	156−1767−00			MICROCKT,DGTL:CMOS,OCTAL BUS XCVR	80009	156176700
A3U750	156−2835−00			IC,DIGITAL:HCMOS,COUNTER;12−BIT BINARY	80009	156283500
A3U760	156−2838−00	J301393	J302258	IC,MEMORY:CMOS,SRAM;2K x 8,55NS	80009	156283800
A3U760	156−3253−01	J302259		IC,MEMORY:CMOS,SRAM;2K x 8,55NS	80009	156325301
A3U770	156−2838−00	J301393	J302258	IC,MEMORY:CMOS,SRAM;2K x 8,55NS	80009	156283800
A3U770	156−3253−01	J302259		IC,MEMORY:CMOS,SRAM;2K x 8,55NS	80009	156325301
A3U780	156−1126−01			IC,LINEAR:BIPOLAR,COMPARATOR	01295	LM311P
A3U790	156−3202−00	J301393	J302162	IC,DIGITAL:HCMOS,MULTIVIBRATOR;DUAL	TK00L	74HC123P
A3U790	156−3202−01	J302163		IC,DIGITAL:HCMOS, MULTIVIBRATOR;DUAL RETRIG	80009	156320201
A3U800	156−1126−01			IC,LINEAR:BIPOLAR,COMPARATOR	01295	LM311P
A3U810	156−2832−01			MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A3U840	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A3U860	156−2791−00			MICROCKT,DGTL:QUAD,2 INPUT AND HC40H008P	80009	156279100
A3U900	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A3VR470	152−0195−00			DIODE,ZENER:,;5.1V,5%,0.4W	14552	CD332125
A3VR630	152−0195−00			DIODE,ZENER:,;5.1V,5%,0.4W	14552	CD332125
A3Y630	158−0336−00			XTAL UNIT,QTZ:2.5MHZ,30PPM,SER	TK0CJ	ORDER BY DESC
A3W900	175−0733−00	J302953		WIRE,ELEC:26AWG	80009	175073300

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A4	670−9306−XX			CIRCUIT BD ASSY:DIGITAL DISPLAY	80009	6709306XX
A4C10	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A4C20	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A4C30	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A4C40	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A4C110	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C120	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C130	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C140	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C150	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C160	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C170	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C200	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C210	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C220	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C230	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C240	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C250	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C260	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C300	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C310	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C320	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C330	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C340	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C350	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C360	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C370	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C380	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C400	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C420	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C440	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C460	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C480	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C500	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C502	281−0811−00			CAP,FXD,CERAMIC:MLC;10PF,10%,200V	04222	SA102A100KAA
A4C504	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C506	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C508	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C510	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A4C512	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN

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A4C520	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C522	281−0811−00			CAP,FXD,CERAMIC:MLC;10PF,10%,200V	04222	SA102A100KAA
A4C524	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C526	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C528	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C530	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A4C532	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A4C540	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C542	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C600	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C620	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C640	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C660	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C670	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C680	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C700	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C710	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C720	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C760	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C770	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C800	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C802	281−0759−00			CAP,FXD,CERAMIC:MLC;22PF,10%,100V	04222	SA102A220KAA
A4C804	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C806	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C808	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C820	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C822	281−0759−00			CAP,FXD,CERAMIC:MLC;22PF,10%,100V	04222	SA102A220KAA
A4C824	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C826	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C840	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C842	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C900	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A4C1000	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4C1002	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A4CR220	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A4L10	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A4L10	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A4L20	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A4L20	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A4L30	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800

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A4L30	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A4L40	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A4L40	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A4L900	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A4L900	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A4P40	131−3650−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 32,0.1 SP	80009	131365000
A4P42	131−3648−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364800
A4R200	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A4R210	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A4R220	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A4R250	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A4R260	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A4R500	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R502	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R504	321−0928−07			RES,FXD,FILM:250 OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A4R506	321−0927−07			RES,FXD,FILM:125 OHM,0.1%,0.125W,TC=T9	19701	5033RE125ROB
A4R508	321−0928−07			RES,FXD,FILM:250 OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A4R510	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W	TK1727	SFR25 2322−182
A4R512	315−0432−00			RES,FXD,FILM:4.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R514	315−0432−00			RES,FXD,FILM:4.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R520	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R522	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R524	321−0928−07			RES,FXD,FILM:250 OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A4R526	321−0927−07			RES,FXD,FILM:125 OHM,0.1%,0.125W,TC=T9	19701	5033RE125ROB
A4R528	321−0928−07			RES,FXD,FILM:250 OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A4R530	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322−182
A4R532	315−0432−00			RES,FXD,FILM:4.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R534	315−0432−00			RES,FXD,FILM:4.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R700	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R702	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R704	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R710	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R712	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R714	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R716	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A4R718	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A4R720	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R722	321−0399−00			RES,FXD,FILM:140K OHM,1%,0.125W,TC=T0	19701	5043ED140K0F
A4R724	321−0399−00			RES,FXD,FILM:140K OHM,1%,0.125W,TC=T0	19701	5043ED140K0F
A4R726	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1

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A4R800	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A4R802	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A4R804	321−0612−00			RES,FXD,FILM:500 OHM,1%,0.125W,TC=T0	19701	5033RD500R0F
A4R806	321−0928−07			RES,FXD,FILM:250 OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A4R808	321−0612−00			RES,FXD,FILM:500 OHM,1%,0.125W,TC=T0	19701	5033RD500R0F
A4R810	321−0612−00			RES,FXD,FILM:500 OHM,1%,0.125W,TC=T0	19701	5033RD500R0F
A4R812	321−0612−00			RES,FXD,FILM:500 OHM,1%,0.125W,TC=T0	19701	5033RD500R0F
A4R814	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W	TK1727	SFR25 2322−182
A4R820	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A4R822	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A4R824	321−0612−00			RES,FXD,FILM:500 OHM,1%,0.125W,TC=T0	19701	5033RD500R0F
A4R826	321−0928−07			RES,FXD,FILM:250 OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A4R828	321−0612−00			RES,FXD,FILM:500 OHM,1%,0.125W,TC=T0	19701	5033RD500R0F
A4R830	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W	TK1727	SFR25 2322−182
A4R840	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A4R842	311−1621−01			RES,VAR,NONWW:200 OHM,20%,0.5W	80009	311162101
A4R844	321−0239−00			RES,FXD,FILM:3.01K OHM,1%,0.125W,TC=T0	TK1727	2322−151−3K01
A4R846	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4R848	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A4TP10	214−0579−00	J301393	J302394	TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A4TP20	214−0579−00	J301393	J302394	TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A4U100	119−2312−00			OSCILLATOR:4.5MHZ,CRYSTAL	80009	119231200
A4U110	156−2813−00			IC,DIGITAL:HCMOS,COUNTER;DUAL 4−BIT BINARY	80009	156281300
A4U120	156−2813−00			IC,DIGITAL:HCMOS,COUNTER;DUAL 4−BIT BINARY	80009	156281300
A4U130	156−2088−00			IC,DIGITAL:HCMOS,MUX/ENCODER;QUAD	80009	156208800
A4U140	156−2088−00			IC,DIGITAL:HCMOS,MUX/ENCODER;QUAD	80009	156208800
A4U150	156−2088−00			IC,DIGITAL:HCMOS,MUX/ENCODER;QUAD	80009	156208800
A4U160	156−2088−00			IC,DIGITAL:HCMOS,MUX/ENCODER;QUAD	80009	156208800
A4U170	156−2813−00			IC,DIGITAL:HCMOS,COUNTER;DUAL 4−BIT BINARY	80009	156281300
A4U200	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A4U210	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A4U220	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A4U230	156−1817−00			IC,MEMORY:CMOS,SRAM;8K X 8	80009	156181700
A4U240	156−1817−00			IC,MEMORY:CMOS,SRAM;8K X 8	80009	156181700
A4U250	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A4U260	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A4U270	156−2824−00			IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A4U280	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;DUAL	80009	156282500
A4U300	156−2814−00			IC,DIGITAL:HCMOS,GATE;TRIPLE 3−INPUT NAND	80009	156281400
A4U310	156−2253−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NAND	80009	156225300

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A4U320	156−2808−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT	80009	156280800
A4U330	156−2820−00			IC,DIGITAL:HCMOS,GATE;TRIPLE 3−INPUT NAND	80009	156282000
A4U340	156−2309−00			IC,DIGITAL:HCMOS,GATE;HEX INV	80009	156230900
A4U350	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A4U360	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A4U370	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A4U380	156−2310−00			IC,DIGITAL:HCMOS,FLIP FLOP;HEX, D−TYPE	80009	156231000
A4U400	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U420	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U440	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U460	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U480	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U500	156−1589−00			IC,CONVERTER:BIPOLAR,D/A;12 BIT,CURRENT	24355	DAC312HP
A4U502	156−2822−00			MICROCKT,LINEAR:OP−AMP	80009	156282200
A4U520	156−1589−00			IC,CONVERTER:BIPOLAR,D/A;12 BIT,CURRENT	24355	DAC312HP
A4U522	156−1699−00			IC,LINEAR:BIFET,OP−AMP;DUAL,LOW OFFSET	27014	LF412CN
A4U540	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A4U600	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U620	160−3916−01			MICROCKT,DGTL:16384 X 8 EPROM,PRGM	80009	160391601
A4U640	156−2834−00			IC,DIGITAL:HCMOS,REGISTER;8−BIT PISO	01295	SN74HC166N
A4U660	156−2009−00			IC,DIGITAL:HCMOS,FLIP FLOP;DUAL D−TYPE	04713	MC74HC74AN
A4U670	156−2827−00			IC,DIGITAL:HCMOS,MUX/ENCODER;DUAL	80009	156282700
A4U680	156−2088−00			IC,DIGITAL:HCMOS,MUX/ENCODER;QUAD	80009	156208800
A4U700	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U710	156−2821−00			IC,DIGITAL:HCMOS,FLIP FLOP;OCTAL D−TYPE	80009	156282100
A4U720	156−2820−00			IC,DIGITAL:HCMOS,GATE;TRIPLE 3−INPUT NAND	80009	156282000
A4U760	156−2823−00			IC,DIGITAL:HCMOS,ARITH FUNC;4−BIT FULL	80009	156282300
A4U770	156−2823−00			IC,DIGITAL:HCMOS,ARITH FUNC;4−BIT FULL	80009	156282300
A4U800	156−1255−02			MICROCKT,LINEAR:8 BIT HS MULTI D/A CONV	80009	156125502
A4U802	156−2822−00			MICROCKT,LINEAR:OP−AMP	80009	156282200
A4U820	156−1255−02			MICROCKT,LINEAR:8 BIT HS MULTI D/A CONV	80009	156125502
A4U822	156−2822−00			MICROCKT,LINEAR:OP−AMP	80009	156282200
A4W300	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604

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A5	670−9307−XX			CIRCUIT BD ASSY:DISPLAY CONTROL	80009	6709307XX
A5C10	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A5C20	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A5C30	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A5C40	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A5C50	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A5C60	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A5C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C120	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C140	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C160	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C500	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C502	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C505	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A5C520	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C522	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C525	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A5C555	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A5C562	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C565	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C575	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A5C582	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C585	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C600	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C602	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C605	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C607	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C610	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C612	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C615	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C617	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C620	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C622	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C625	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C627	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C630	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C632	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C635	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C637	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C640	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA

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A5C641	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A5C642	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C643	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A5C645	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C647	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C650	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C651	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A5C652	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C653	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A5C655	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C657	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C662	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C670	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C674	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A5C677	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A5C680	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C682	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C685	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C687	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C690	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C691	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A5C692	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C695	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C696	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A5C697	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C800	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C810	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C820	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C830	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C840	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C850	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C860	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C865	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A5C870	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5CR590	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A5L10	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A5L10	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A5L20	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A5L20	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A5L30	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800

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A5L30	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A5L40	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A5L40	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A5L50	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A5L50	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A5L60	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A5L60	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A5P50	131−3650−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 32,0.1 SP	80009	131365000
A5P52	131−3648−00			CONN,PLUG,ELEC:CKT BD,RTANG,2 X 22,0.1 SP	80009	131364800
A5Q540	151−0582−00			TRANSISTOR:NPN,SI,DIFFERENTIAL,DUAL50V	80009	151058200
A5Q542	151−0582−00			TRANSISTOR:NPN,SI,DIFFERENTIAL,DUAL50V	80009	151058200
A5Q556	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A5Q576	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A5Q850	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A5Q852	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A5Q860	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A5Q862	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A5Q870	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A5R10	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R12	315−0105−00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R15	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R20	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R22	315−0105−00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R25	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R30	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R32	315−0105−00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R35	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R80	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A5R82	315−0470−00			RES,FXD,FILM:47 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R90	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R91	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R92	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R93	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R94	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R95	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R96	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R97	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R98	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R99	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R102	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181

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A5R103	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R104	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R105	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R106	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R107	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R108	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R109	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R120	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R121	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R122	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R123	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R124	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R125	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R126	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R127	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R140	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R141	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R142	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R143	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R144	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R145	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R146	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R147	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R500	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R502	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R504	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R506	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R508	311−1613−00			RES,VAR,NONWW:20K OHM,20%,0.5W	80009	311161300
A5R520	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R522	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R524	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R526	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R528	311−1613−00			RES,VAR,NONWW:20K OHM,20%,0.5W	80009	311161300
A5R550	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R552	321−0226−00			RES,FXD,FILM:2.21K OHM,1%,0.125W,TC=T0	19701	5043ED2K210F
A5R554	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A5R558	321−0201−00			RES,FXD,FILM:1.21K OHM,1%,0.125W,TC=T0	TK1727	MR252322−151−1K
A5R559	321−0201−00			RES,FXD,FILM:1.21K OHM,1%,0.125W,TC=T0	TK1727	MR252322−151−1K
A5R562	315−0302−00			RES,FXD,FILM:3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R563	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181

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A5R564	315−0202−00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R566	321−0217−00			RES,FXD,FILM:1.78K OHM,1%,0.125W,TC=T0	TK1727	MR25−2322−151−1
A5R568	321−0217−00			RES,FXD,FILM:1.78K OHM,1%,0.125W,TC=T0	TK1727	MR25−2322−151−1
A5R569	315−0562−00			RES,FXD,FILM:5.6K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R570	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R572	321−0258−00			RES,FXD,FILM:4.75K OHM,1%,0.125W,TC=T0	19701	5043ED4K750F
A5R574	311−1238−01			RES,VAR,NONWW:TRMR,5K OHM,20%,0.5W	80009	311123801
A5R578	321−0202−00			RES,FXD,FILM:1.24K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A5R579	321−0202−00			RES,FXD,FILM:1.24K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A5R582	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R583	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R584	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R586	321−0230−00			RES,FXD,FILM:2.43K OHM,1%,0.125W,TC=T0	TK1727	2322−151−2K43
A5R588	321−0230−00			RES,FXD,FILM:2.43K OHM,1%,0.125W,TC=T0	TK1727	2322−151−2K43
A5R590	321−0258−00			RES,FXD,FILM:4.75K OHM,1%,0.125W,TC=T0	19701	5043ED4K750F
A5R592	321−0204−00			RES,FXD,FILM:1.30K OHM,1%,0.125W,TC=T0	TK1727	MR25−2322−151−1
A5R594	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R596	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R620	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R621	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R622	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R623	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R624	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R625	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R626	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R627	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R630	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R631	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R632	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R633	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R634	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R635	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R636	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R637	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R640	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R642	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R644	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R646	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R647	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R648	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181

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A5R650	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R652	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R654	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A5R656	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R657	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R658	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R674	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R675	321−0986−07			RES,FXD,FILM:25K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R677	321−0385−07			RES,FXD,FILM:100K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R678	321−0986−07			RES,FXD,FILM:25K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A5R680	315−0304−00			RES,FXD,FILM:300K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R682	321−1747−07			RES,FXD,FILM:320K OHM,0.1%,0.125W,TC=T9	80009	321174707
A5R684	321−1748−07			RES,FXD,FILM:160K OHM,0.1%,0.125W,TC=T9	80009	321174807
A5R686	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R688	315−0753−00			RES,FXD,FILM:75K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R690	315−0304−00			RES,FXD,FILM:300K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R692	321−1747−07			RES,FXD,FILM:320K OHM,0.1%,0.125W,TC=T9	80009	321174707
A5R694	321−1748−07			RES,FXD,FILM:160K OHM,0.1%,0.125W,TC=T9	80009	321174807
A5R696	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R698	315−0753−00			RES,FXD,FILM:75K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R800	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R801	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R802	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R803	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R804	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R805	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R820	315−0512−00	J301393	J301497	RES,FXD,FILM:5.1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R820	315−0432−00	J301498		RES,FXD,FILM:4.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R822	315−0512−00			RES,FXD,FILM:5.1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R824	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R826	315−0512−00			RES,FXD,FILM:5.1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R850	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R852	315−0681−00			RES,FXD,FILM:680 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R854	315−0751−00			RES,FXD,FILM:750 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R860	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R862	315−0751−00			RES,FXD,FILM:750 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R864	315−0751−00			RES,FXD,FILM:750 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R865	315−0203−00			RES,FXD,FILM:20K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R870	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R872	315−0751−00			RES,FXD,FILM:750 OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A5R880	315−0911−00			RES,FXD,FILM:910 OHM,5%,0.25W	TK1727	SFR25 2322−181
A5R1002	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322−182
A5TP10	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP20	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP30	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP60	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP70	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP80	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP90	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP100	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP500	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP502	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP648	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5TP658	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A5U100	156−2824−00			IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A5U120	156−2824−00			IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A5U140	156−2824−00			IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A5U160	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156231600
A5U500	156−1834−00			MICROCKT,LINEAR:ANALOG MULTIPLEXER HYBRID	80009	156183400
A5U520	156−1834−00			MICROCKT,LINEAR:ANALOG MULTIPLEXER HYBRID	80009	156183400
A5U600	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U605	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U610	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U615	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U620	156−2826−00			MICROCKT,LINEAR:OP−AMP,BIFET	80009	156282600
A5U625	156−2826−00			MICROCKT,LINEAR:OP−AMP,BIFET	80009	156282600
A5U630	156−2826−00			MICROCKT,LINEAR:OP−AMP,BIFET	80009	156282600
A5U635	156−2826−00			MICROCKT,LINEAR:OP−AMP,BIFET	80009	156282600
A5U640	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U645	156−2826−00			MICROCKT,LINEAR:OP−AMP,BIFET	80009	156282600
A5U650	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U655	156−2826−00			MICROCKT,LINEAR:OP−AMP,BIFET	80009	156282600
A5U662	156−0158−00			IC,LINEAR:BIPOLAR,OP−AMP;DUAL	01295	MC1458P
A5U670	156−1815−00			MICROCKT,DGTL:DA CONVERTER DUAL	80009	156181500
A5U674	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A5U677	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A5U680	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U685	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A5U690	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500
A5U695	156−2795−00			MICROCKT,LINEAR:OPERATIONAL PRECISION	80009	156279500

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A5U800	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156282500
A5U810	156−2827−00			IC,DIGITAL:HCMOS,MUX/ENCODER	80009	156282700
A5U820	156−1778−00			MICROCKT,LINEAR:DUAL COMPARATOR	80009	156177800
A5U830	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156282500
A5U840	156−2309−00			IC,DIGITAL:HCMOS,GATE;HEX INV	80009	156230900
A5U850	156−2253−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NAND	80009	156225300
A5U860	156−2253−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NAND	80009	156225300
A5U870	156−2253−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NAND	80009	156225300

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A6	670−9308−XX			CIRCUIT BD ASSY:COLLECTOR SUPPLY	80009	6709308XX
A6C212	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A6C302	281−0707−00			CAP,FXD,CER DI:15000PF,10%,200V	04222	MA302C153KAA
A6C304	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A6C305	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A6C306	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A6C336	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A6C400	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A6C406	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A6C407	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A6C424	283−0923−00			CAP,FXD,CER DI:47PF,10%,500V	80009	283092300
A6C425	283−0643−00	J310196		CAP,FXD,MICA DI:22PF,0.5PF,500V	80009	283064300
A6C452	283−0000−00			CAP,FXD,CER DI:0.001UF,+100−0%,500V	80009	283000000
A6C480	290−1168−00	J301393	J302243	CAP,FXD,ELCTLT:47UF,20%,16V	TK00M	ORDER BY DESC
A6C480	290−0848−00	J302244		CAP,FXD,ALUM:;47UF,+100%−20%,16V	0H1N5	CEBPM1E470M
A6C481	283−0644−00	J310126	J310145	CAP,FXD,MICA:;150PF,1%,500V	80009	283064400
A6C481	283−0927−00	J310146		CAP,FXD,CER DI:100PF,10%,2KV	80009	283092700
A6C524	283−0923−00			CAP,FXD,CER DI:47PF,10%,500V	80009	283092300
A6C525	283−0643−00	J310196		CAP,FXD,MICA DI:22PF,0.5PF,500V	80009	283064300
A6C552	283−0000−00			CAP,FXD,CER DI:0.001UF,+100−0%,500V	80009	283000000
A6CR210	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A6CR212	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A6CR316	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A6CR402	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A6CR404	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A6CR446	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A6CR448	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A6J60	131−3672−00			CONN,RCPT,ELEC:HEADER,16 PIN	80009	131367200
A6J62	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A6J66	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A6K446	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A6K448	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A6K546	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A6K548	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A6L306	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A6L306	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A6L406	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A6L406	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A6L407	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A6L407	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600

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A6Q424	151−0559−00			TRANSISTOR:NPN,SI,PWR	S0167	2SC2071B
A6Q438	151−1201−00			TRANSISTOR:PMOS,FET,PWR,200V	80009	151120100
A6Q440	151−1201−00			TRANSISTOR:PMOS,FET,PWR,200V	80009	151120100
A6Q444	151−0558−00			TRANSISTOR:PNP,SI	80009	151055800
A6Q524	151−0558−00			TRANSISTOR:PNP,SI	80009	151055800
A6Q538	151−1202−00			TRANSISTOR:NMOS,FET,PWR,200V	80009	151120200
A6Q540	151−1202−00			TRANSISTOR:NMOS,FET,PWR,200V	80009	151120200
A6Q544	151−0559−00			TRANSISTOR:NPN,SI,PWR	S0167	2SC2071B
A6R102	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R104	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R110	307−0885−00			RES NTWK,FXD,FI:5,100K OHM,5%,0.125W	80009	307088500
A6R200	315−0433−00			RES,FXD,FILM:43K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R202	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R204	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R206	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R208	315−0431−00			RES,FXD,FILM:430 OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R212	315−0512−00			RES,FXD,FILM:5.1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R214	321−0289−06			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T9	19701	5033RE10K00C
A6R216	321−0289−06			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T9	19701	5033RE10K00C
A6R300	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R302	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R304	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R305	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R310	321−0289−06			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T9	19701	5033RE10K00C
A6R312	321−0289−06			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T9	19701	5033RE10K00C
A6R314	315−0511−00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R318	321−0211−00			RES,FXD,FILM:1.54K OHM,1%,0.125W,TC=T0	19701	5043ED1K540F
A6R320	321−0401−00			RES,FXD,FILM:147K OHM,1%,0.125W,TC=T0	TK1727	2322−151−147K
A6R322	321−0401−00			RES,FXD,FILM:147K OHM,1%,0.125W,TC=T0	TK1727	2322−151−147K
A6R330	315−0123−00			RES,FXD,FILM:12K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R332	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R334	315−0204−00			RES,FXD,FILM:200K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R336	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R340	315−0333−00			RES,FXD,FILM:33K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R342	315−0511−00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R344	315−0333−00			RES,FXD,FILM:33K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R346	315−0511−00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R400	321−0929−07			RES,FXD,FILM:2.5K OHM,0.1%,0.125W,TC=T9	TK1727	2322−1412K5
A6R401	311−0634−04			RES,VAR,NONWW:TRMR,500 OHM,20%,0.5W	80009	311063404
A6R402	321−0210−07	J301393	J301547	RES,FXD:METAL FILM;1.5K OHM,0.1%,0.125W	91637	CMF55116C15000B

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A6R402	321−0206−02	J301548		RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A6R403	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W	TK1727	SFR25 2322−182
A6R404	321−0414−04			RES,FXD,FILM:200K OHM,0.1%,0.125W,TC=T2	19701	5033RC200K0B
A6R406	315−0392−00			RES,FXD,FILM:3.9K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R408	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R410	315−0221−00			RES,FXD,FILM:220 OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R412	311−2388−00			RES,VAR,NONWW:TRMR,10K OHM,10%,0.5W	S4431	POT1102P−1−103
A6R414	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R420	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R422	315−0392−00			RES,FXD,FILM:3.9K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R424	307−1247−00			RES,FXD,FILM:1K OHM,5%,0.25W	80009	307124700
A6R428	307−1248−00			RES,FXD,FILM:5.1K OHM,5%,0.5W	80009	307124800
A6R434	307−1249−00			RES,FXD,FILM:100 OHM,5%,0.5W	80009	307124900
A6R436	307−1249−00			RES,FXD,FILM:100 OHM,5%,0.5W	80009	307124900
A6R438	307−1286−00			RES,FXD,FILM:1 OHM,5%,2W	80009	307128600
A6R440	307−1286−00			RES,FXD,FILM:1 OHM,5%,2W	80009	307128600
A6R442	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R444	315−0033−00			RES,FXD,CMPSN:3.3 OHM,5%,0.25	80009	315003300
A6R446	307−1294−00			RES,FXD,FILM:0.51 OHM,5%,2W	80009	307129400
A6R448	308−0885−00			RES,FXD,WW:0.3 OHM,1%,2W	80009	308088500
A6R452	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R480	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R481	323−0295−00			RES,FXD,FILM:11.5K OHM,1%,0.5W,TC=T0	91637	CMF65116G11501F
A6R520	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R522	315−0392−00			RES,FXD,FILM:3.9K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R524	307−1247−00			RES,FXD,FILM:1K OHM,5%,0.25W	80009	307124700
A6R528	307−1248−00			RES,FXD,FILM:5.1K OHM,5%,0.5W	80009	307124800
A6R534	307−1249−00			RES,FXD,FILM:100 OHM,5%,0.5W	80009	307124900
A6R536	307−1249−00			RES,FXD,FILM:100 OHM,5%,0.5W	80009	307124900
A6R538	307−1286−00			RES,FXD,FILM:1 OHM,5%,2W	80009	307128600
A6R540	307−1286−00			RES,FXD,FILM:1 OHM,5%,2W	80009	307128600
A6R542	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6R544	315−0033−00			RES,FXD,CMPSN:3.3 OHM,5%,0.25	80009	315003300
A6R546	307−1294−00			RES,FXD,FILM:0.51 OHM,5%,2W	80009	307129400
A6R548	308−0885−00			RES,FXD,WW:0.3 OHM,1%,2W	80009	308088500
A6R552	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A6S92	260−2332−01			SWITCH,THRMSTC:NC,OPEN 70 DEG C,3A,250V	S3385	ORDER BY DESC
A6U100	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A6U102	156−0447−00			MICROCKT,DGTL:DIGITAL TRANSISTOR	80009	156044700
A6U103	156−0447−00			MICROCKT,DGTL:DIGITAL TRANSISTOR	80009	156044700

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A6U200	156−0514−00			IC,MISC:CMOS,ANALOG MUX;DUAL 4 CHANNEL	04713	MC14052BCP
A6U210	156−1771−00			MICROCKT,LINEAR:DUAL OP−AMP	80009	156177100
A6U212	156−1771−00			MICROCKT,LINEAR:DUAL OP−AMP	80009	156177100
A6U302	156−1771−00			MICROCKT,LINEAR:DUAL OP−AMP	80009	156177100
A6U310	156−1778−00			MICROCKT,LINEAR:DUAL COMPARATOR	80009	156177800
A6U330	156−2839−00			MICROCKT,LINEAR:DUAL OP−AMP	80009	156283900
A6U400	156−1699−00			IC,LINEAR:BIFET,OP−AMP;DUAL,LOW OFFSET	27014	LF412CN
A6W64	174−0301−00			CA ASSY,SP,ELEC:4,22 AWG,16.0 L	80009	174030100
A6W66	174−0304−00			CA ASSY,SP,ELEC:2,26 AWG,6.0 L,RIBBON	80009	174030400

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A7	670−9309−XX			CIRCUIT BD ASSY:STEP GENERATOR	80009	6709309XX
A7C20	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A7C30	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A7C40	290−1067−01			CAP,FXD,ELCTLT:100UF,20%,63V	80009	290106701
A7C50	290−1067−01			CAP,FXD,ELCTLT:100UF,20%,63V	80009	290106701
A7C60	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A7C70	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A7C120	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A7C122	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A7C170	281−0775−00	J302153		CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A7C180	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A7C200	281−0772−00			CAP,FXD,CERAMIC:MLC;4700PF,10%,100V	04222	SA101C472KAA
A7C340	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A7C342	283−0347−00			CAP,FXD,CER DI:68PF,5%,100V	59660	8121 B179 P3K0
A7C354	281−0768−00			CAP,FXD,CER DI:470PF,20%,100V	04222	SA101A471KAA
A7C355	281−0768−00			CAP,FXD,CER DI:470PF,20%,100V	04222	SA101A471KAA
A7C364	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A7C370	283−0642−00			CAP,FXD,MICA DI:;33PF,2%,500V,0.370 X 0.340	TK0974	DM10E330G5
A7C380	281−0788−00			CAP,FXD,CERAMIC:MLC;470PF,10%,100V	04222	SA102C471KAA
A7C410	281−0758−00			CAP,FXD,CERAMIC:MLC;15PF,20%,100V	04222	SA102A150MAA
A7C462	281−0767−00			CAP,FXD,CERAMIC:MLC;330PF,20%,100V	04222	SA102C331MAA
A7C480	281−0767−00			CAP,FXD,CERAMIC:MLC;330PF,20%,100V	04222	SA102C331MAA
A7C490	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A7C491	290−0821−00			CAP,FXD,ELCTLT:10UF,+50−10%,160V	80009	290082100
A7C495	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A7C496	290−0821−00			CAP,FXD,ELCTLT:10UF,+50−10%,160V	80009	290082100
A7C561	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A7C600	281−0811−00			CAP,FXD,CERAMIC:MLC;10PF,10%,200V	04222	SA102A100KAA
A7C630	290−0974−00			CAP,FXD,ALUM:;10UF,20%,50V,ESR=16.58 OHM	55680	UVX1H100MAA
A7C800	283−0203−00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	SR305C474MAA
A7C801	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A7C814	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A7C822	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A7C830	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A7C850	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A7CR340	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR342	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR350	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR351	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR352	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700

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A7CR353	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR354	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR355	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR356	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR357	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR358	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR359	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR402	152−0853−00			SEMICOND DVC,DI:DUAL RECT,SI,400V,5A	80009	152085300
A7CR450	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR452	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR480	152−0460−00			DIODE,SIG:,REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A7CR481	152−0460−00			DIODE,SIG:,REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A7CR482	152−0853−00			SEMICOND DVC,DI:DUAL RECT,SI,400V,5A,TO−220	80009	152085300
A7CR526	152−0853−00			SEMICOND DVC,DI:DUAL RECT,SI,400V,5A,TO−220	80009	152085300
A7CR527	152−1033−00			SEMICOND DVC,DI:CRD,5.6MA,10%,100V,0.3W	S5011	E−562
A7CR560	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR562	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR600	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR601	152−0327−00	J310136		SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR602	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR810	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR812	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR830	152−0460−00			DIODE,SIG:,REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A7CR840	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR841	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR842	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7CR843	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A7F300	159−0273−00	J301393	J302800	FUSE,WIRE LEAD:1/16A,125V,FAST	80009	159027300
A7F300	159−0332−00	J302801		FUSE,WIRE LEAD:1/8A,125V,FAST	80009	159033200
A7F500	159−0318−00			FUSE,WIRE LEAD:200MA,125V,FAST BLOW	80009	159031800
A7F800	159−0318−00			FUSE,WIRE LEAD:200MA,125V,FAST BLOW	80009	159031800
A7J70	131−2230−01			CONN,RCPT,ELEC:HEADER,2 X 8,2.54 SPACING	80009	131223001
A7J72	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A7J74	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A7K102	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7K500	148−0187−00			RELAY,ARM:DPDT,3A,200V,COIL,12VDC	80009	148018700
A7K502	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A7K506	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7K508	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7K510	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600

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A7K512	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7K520	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7K522	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7K524	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A7K526	148−0187−00			RELAY,ARM:DPDT,3A,200V,COIL,12VDC	80009	148018700
A7K570	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7K571	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A7L20	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A7L20	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A7L30	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A7L30	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A7L120	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A7L120	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A7L801	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A7L801	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A7Q400	151−0770−01			TRANSISTOR:NPN,SI,TO−126	80009	151077001
A7Q450	151−0739−01			TRANSISTOR:PNP,SI,TO−126	80009	151073901
A7Q460	151−0770−01			TRANSISTOR:NPN,SI,TO−126	80009	151077001
A7Q462	151−0561−00			TRANSISTOR:NPN,SI,PWR	80009	151056100
A7Q480	151−0739−01			TRANSISTOR:PNP,SI,TO−126	80009	151073901
A7Q490	151−0560−00			TRANSISTOR:NPN,SI,PWR	80009	151056000
A7Q495	151−0560−00			TRANSISTOR:NPN,SI,PWR	80009	151056000
A7Q560	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A7Q562	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A7Q620	151−0562−00			TRANSISTOR:PNP,SI,PWR	80009	151056200
A7Q630	151−0561−00			TRANSISTOR:NPN,SI,PWR	80009	151056100
A7Q810	151−0770−01			TRANSISTOR:NPN,SI,TO−126	80009	151077001
A7Q814	151−0739−01			TRANSISTOR:PNP,SI,TO−126	80009	151073901
A7Q816	151−0560−00			TRANSISTOR:NPN,SI,PWR	80009	151056000
A7Q830	151−0739−01			TRANSISTOR:PNP,SI,TO−126	80009	151073901
A7Q832	151−0560−00			TRANSISTOR:NPN,SI,PWR	80009	151056000
A7R100	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A7R110	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A7R200	315−0105−00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R300	321−0222−07			RES,FXD,FILM:2.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE2K000B
A7R302	321−0193−07			RES,FXD,FILM:1K OHM,0.1%,0.125W,TC=T9	19701	5033RE1K000B
A7R304	321−0193−07			RES,FXD,FILM:1K OHM,0.1%,0.125W,TC=T9	19701	5033RE1K000B
A7R306	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R310	311−0633−02			RES,VAR,NONWW:TRMR,5K OAM,0.5W	80009	311063302
A7R311	315−0272−00			RES,FXD,FILM:2.7K OHM,5%,0.25W	TK1727	SFR25 2322−181

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A7R312	315−0272−00			RES,FXD,FILM:2.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R313	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R320	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R321	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R322	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R323	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R324	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R325	311−0605−03			RES,VAR,NONWW:TRMR,200 OHM,20%,0.5W	80009	311060503
A7R330	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R332	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R340	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R342	321−0305−07			RES,FXD,FILM:14.7K OHM,0.1%,0.125W,TC=T9	S5518	CRB25 BZ 14.7 K
A7R343	321−1701−04			RES,FXD,FILM:5.22K OHM,0.1%,0.125W,TC=T2	19701	5033RC5K220B
A7R344	321−0222−07			RES,FXD,FILM:2.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE2K000B
A7R346	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322−182
A7R350	321−0222−07			RES,FXD,FILM:2.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE2K000B
A7R352	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R354	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A7R355	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A7R356	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A7R357	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A7R360	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R362	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R364	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R366	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R370	321−0222−07			RES,FXD,FILM:2.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE2K000B
A7R372	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A7R374	321−0481−00			RES,FXD,FILM:1M OHM,1%,0.125W,TC=T0	TK1727	2322−151−1M
A7R400	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R402	315−0222−00			RES,FXD,FILM:2.2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R410	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R412	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R450	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R460	315−0470−00			RES,FXD,FILM:47 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R462	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R465	315−0682−00			RES,FXD,FILM:6.8K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R466	315−0302−00			RES,FXD,FILM:3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R467	311−0635−04			RES,VAR,NONWW:TRMR,1K OHM,20%,0.5W	80009	311063504
A7R480	315−0470−00			RES,FXD,FILM:47 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R482	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A7R490	308−0949−00			RES,FXD,WW:110 OHM,5%,20W	80009	308094900
A7R491	308−0878−00			RES,FXD,WW:0.3 OHM,10%,2W	80009	308087800
A7R495	308−0949−00			RES,FXD,WW:110 OHM,5%,20W	80009	308094900
A7R496	308−0878−00			RES,FXD,WW:0.3 OHM,10%,2W	80009	308087800
A7R500	308−0880−00			RES,FXD,WW:9.0 OHM,0.1%,2W	80009	308088000
A7R502	308−0879−00			RES,FXD,WW:1.0 OHM,0.1%,3W	80009	308087900
A7R506	321−0097−07			RES,FXD,FILM:100 OHM,0.1%,0.125W,TC=T9	57668	CRB14 BZE 100 O
A7R508	321−0193−07			RES,FXD,FILM:1K OHM,0.1%,0.125W,TC=T9	19701	5033RE1K000B
A7R510	321−1289−07			RES,FXD,FILM:10.1K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K10B
A7R512	321−1389−07			RES,FXD,FILM:111K OHM,0.1%,0.125W,TC=T9	19701	5033RE1113B
A7R514	321−0481−07			RES,FXD,FILM:1M OHM,0.1%,0.125W,TC=T9	19701	5033RE1M000B
A7R516	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R520	307−0115−00		J303054	RES,FXD,CMPSN:7.5 OHM,5%,0.25W	50139	CB75G5 CARD PAC
A7R522	307−1305−00			RES,FXD,FILM:1.2 OHM,5%,1/2W	80009	307130500
A7R524	308−0878−00			RES,FXD,WW:0.3 OHM,10%,2W	80009	308087800
A7R526	307−1249−00			RES,FXD,FILM:100 OHM,5%,0.5W	80009	307124900
A7R527	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A7R528	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A7R536	315−0390−00			RES,FXD,FILM:39 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R560	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W	TK1727	SFR25 2322−182
A7R561	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W	TK1727	SFR25 2322−182
A7R562	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R600	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R601	315−0302−00			RES,FXD,FILM:3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R602	315−0302−00			RES,FXD,FILM:3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R603	311−0633−02			RES,VAR,NONWW:TRMR,5K OHM,0.5W	80009	311063302
A7R604	313−0223−00	J310136		RES,FXD,FILM:22K OHM,5%,1/6W	80009	311022300
A7R620	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R630	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R800	315−0105−00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R810	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R812	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R814	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R816	307−1249−00			RES,FXD,FILM:100 OHM,5%,0.5W	80009	307124900
A7R820	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R822	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R832	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A7R840	307−0107−00			RES,FXD,CMPSN:5.6 OHM,5%,0.25W	50139	CB56G5
A7R841	307−0106−00			RES,FXD,CMPSN:4.7 OHM,5%,0.25W	50139	CB47G5
A7R850	321−0321−07			RES,FXD,FILM:21.5K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A7R852	321−1746−07			RES,FXD,FILM:1.13K OHM,0.1%,0.125W,TC=T9	56845	CMF55118C11300B
A7U100	156−1827−00			MICROCKT,DGTL:C2MOS,3 LINE TO 8 LINE	80009	156182700
A7U102	156−0447−00			MICROCKT,DGTL:DIGITAL TRANSISTOR	80009	156044700
A7U120	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A7U120	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A7U140	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A7U140	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A7U160	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A7U160	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A7U170	156−0446−00			MICROCKT,DGTL:3−TERM POSI VOL REG +12V	80009	156044600
A7U180	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A7U180	156−4348−00	J302163		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A7U190	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A7U190	156−4348−00	J302163		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A7U200	156−2829−00			MICROCKT,LINEAR:OP−AMP	80009	156282900
A7U300	156−0514−00			IC,MISC:CMOS,ANALOG MUX;DUAL 4 CHANNEL	04713	MC14052BCP
A7U310	156−2829−00			MICROCKT,LINEAR:OP−AMP	80009	156282900
A7U330	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A7U340	156−2829−00			MICROCKT,LINEAR:OP−AMP	80009	156282900
A7U360	156−2829−00			MICROCKT,LINEAR:OP−AMP	80009	156282900
A7U370	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A7U380	156−2829−00			MICROCKT,LINEAR:OP−AMP	80009	156282900
A7U600	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A7U800	156−2829−00			MICROCKT,LINEAR:OP−AMP	80009	156282900
A7VR527	152−0283−00			DIODE,ZENER:,;43V,5%,0.4W	04713	1N976B
A7VR528	152−0283−00			DIODE,ZENER:,;43V,5%,0.4W	04713	1N976B
A7VR620	152−0243−00			DIODE,ZENER:,;15V,5%,0.4W	04713	SZ13203
A7VR621	152−0679−01	J310136		DIODE,ZENER:,;5.1V	80009	152067901
A7VR630	152−0243−00			DIODE,ZENER:,;15V,5%,0.4W	04713	SZ13203

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A9	671−1183−XX			CIRCUIT BD ASSY:LV RELAY	80009	6711183XX
A9C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A9C102	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A9C104	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A9C106	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A9C110	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A9C206	285−1373−00			CAP,FXD,PLASTIC:0.1UF,10%,2.5KV	80009	285137300
A9C209	290−1138−00			CAP,FXD,ELCTLT:1000UF,20%,25V	80009	290113800
A9C300	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A9C302	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A9C304	281−0886−00			CAP,FXD,CER DI:220PF,5%,50V	80009	281088600
A9C306	290−1139−00			CAP,FXD,ELCTLT:22UF,+30−10%,350V	80009	290113900
A9C307	290−1139−00			CAP,FXD,ELCTLT:22UF,+30−10%,350V	80009	290113900
A9C312	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A9C319	290−1140−00			CAP,FXD,ELCTLT:100UF,20%,160V	80009	290114000
A9C328	281−0759−00			CAP,FXD,CERAMIC:MLC;22PF,10%,100V	04222	SA102A220KAA
A9C510	283−0928−00			CAP,FXD,CER DI:10PF,5%,2KV (TEST SELECTED)	80009	283092800
A9C512	283−0928−00	J301393	J301512	CAP,FXD,CER DI:10PF,5%,2KV	80009	283092800
A9C512	283−0925−00	J301513	J302800	CAP,FXD,CER DI:22PF,5%,1KVDC	80009	283092500
A9C512	283−0967−00	J302801		CAP,FXD,CER DI:18PF,5%,1KVDC	80009	283096700
A9C512	283−0928−00	J301513		CAP,FXD,CER DI:22PF,5%,1KVDC (TEST SELECTED)	80009	283092800
A9C520	283−1043−00			CAP,FXD,CER DI:39PF,5%,1KV	80009	283104300
A9C522	283−1042−00			CAP,FXD,CER DI:33PF,5%,1KV	80009	283104200
A9CR200	152−0930−00			SEMICOND DVC,DI:16A,40V	80009	152093000
A9CR202	152−0929−00			SEMICOND DVC,DI:8A,40V	80009	152092900
A9CR204	152−0929−00			SEMICOND DVC,DI:8A,40V	80009	152092900
A9CR205	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR207	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR208	152−0752−00		J310164	DIODE,RECT:,;1500V,1A,ISFM=30A,25US,7PF	80009	152075200
A9CR208	152−1247−00	J310165		SEMICOND DVC,DI:RECT,SI,1.5KV,0.8A	80009	152124700
A9CR209	152−0752−00		J310164	DIODE,RECT:,;1500V,1A,ISFM=30A,25US,7PF	80009	152075200
A9CR209	152−1247−00	J310165		SEMICOND DVC,DI:RECT,SI,1.5KV,0.8A	80009	152124700
A9CR210	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR212	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR214	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR300	152−1124−00			SEMICOND DVC,DI:RECT,SI,600V,5A	80009	152112400
A9CR301	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR303	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR304	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR306	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A9CR308	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR310	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR312	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR314	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR315	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR316	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR317	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR318	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR400	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR402	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR404	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR406	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR408	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR410	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR412	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR414	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR416	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR500	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR505	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9CR510	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A9J80	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A9J82	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A9J89	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A9J90	131−3659−00			TERM,QIK DISC.:CKT,0.187 X 25,TAB	80009	131365900
A9J91	131−3668−00			CONN,RCPT,ELEC:CKT BD,4 PIN	80009	131366800
A9J92	131−3666−00			CONN,RCPT,ELEC:CKT BD,2 PIN	80009	131366600
A9J92	131−3669−00			CONN,RCPT,ELEC:CKT BD,6 PIN	80009	131366900
A9J93	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A9J94	131−3668−00			CONN,RCPT,ELEC:CKT BD,4 PIN	80009	131366800
A9J95	131−3667−00			CONN,RCPT,ELEC:CKT BD,3 PIN	80009	131366700
A9J97	131−3659−00			TERM,QIK DISC.:CKT,0.187 X 25,TAB	80009	131365900
A9J98	131−4216−00			CONN,RCPT,ELEC:PWR,FEMALE,15A	80009	131421600
A9J99	131−3659−00			TERM,QIK DISC.:CKT,0.187 X 25,TAB	80009	131365900
A9J150	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A9J160	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A9J400	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A9J410	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A9K204	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K210	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500
A9K211	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A9K212	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500
A9K213	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500
A9K214	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500
A9K215	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500
A9K300	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K302	148−0188−00	J301393	J302337	RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K302	148−0228−00	J302338		RELAY,ARM:DPDT,5A,AC250V,COIL,12VDC	80009	148022800
A9K304	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K306	148−0188−00	J301393	J302337	RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K306	148−0228−00	J302338		RELAY,ARM:DPDT,5A,AC250V,COIL,12VDC	80009	148022800
A9K308	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K310	148−0228−00			RELAY,ARM:DPDT,5A 250VAC,COIL,12VDC480 OHM	80009	148022800
A9K312	148−0228−00			RELAY,ARM:DPDT,5A 250VAC,COIL,12VDC480 OHM	80009	148022800
A9K314	148−0228−00			RELAY,ARM:DPDT,5A 250VAC,COIL,12VDC480 OHM	80009	148022800
A9K400	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500
A9K402	148−1015−00			RELAY,ARM:SPST,16A 250V AC,COIL 12VDC	80009	148101500
A9K404	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K406	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K408	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K410	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K412	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K414	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K416	148−0188−00			RELAY,ARM:SPDT,5A,AC380V,COIL,12VDC	80009	148018800
A9K500	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A9K505	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A9K510	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A9Q200	151−1273−00			TRANSISTOR:PWR,FET,N CHAN,SI,900V,3A,100W	80009	151127300
A9Q210	151−1273−00			TRANSISTOR:PWR,FET,N CHAN,SI,900V,3A,100W	80009	151127300
A9Q220	151−1273−00			TRANSISTOR:PWR,FET,N CHAN,SI,900V,3A,100W	80009	151127300
A9Q310	151−1272−00		J310347	TRANSISTOR:PWR,FET,N CHAN,SI,500V,5A,50W	80009	151127200
A9Q310	151−1309−00	J310348		TRANSISTOR:PWR,MOSFET,N−CH;500V,5A,50W; 2SK2356,TO−220	80009	151130900
A9Q320	151−1272−00		J310347	TRANSISTOR:PWR,FET,N CHAN,SI,500V,5A,50W	80009	151127200
A9Q320	151−1309−00	J310348		TRANSISTOR:PWR,MOSFET,N−CH;500V,5A,50W; 2SK2356,TO−220	80009	151130900
A9Q330	151−1272−00		J310347	TRANSISTOR:PWR,FET,N CHAN,SI,500V,5A,50W	80009	151127200
A9Q330	151−1309−00	J310348		TRANSISTOR:PWR,MOSFET,N−CH;500V,5A,50W; 2SK2356,TO−220	80009	151130900
A9Q340	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A9Q350	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A9Q360	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A9R100	307−0922−00			RES NTWK,FXD,FI:(8)100K OHM,5%,0.125W	80009	307092200
A9R110	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R204	307−1288−00			RES,FXD,FILM:470 OHM,5%,1W	80009	307128800
A9R208	307−1287−00	J301393	J302590	RES,FXD,FILM:1.5 OHM,5%,1W	80009	307128700
A9R208	307−1287−00	J302629		RES,FXD,FILM:1.5 OHM,5%,1W	80009	307128700
A9R209	308−0952−00			RES,FXD,WW:4.7M OHM,5%,0.25W	80009	308095200
A9R210	315−0391−00			RES,FXD,FILM:390 OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R219	308−0952−00			RES,FXD,WW:4.7M OHM,5%,0.25W	80009	308095200
A9R220	315−0391−00			RES,FXD,FILM:390 OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R222	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R224	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R225	315−0391−00			RES,FXD,FILM:390 OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R229	308−0952−00			RES,FXD,WW:4.7M OHM,5%,0.25W	80009	308095200
A9R300	307−1290−00			RES,FXD,FILM:510K OHM,5%,1W	80009	307129000
A9R301	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R302	307−1290−00			RES,FXD,FILM:510K OHM,5%,1W	80009	307129000
A9R303	315−0203−00			RES,FXD,FILM:20K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R304	307−1292−00			RES,FXD,FILM:100K OHM,5%,2W	80009	307129200
A9R306	307−1291−00	J301393	J302590	RES,FXD,FILM:110K OHM,5%,1W	80009	307129100
A9R306	307−1291−00	J302629		RES,FXD,FILM:110K OHM,5%,1W	80009	307129100
A9R307	307−1291−00	J301393	J302590	RES,FXD,FILM:110K OHM,5%,1W	80009	307129100
A9R307	307−1291−00	J302629		RES,FXD,FILM:110K OHM,5%,1W	80009	307129100
A9R314	307−1293−00			RES,FXD,FILM:5.6K OHM,5%,2W	80009	307129300
A9R316	315−0224−00			RES,FXD,FILM:220K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R319	307−1289−00	J301393	J302590	RES,FXD,FILM:15K OHM,5%,1W	80009	307128900
A9R319	307−1289−00	J302629		RES,FXD,FILM:15K OHM,5%,1W	80009	307128900
A9R320	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R322	315−0202−00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R324	315−0224−00			RES,FXD,FILM:220K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R325	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R328	315−0473−00			RES,FXD,FILM:47K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R330	308−0269−00			RES,FXD,WW:22 OHM,5%,3W	00213	1240S−22R00J
A9R334	315−0224−00			RES,FXD,FILM:220K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R350	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A9R416	307−1285−00			RES,FXD,FILM:160K OHM,2%,3W	80009	307128500
A9R417	307−1285−00			RES,FXD,FILM:160K OHM,2%,3W	80009	307128500
A9R418	307−1296−00			RES,FXD,FILM:200K OHM,2%,1W	80009	307129600
A9R419	307−1296−00			RES,FXD,FILM:200K OHM,2%,1W	80009	307129600
A9T300	120−1832−00			XFMR,PWR STPDN:12V IN,24V 5MA OUT,0.12V	80009	120183200

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A9U100	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A9U100	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A9U102	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A9U102	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A9U104	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9U104	156−4348−00	J302163		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A9U106	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A9U106	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A9U108	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9U108	156−4348−00	J302163		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A9U109	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9U109	156−4348−00	J302163		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A9U110	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A9U110	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A9U112	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9U112	156−4348−00	J302163		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A9U210	156−3726−00			CPLR,OPTOELECTR:LED & PHOTO	80009	156372600
A9U220	156−3726−00			CPLR,OPTOELECTR:LED & PHOTO	80009	156372600
A9U230	156−3726−00			CPLR,OPTOELECTR:LED & PHOTO	80009	156372600
A9U300	156−2026−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NOR	04713	MC74HC02AN
A9U700	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A9U700	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A9U710	156−1837−00			MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9U800	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A9U800	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A9U810	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9U810	156−4348−00	J302163		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A9U820	156−1837−00	J301393	J302162	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9U820	156−4348−00	J302163	J302176	MICROCKT,LINEAR:DRIVER W/STROBE	80009	156434800
A9U820	156−1837−00	J302177		MICROCKT,LINEAR:DRIVER W/STROBE	80009	156183700
A9VR200	152−0243−00			DIODE,ZENER:,;15V,5%,0.4W	04713	SZ13203
A9VR210	152−0243−00			DIODE,ZENER:,;15V,5%,0.4W	04713	SZ13203
A9W10	196−3301−00			LEAD,ELECTRICAL:18 AWG,6.0 L,W/LUG	80009	196330100
A9W90	174−1774−00			CA ASSY,SP,ELEC:40,26 AWG,8.0 L,RIBBON	80009	174177400

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A10	671−1150−XX			CIRCUIT BD ASSY:SENSE BOARD	80009	6711150XX
A10C110	285−1370−00			CAP,FXD,PLASTIC:0.001UF,10%,160V	80009	285137000
A10C112	285−1371−00			CAP,FXD,PLASTIC:0.01UF,10%,160V	80009	285137100
A10C114	285−1372−00			CAP,FXD,PLASTIC:0.1UF,10%,160V	80009	285137200
A10C138	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A10C139	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C148	283−0051−00			CAP,FXD,CER DI:0.0033UF,5%,100V	04222	SR211A332JAA
A10C149	283−1017−00			CAP,FXD,CER DI:4700PF,5%,50V	80009	283101700
A10C220	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C234	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A10C242	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A10C246	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A10C260	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A10C262	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C264	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C300	283−0640−00			CAP,FXD,MICA DI:160PF,1%,500V	TK0891	RDM15FD161F03
A10C312	283−0620−00			CAP,FXD,MICA DI:470PF,1%,500V	TK0891	RDM15FD471F03
A10C322	283−0620−00	J301393	J302534	CAP,FXD,MICA DI:470PF,1%,500V	TK0891	RDM15FD471F03
A10C322	283−0637−00	J302535		CAP,FXD,MICA DI:20PF,2.5%,500V	TK0891	RDM15E200D5
A10C340	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A10C342	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,10	04222	SA101C102KAA
A10C350	290−0684−00			CAP,FXD,ELCTLT:10UF,20%,16V	80009	290068400
A10C400	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C410	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C420	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C422	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C430	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C450	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A10C452	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A10C460	281−0763−00			CAP,FXD,CERAMIC:MLC;47PF,10%,100V	04222	SA102A470KAA
A10C500	283−0260−00			CAP,FXD,CER DI:5.6PF,+/−0.25PF,200V	04222	SR152A5R6CAA
A10C501	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C504	281−0814−00			CAP,FXD,CERAMIC:MLC;100 PF,10%,100V	TK1743	CGB101KEN
A10C520	283−0178−02			CAP,FXD,CER DI:0.1UF,+80−20%,100V	80009	283017802
A10C540	283−0178−02			CAP,FXD,CER DI:0.1UF,+80−20%,100V	80009	283017802
A10C570	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C572	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C574	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C700	290−1142−00			CAP,FXD,ELCTLT:100UF,20%,25V	80009	290114200
A10C702	290−1142−00			CAP,FXD,ELCTLT:100UF,20%,25V	80009	290114200

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A10C704	290−1142−00			CAP,FXD,ELCTLT:100UF,20%,25V	80009	290114200
A10C706	290−1142−00			CAP,FXD,ELCTLT:100UF,20%,25V	80009	290114200
A10C720	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10C740	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A10C1000	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A10CR200	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR202	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR204	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR206	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR210	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR212	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR220	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR222	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR348	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A10CR400	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR402	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR410	152−0936−00			SEMICOND DVC,DI:DUAL,1A,100V	80009	152093600
A10CR412	152−0937−00			SEMICOND DVC,DI:DUAL,1A,100V	80009	152093700
A10CR420	152−0937−00			SEMICOND DVC,DI:DUAL,1A,100V	80009	152093700
A10CR422	152−0936−00			SEMICOND DVC,DI:DUAL,1A,100V	80009	152093600
A10CR480	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A10CR481	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A10CR482	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A10CR483	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A10CR500	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10CR520	152−0460−00			DIODE,SIG:,REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A10CR540	152−0460−00			DIODE,SIG:,REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A10CR550	152−0939−00			SEMICOND DVC,DI:DUAL,100MA,20V	80009	152093900
A10E100	119−0181−00			ARSR,ELEC SURGE:230V, +/−15%	0C8T6	BBS−230V +/−15%
A10E200	119−0181−00			ARSR,ELEC SURGE:230V, +/−15%	0C8T6	BBS−230V +/−15%
A10E700	119−0181−00			ARSR,ELEC SURGE:230V, +/−15%	0C8T6	BBS−230V +/−15%
A10J90	131−3660−00			CONN,RCPT,ELEC:HEADER,2 X 20	80009	131366000
A10J101	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J102	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J104	131−3666−00			CONN,RCPT,ELEC:CKT BD,2 PIN	80009	131366600
A10J140	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J300	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J301	131−3659−00			TERM,QIK DISC.:CKT,0.187 X 25,TAB	80009	131365900
A10J302	131−3667−00	J301393	J302260	CONN,RCPT,ELEC:CKT BD,3 PIN	80009	131366700
A10J302	131−5732−00	J302261		TERM,QUICK DISC:PCB,MALESTR,0.110 X 0.020 (REQUIRED THREE TERMS FOR A10J302)	80009	131573200

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A10J303	131−3659−00			TERM,QIK DISC.:CKT,0.187 X 25,TAB	80009	131365900
A10J308	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J330	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J414	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A10J415	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A10J416	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J417	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A10J418	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A10J419	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A10K110	148−0189−00			RELAY,ARM:DPST,8A,380V,COIL,12VDC	80009	148018900
A10K120	148−0189−00			RELAY,ARM:DPST,8A,380V,COIL,12VDC	80009	148018900
A10K130	148−0191−00			RELAY,ARM:QPST,4A,250V,COIL,12VDC	80009	148019100
A10K140	148−0191−00			RELAY,ARM:QPST,4A,250V,COIL,12VDC	80009	148019100
A10K150	148−0191−00			RELAY,ARM:QPST,4A,250V,COIL,12VDC	80009	148019100
A10K160	148−0191−00			RELAY,ARM:QPST,4A,250V,COIL,12VDC	80009	148019100
A10K170	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A10K180	148−0192−00			RELAY,ARM:DPDT,4A,250V COIL,12VDC	80009	148019200
A10K190	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A10K200	148−0186−00			RELAY,ARM:1 FORM C,3A,200V,COIL 12VDC	80009	148018600
A10K230	148−0187−00			RELAY,ARM:DPDT,3A,200V,COIL,12VDC	80009	148018700
A10K340	148−0190−00			RELAY,REED:0.25A,100V,COIL,12VDC	80009	148019000
A10K350	148−0190−00			RELAY,REED:0.25A,100V,COIL,12VDC	80009	148019000
A10K360	148−0190−00			RELAY,REED:0.25A,100V,COIL,12VDC	80009	148019000
A10K370	148−0190−00			RELAY,REED:0.25A,100V,COIL,12VDC	80009	148019000
A10K700	148−0207−00			RELAY,ARMATURE:DPST,8A,380V,COIL 9VDC	S0293	ST2−DC9V
A10L700	108−0948−00	J301393	J301752	COIL,RF:FIXED,100UH,10%	80009	108094800
A10L702	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A10L702	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A10L704	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A10L704	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A10L706	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A10L706	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A10P101	131−4311−00			BUS,CONDUCTOR:WHITE,SHUNT ASSY	80009	131431100
A10P102	131−4311−00			BUS,CONDUCTOR:WHITE,SHUNT ASSY	80009	131431100
A10P130	131−2936−01			CONN,RCPT,ELEC:FEMALE,2 X 15	80009	131293601
A10Q350	151−0551−00	J301393	J302261	TRANSISTOR:NPN,SI,TR,30V,TO−92	80009	151055100
A10Q350	151−0764−00	J302262		TRANSISTOR:NPN,SI,TO−92	80009	151076400
A10Q520	151−0559−00			TRANSISTOR:NPN,SI,PWR	S0167	2SC2071B
A10Q530	151−0559−00			TRANSISTOR:NPN,SI,PWR	S0167	2SC2071B
A10Q540	151−0558−00			TRANSISTOR:PNP,SI	80009	151055800

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A10Q740	151−0551−00	J301393	J302261	TRANSISTOR:NPN,SI,TR,30V,TO−92	80009	151055100
A10Q740	151−0764−00	J302262		TRANSISTOR:NPN,SI,TO−92	80009	151076400
A10R100	308−0884−04			RES,FXD,WW:0.025 OHM,4W,0.1%	80009	308088404
A10R104	308−0881−00			RES,FXD,WW:2.25 OHM,0.1%,2W	80009	308088100
A10R106	308−0882−00			RES,FXD,WW:22.5 OHM,0.1%,2W	80009	308088200
A10R108	308−0883−00			RES,FXD,WW:225 OHM,0.1%,2W	80009	308088300
A10R110	323−0222−07			RES,FXD,FILM:2K OHM,0.1%,0.5W,TC=25PPM	80009	323022207
A10R112	321−0928−07			RES,FXD,FILM:250 OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A10R114	323−0318−07			RES,FXD,FILM:20K OHM,0.1%,0.5W,TC=T9	19701	5053RE20K00B
A10R116	321−0929−07			RES,FXD,FILM:2.5K OHM,0.1%,0.125W,TC=T9	TK1727	2322−1412K5
A10R118	323−0742−07			RES,FXD,FILM:250K OHM,0.1%,0.5W,TC=T9	07716	CEC T9 250 K OH
A10R119	321−0231−00			RES,FXD,FILM:2.49K OHM,1%,0.125W,TC=T0	19701	5033ED2K49F
A10R120	325−0403−00			RES,FXD,FILM:2.778M OHM,0.1%,0.5W	80009	325040300
A10R122	325−0402−00			RES,FXD,FILM:25M OHM,0.1%,0.5W	80009	325040200
A10R130	307−1560−00			RES,FXD,FILM:1.2 OHM,0.5W,5%	80009	307156000
A10R132	321−0809−08			RES,FXD,FILM:12.5 OHM,0.125W,1%,TC=50PPM	80009	321080908
A10R134	321−0927−07			RES,FXD,FILM:125 OHM,0.1%,0.125W,TC=T9	19701	5033RE125ROB
A10R136	321−0206−00			RES,FXD,FILM:1.37K OHM,1%,0.125W,TC=T0	19701	5043ED1K370F
A10R138	321−0356−00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
A10R139	311−1619−00			RES,VAR,NONWW:100K OHM,20%,0.5W	80009	311161900
A10R140	315−0024−00			RES,FXD,CMPSN:2.4 OHM,5%,0.25W	80009	315002400
A10R141	315−0433−00			RES,FXD,FILM:43K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R142	321−0039−00			RES,FXD,FILM:24.9 OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−9
A10R144	321−0135−00			RES,FXD,FILM:249 OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−2
A10R146	321−0235−00			RES,FXD,FILM:2.74K OHM,1%,0.125W,TC=T0	19701	5043ED2K74OF
A10R148	321−0327−00			RES,FXD,FILM:24.9K OHM,1%,0.125W,TC=T0	07716	CEAD24901F
A10R200	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R205	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R210	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R212	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R214	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R216	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R218	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R220	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R221	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R222	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R224	311−1619−00			RES,VAR,NONWW:100K OHM,20%,0.5W	80009	311161900
A10R227	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A10R228	321−0350−00			RES,FXD,FILM:43.2K OHM,1%,0.125W,TC=T0	TK1727	2322−151−43K2
A10R230	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F

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A10R232	321−0340−00			RES,FXD,FILM:34.0K OHM,1%,0.125W,TC=T0	TK1727	2322−151−34K0
A10R233	315−0103−00	J301393	J301827	RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R233	315−0303−00	J301828		RES,FXD,FILM:30K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R234	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A10R235	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R236	321−0340−00			RES,FXD,FILM:34.0K OHM,1%,0.125W,TC=T0	TK1727	2322−151−34K0
A10R237	315−0204−00			RES,FXD,FILM:200K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R238	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A10R239	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R240	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R242	321−1752−07			RES,FXD,FILM:16K OHM,0.1%,0.125W,TC=T9	80009	321175207
A10R244	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R246	321−1752−07			RES,FXD,FILM:16K OHM,0.1%,0.125W,TC=T9	80009	321175207
A10R250	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A10R251	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R252	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R254	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R255	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R256	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R258	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R260	321−0603−07			RES,FXD,FILM:15K OHM,0.1%,0.125W,TC=T9	19701	5033RE15K00B
A10R262	321−0816−07			RES,FXD,FILM:5K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A10R264	321−0816−07			RES,FXD,FILM:5K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A10R270	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A10R272	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R274	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R300	301−0471−00			RES,FXD,FILM:470 OHM,5%,0.5W	TK1727	SFR30 2322−182
A10R302	321−0986−07			RES,FXD,FILM:25K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A10R304	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R312	321−0986−07			RES,FXD,FILM:25K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24−2322−141
A10R314	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R322	321−0618−07			RES,FXD,FILM:250K OHM,0.1%,0.125W,TC=T9	80009	321061807
A10R324	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R340	315−0123−00			RES,FXD,FILM:12K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R342	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R344	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R346	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R348	315−0910−00			RES,FXD,FILM:91 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R350	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R352	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181

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A10R400	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R402	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R410	307−1300−00			RES,FXD,FILM:51 OHM,5%,5W	80009	307130000
A10R411	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R412	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R414	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R416	321−0414−07			RES,FXD,FILM:200K OHM,0.1%,0.125W,TC=T9	07716	CEA 200 KOHM 0.
A10R418	315−0205−00			RES,FXD,FILM:2M OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R420	307−1284−00			RES,FXD,FILM:160 OHM,5%,5W	80009	307128400
A10R421	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R422	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R423	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R424	315−0206−01			RES,FXD,CMPSN:20M OHM,5%,0.25W	50139	CB2065 (ALLEN B
A10R426	321−0414−00			RES,FXD,FILM:200K OHM,1%,0.125W,TC=T0	19701	5043ED200K0F
A10R430	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R432	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R434	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R436	321−0226−00			RES,FXD,FILM:2.21K OHM,1%,0.125W,TC=T0	19701	5043ED2K210F
A10R438	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R440	321−0130−00			RES,FXD,FILM:221 OHM,1%,0.125W,TC=T0	19701	5043ED221ROF
A10R442	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R444	315−0220−00			RES,FXD,FILM:22 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R446	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R448	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R450	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R452	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R454	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R460	311−1743−02			RES,VAR,NONWW:10K OHM,20%,0.5W	80009	311174302
A10R462	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R466	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R470	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R472	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R474	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R476	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R478	321−0603−07			RES,FXD,FILM:15K OHM,0.1%,0.125W,TC=T9	19701	5033RE15K00B
A10R480	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R481	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R482	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R483	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R484	315−0202−00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322−181

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A10R485	315−0622−00			RES,FXD,FILM:6.2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R486	315−0202−00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R487	315−0622−00			RES,FXD,FILM:6.2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R490	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R500	301−0105−00			RES,FXD,FILM:1M OHM,5%,0.50W	TK2611	RC1/20105J
A10R502	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R504	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R506	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R520	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R522	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R540	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R542	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R550	321−0414−07			RES,FXD,FILM:200K OHM,0.1%,0.125W,TC=T9	07716	CEA 200 KOHM 0.
A10R552	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R554	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R556	321−0289−07			RES,FXD,FILM:10.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE10K00B
A10R558	321−0318−07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	19701	5033RE20K00BCM
A10R560	321−0316−00	J301393	J302608	RES,FXD,FILM:19.1K OHM,1%,0.125W,TC=T0	07716	CEAD19101F
A10R560	321−0317−00	J302609		RES,FXD,FILM:19.6K OHM,1%,0.125W,TC=T0	80009	321031700
A10R562	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A10R564	321−0254−00			RES,FXD,FILM:4.32K OHM,1%,0.125W,TC=T0	19701	5043ED4K320F
A10R565	321−0316−00	J301393	J302608	RES,FXD,FILM:19.1K OHM,1%,0.125W,TC=T0	07716	CEAD19101F
A10R565	321−0317−00	J302609		RES,FXD,FILM:19.6K OHM,1%,0.125W,TC=T0	80009	321031700
A10R566	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A10R567	321−0193−00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	TK1727	MR25 2322−151−1
A10R568	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A10R570	321−0254−00			RES,FXD,FILM:4.32K OHM,1%,0.125W,TC=T0	19701	5043ED4K320F
A10R572	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R574	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R600	301−0471−00			RES,FXD,FILM:470 OHM,5%,0.5W	TK1727	SFR30 2322−182
A10R702	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R704	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R706	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R708	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R718	315−0562−00			RES,FXD,FILM:5.6K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R722	315−0332−00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R730	307−0909−00			RES NTWK,FXD,FI:(4)10K OHM,5%,0.25W EACH	80009	307090900
A10R732	307−0909−00			RES NTWK,FXD,FI:(4)10K OHM,5%,0.25W EACH	80009	307090900
A10R740	315−0242−00			RES,FXD,FILM:2.4K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R742	315−0332−00	J301393	J302162	RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A10R742	315−0471−00	J302163		RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R750	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A10R752	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A10R1000	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W	TK1727	SFR25 2322−182
A10TP250	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A10TP460	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A10TP708	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A10U200	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U205	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U210	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U215	156−2832−01	J301393	J301852	MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U215	156−3756−00	J301753		IC,LINEAR:BIFET,OP−AMP;LOW NOISE,PRECISION	24355	AD711KN
A10U220	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U225	156−2832−01	J301393	J301752	MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U225	156−3756−00	J301753		IC,LINEAR:BIFET,OP−AMP;LOW NOISE,PRECISION	24355	AD711KN
A10U230	156−2832−01			MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U240	156−2832−01			MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U250	156−2832−01	J301393	J301752	MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U250	156−3756−00	J301753		IC,LINEAR:BIFET,OP−AMP;LOW NOISE,PRECISION	24355	AD711KN
A10U255	156−2832−01	J301393	J301752	MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U255	156−3756−00	J301753		IC,LINEAR:BIFET,OP−AMP;LOW NOISE,PRECISION	24355	AD711KN
A10U260	156−2832−01			MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U270	156−0515−00			IC,MISC:CMOS,ANALOG MUX;TRIPLE SPDT	04713	MC14053BCP
A10U340	156−2836−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT XOR	80009	156283600
A10U350	156−1152−00			IC,DIGITAL:CMOS,MULTIVIBRATOR;DUAL	04713	MC14538BCL
A10U400	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U410	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U420	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U430	156−0514−00			IC,MISC:CMOS,ANALOG MUX;DUAL 4 CHANNEL	04713	MC14052BCP
A10U440	156−0514−00			IC,MISC:CMOS,ANALOG MUX;DUAL 4 CHANNEL	04713	MC14052BCP
A10U450	156−2832−01	J301393	J301752	MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U450	156−3756−00	J301753		IC,LINEAR:BIFET,OP−AMP;LOW NOISE,PRECISION	24355	AD711KN
A10U460	156−2832−01			MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U470	156−0514−00			IC,MISC:CMOS,ANALOG MUX;DUAL 4 CHANNEL	04713	MC14052BCP
A10U480	156−0495−00			IC,LINEAR:BIPOLAR,OP−AMP;QUAD,SINGLE	01295	LM324N
A10U490	156−2832−01	J301393	J301752	MICROCKT,DGTL:OP AMP,BIFET	TK0AB	LF411CN
A10U490	156−3756−00	J301753		IC,LINEAR:BIFET,OP−AMP;LOW NOISE,PRECISION	24355	AD711KN
A10U500	156−2793−00			MICROCKT,LINEAR:OPERATIONAL,BIFET	80009	156279300
A10U560	156−1784−00			MICROCKT,LINEAR:DUAL COMPARATOR	80009	156178400
A10U565	156−1784−00			MICROCKT,LINEAR:DUAL COMPARATOR	80009	156178400

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A10U570	156−1828−00			MICROCKT,DGTL:C2MOS,DUAL D−TYPE FLIP FLOP	80009	156182800
A10U700	156−0402−04			MICROCKT,LINEAR:TIMER	80009	156040204
A10U720	156−1827−00			MICROCKT,DGTL:C2MOS,3 LINE TO 8 LINE	80009	156182700
A10U730	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A10U730	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A10U740	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A10U740	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A10U745	156−2903−00			MICROCKT,DGTL:8 UNIT DARLINGTON XSTR	80009	156290300
A10U750	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A10U750	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A10U755	156−2903−00			MICROCKT,DGTL:8 UNIT DARLINGTON XSTR	80009	156290300
A10U760	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A10U760	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A10U765	156−2903−00			MICROCKT,DGTL:8 UNIT DARLINGTON XSTR	80009	156290300
A10U770	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A10U770	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A10U775	156−2903−00			MICROCKT,DGTL:8 UNIT DARLINGTON XSTR	80009	156290300
A10VR200	152−0395−00			DIODE,ZENER:,;4.3V,5%,0.4W	04713	1N749ARL
A10VR202	152−0395−00			DIODE,ZENER:,;4.3V,5%,0.4W	04713	1N749ARL
A10VR400	152−0175−00			DIODE,ZENER:,;5.6V,5%,0.4W	04713	SZG35008
A10VR402	152−0175−00			DIODE,ZENER:,;5.6V,5%,0.4W	04713	SZG35008
A10VR530	152−0168−00			DIODE,ZENER:,;12V,5%,0.4W	04713	1N963BRL
A10VR534	152−0166−00			DIODE,ZENER:,;6.2V,5%,0.4W	04713	1N5995BRL
A10W105	196−3275−00			LEAD,ELECTRICAL:18 AWG,27.0 L,0−8 W/FASTON	80009	196327500
A10W160	198−5466−00			WIRE SET,ELEC:	80009	198546600
A10W700	175−0733−00	J301753		WIRE,ELECTRICAL:STRD,26 AWG,150V	TK0770	15640−000

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A11	671−1152−XX			CIRCUIT BD ASSY:MAIN KEY	80009	6711152XX
A11C10	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A11C20	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A11C30	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A11C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A11CR210	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR211	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR212	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR213	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR214	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR215	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR216	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR217	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR218	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR219	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR220	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11CR221	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A11L10	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A11L10	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A11L20	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A11L20	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A11L30	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A11L30	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A11P100	131−3656−01			CONN,RCPT,ELEC:HEADER,STR,15 PIN,0.1 SP	S4549	PS−15PA−S4T1−P
A11P120	131−3656−01			CONN,RCPT,ELEC:HEADER,STR,15 PIN,0.1 SP	S4549	PS−15PA−S4T1−P
A11R110	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R111	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R112	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R113	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R114	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R115	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R116	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R117	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R118	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R119	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R120	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R121	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R122	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R123	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R124	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181

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A11R125	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R126	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R127	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R128	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R130	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R131	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R132	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R133	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R134	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R135	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R136	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R137	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R300	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R302	311−2457−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245700
A11R304	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R310	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R312	311−2457−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245700
A11R314	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R320	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R322	311−2457−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245700
A11R324	315−0153−00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322−181
A11R330	311−2457−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245700
A11R340	311−2457−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245700
A11R350	311−2456−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245600
A11R360	311−2456−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245600
A11R370	311−2456−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245600
A11S210	260−2325−00			SWITCH,ROTARY:4 BITS,GRAY	80009	260232500
A11S220	260−2325−00			SWITCH,ROTARY:4 BITS,GRAY	80009	260232500
A11S230	260−2325−00			SWITCH,ROTARY:4 BITS,GRAY	80009	260232500
A11U120	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A11U140	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;3−TO−8	80009	156231600
A11U160	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;3−TO−8	80009	156231600
A11U170	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;3−TO−8	80009	156231600
A11U180	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;DUAL	80009	156282500
A11U190	156−2316−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;3−TO−8	80009	156231600
A11W110	174−0293−00			CA ASSY,SP,ELEC:40,28 AWG,4.3 L,RIBBON	80009	174029300
A11W111	196−3096−00			LEAD,ELECTRICAL:18 AWG,3.5 L,5−4	80009	196309600
A11W112	196−3096−00			LEAD,ELECTRICAL:18 AWG,3.5 L,5−4	80009	196309600
A12	671−1149−02			CIRCUIT BD ASSY:SUB KEY	80009	671114902
A12C10	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA

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A12C170	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A12CR300	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR301	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR302	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR303	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR304	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR305	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR310	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR311	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR312	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR313	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR314	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR315	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR320	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR321	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR322	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR323	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR324	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR325	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR330	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR331	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR332	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR333	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR335	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR340	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR341	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR342	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR343	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR344	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR345	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR350	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR351	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR353	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR354	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR355	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR360	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR361	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR362	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR363	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR364	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A12CR365	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR370	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR371	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR372	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12CR373	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A12DS100	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS101	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS102	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS103	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS104	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS105	150−1175−00			LT EMITTING DIO:YELLOW	80009	150117500
A12DS106	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS107	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS110	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS111	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS112	150−1173−00			LT EMITTING DIO:RED	80009	150117300
A12DS113	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS114	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS115	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS116	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS117	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS120	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS121	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS122	150−1173−00			LT EMITTING DIO:RED	80009	150117300
A12DS123	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS124	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS125	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS126	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS127	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS130	150−1173−00			LT EMITTING DIO:RED	80009	150117300
A12DS131	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS132	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS133	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS134	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS135	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS136	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS137	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS140	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS141	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS142	150−1175−00			LT EMITTING DIO:YELLOW	80009	150117500

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A12DS143	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS144	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS145	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS146	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS147	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS150	150−1175−00			LT EMITTING DIO:YELLOW	80009	150117500
A12DS151	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS153	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS154	150−1173−00			LT EMITTING DIO:RED	80009	150117300
A12DS155	150−1173−00			LT EMITTING DIO:RED	80009	150117300
A12DS156	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS157	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS160	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS161	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS162	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS164	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS165	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS166	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS167	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A12DS190	150−1174−00			LT EMITTING DIO:YELLOW,7 SEGMENT	80009	150117400
A12DS200	150−1174−00			LT EMITTING DIO:YELLOW,7 SEGMENT	80009	150117400
A12DS210	150−1174−00			LT EMITTING DIO:YELLOW,7 SEGMENT	80009	150117400
A12DS220	150−1174−00			LT EMITTING DIO:YELLOW,7 SEGMENT	80009	150117400
A12J100	131−3657−01			CONN,PLUG,ELEC:STR,15 PIN,0.1 SPACING	S4549	PS−15SD−S4TS1
A12J120	131−3657−01			CONN,PLUG,ELEC:STR,15 PIN,0.1 SPACING	S4549	PS−15SD−S4TS1
A12Q190	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A12R10	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R11	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R12	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R13	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R14	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R15	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R16	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R17	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R18	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R20	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R21	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R22	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R30	315−0334−00			RES,FXD,FILM:330K OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R100	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A12R101	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R104	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R110	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R112	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R114	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R120	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R122	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R124	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R130	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R132	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R140	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R142	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R143	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R146	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R157	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R160	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R161	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R165	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R166	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R190	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R191	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R192	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R200	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R201	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R202	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R203	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R204	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R205	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R206	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R210	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R211	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R212	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R213	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R214	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R215	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R216	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R220	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R221	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R222	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R223	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A12R224	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R225	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12R226	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A12S300	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S301	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S302	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S303	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S304	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S305	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S310	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S311	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S312	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S313	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S314	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S315	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S320	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S321	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S322	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S323	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S324	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S325	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S330	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S331	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S332	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S333	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S335	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S340	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S341	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S342	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S343	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S344	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S345	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S350	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S351	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S353	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S354	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S355	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S360	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S361	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S362	260−2156−00			SWITCH,KEY:SPST	80009	260215600

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A12S363	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S364	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S365	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S370	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S371	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S372	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12S373	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A12U100	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U110	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U120	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U130	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U140	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U150	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U160	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U170	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U180	156−1822−00			MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A12U200	156−0795−01			IC,DIGITAL:CMOS,DEMUX/DECODER	04713	MC14511 BCLD
A12U210	156−0795−01			IC,DIGITAL:CMOS,DEMUX/DECODER	04713	MC14511 BCLD
A12U220	156−0795−01			IC,DIGITAL:CMOS,DEMUX/DECODER	04713	MC14511 BCLD

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A13	671−1238−XX			CIRCUIT BD ASSY:KEY INTERFACE	80009	6711238XX
A13C10	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A13C60	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C70	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C80	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C130	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C140	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C160	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C170	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C172	281−0785−00	J302629		CAP,FXD,CERAMIC:MLC;68PF,10%,100V	80009	281078500
A13C173	281−0785−00	J302629		CAP,FXD,CERAMIC:MLC;68PF,10%,100V	80009	281078500
A13C180	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C190	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C200	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13C210	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A13CR110	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A13CR111	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A13J100	131−3662−00			CONN,RCPT,ELEC:HEADER,2 X 17	80009	131366200
A13J130	131−2944−00			CONN,RCPT,ELEC:HEADER,STRAIGHT,2 X 15	80009	131294400
A13J131	131−5027−00			CONN,HDR:HEADER,2 X 15 RTANG,0.1 CTR	80009	131502700
A13J142	131−3662−00			CONN,RCPT,ELEC:HEADER,2 X 17	80009	131366200
A13L10	108−0948−00	J301393	J301877	COIL,RF:FIXED,100UH,10%	80009	108094800
A13L10	108−1506−00	J301878		INDUCTOR,FXD:SIGNAL;100UH,10%	80009	108150600
A13R60	307−0913−00			RES NTWK,FXD,FI:(8)4.7K OHM,5%,0.125W EACH	80009	307091300
A13R101	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A13R102	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A13R103	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A13R105	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A13R110	315−0202−00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322−181
A13R202	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A13R204	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A13R212	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A13R214	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A13U60	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A13U70	156−1821−00			MICROCKT,DGTL:C2MOS,HEX NON−INVERTING	80009	156182100
A13U80	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A13U80	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A13U90	156−1822−00	J301393	J302394	MICROCKT,DGTL:C2MOS,8 BIT ADDRESSABLE	80009	156182200
A13U90	156−2824−00	J302395		IC,DIGITAL:HCMOS,LATCH;8−BIT ADDRESSABLE	01295	SN74HC259N
A13U100	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A13U110	156−1821−00			MICROCKT,DGTL:C2MOS,HEX NON−INVERTING	80009	156182100
A13U120	156−1829−00			MICROCKT,DGTL:C2MOS,GATE,QUAD 2 INP	80009	156182900
A13U130	156−1828−00			MICROCKT,DGTL:C2MOS,DUAL D−TYPE FLIP FLOP	80009	156182800
A13U140	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;DUAL	80009	156282500
A13U150	156−1818−00			MICROCKT,DGTL:C2MOS,DUAL 4−BIT BINARY	80009	156181800
A13U160	156−1818−00			MICROCKT,DGTL:C2MOS,DUAL 4−BIT BINARY	80009	156181800
A13U170	156−2796−00			MICROCKT,DGTL:HEX INVERTER	80009	156279600
A13U180	156−2792−00			MICROCKT,DGTL:OCTAL D−F.F	80009	156279200
A13U190	156−2792−00			MICROCKT,DGTL:OCTAL D−F.F	80009	156279200

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A14	671−1115−XX			CIRCUIT BD ASSY:LOR KEY	80009	6711115XX
A14C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A14DS100	150−1176−00			LT EMITTING DIO:RED	80009	150117600
A14DS200	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A14DS210	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A14DS220	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A14DS400	150−1176−00			LT EMITTING DIO:RED	80009	150117600
A14R100	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A14R110	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A14R120	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A14R250	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A14R400	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A14S100	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A14S110	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A14S120	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A14W100	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A14W140	174−1832−00			CA ASSY,SP,ELEC:14,28 AWG,23.0 L,RIBBON	80009	174183200

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A15	671−1095−XX			CIRCUIT BD ASSY:CONFIGURATION LED	80009	6711095XX
A15C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A15DS100	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A15DS110	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A15DS120	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A15DS130	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A15DS140	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A15DS150	150−1179−00			LT EMITTING DIO:GREEN	80009	150117900
A15J200	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A15J210	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A15R100	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A15R110	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A15R160	315−0301−00			RES,FXD,FILM:300 OHM,5%,0.25W	TK1727	SFR25 2322−181
A15R170	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A15R180	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A15S100	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A15S110	260−2156−00			SWITCH,KEY:SPST	80009	260215600
A15W100	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A15W150	174−1775−00	J301393	J301497	CA ASSY,SP,ELEC:16,26 AWG,18.0 L,RIBBON	80009	174177500
A15W150	174−1775−01	J301498		CA ASSY,SP,ELEC:16,28 AWG,250MM L,RIBBON	80009	174177501

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A18	670−9319−XX			CIRCUIT BD ASSY:CRT OUTPUT	80009	6709319XX
A18C50	290−0747−00			CAP,FXD,ELCTLT:100UF,+50−20%,25WVDC	0H1N5	CE02W1E101F
A18C52	290−0747−00			CAP,FXD,ELCTLT:100UF,+50−20%,25WVDC	0H1N5	CE02W1E101F
A18C60	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A18C62	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A18C70	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A18C82	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A18C100	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C102	283−0240−00	J301393	J302295	CAP,FXD,CER DI:1PF,20%,500V	80009	283024000
A18C102	281−0538−00	J302296		CAP,FXD,CERAMIC:MLC;1PF,20%,500V	TK2058	DA12COG2H010M
A18C104	283−0240−00	J301393	J302295	CAP,FXD,CER DI:1PF,20%,500V	80009	283024000
A18C104	281−0538−00	J302296		CAP,FXD,CERAMIC:MLC;1PF,20%,500V	TK2058	DA12COG2H010M
A18C106	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C120	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A18C122	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C200	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C202	283−0240−00	J301393	J302295	CAP,FXD,CER DI:1PF,20%,500V	80009	283024000
A18C202	281−0538−00	J302296		CAP,FXD,CERAMIC:MLC;1PF,20%,500V	TK2058	DA12COG2H010M
A18C204	283−0240−00	J301393	J302295	CAP,FXD,CER DI:1PF,20%,500V	80009	283024000
A18C204	281−0538−00	J302296		CAP,FXD,CERAMIC:MLC;1PF,20%,500V	TK2058	DA12COG2H010M
A18C206	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C220	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A18C222	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C300	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A18C302	283−0240−00	J301393	J302295	CAP,FXD,CER DI:1PF,20%,500V	80009	283024000
A18C302	281−0538−00	J302296		CAP,FXD,CERAMIC:MLC;1PF,20%,500V	TK2058	DA12COG2H010M
A18C304	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C306	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C400	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18C420	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A18CR100	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR102	152−0322−00			DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF	50434	5082−2672−T25
A18CR104	152−0322−00			DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF	50434	5082−2672−T25
A18CR110	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR112	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR200	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR202	152−0322−00			DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF	50434	5082−2672−T25
A18CR204	152−0322−00			DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF	50434	5082−2672−T25
A18CR210	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR212	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A18CR300	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR302	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR304	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A18CR306	152−0322−00			DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF	50434	5082−2672−T25
A18J180	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A18J182	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A18J184	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A18J186	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A18Q100	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A18Q102	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A18Q110	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A18Q112	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A18Q120	151−0423−00			TRANSISTOR,PWR:BIPOLAR,NPN;400V,1.0A	TK0BZ	2SC2333L
A18Q122	151−0423−00			TRANSISTOR,PWR:BIPOLAR,NPN;400V,1.0A	TK0BZ	2SC2333L
A18Q130	151−0721−00			TRANSISTOR:PNP,SI,TO−220AB	80009	151072100
A18Q132	151−0721−00			TRANSISTOR:PNP,SI,TO−220AB	80009	151072100
A18Q200	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A18Q202	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A18Q210	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A18Q212	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A18Q220	151−0423−00			TRANSISTOR,PWR:BIPOLAR,NPN;400V,1.0A	TK0BZ	2SC2333L
A18Q222	151−0423−00			TRANSISTOR,PWR:BIPOLAR,NPN;400V,1.0A	TK0BZ	2SC2333L
A18Q230	151−0721−00			TRANSISTOR:PNP,SI,TO−220AB	80009	151072100
A18Q232	151−0721−00			TRANSISTOR:PNP,SI,TO−220AB	80009	151072100
A18Q300	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A18Q310	151−0190−00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA	04713	2N3904
A18Q312	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A18Q320	151−0721−00			TRANSISTOR:PNP,SI,TO−220AB	80009	151072100
A18Q330	151−0423−00			TRANSISTOR,PWR:BIPOLAR,NPN;400V,1.0A	TK0BZ	2SC2333L
A18R100	315−0123−00			RES,FXD,FILM:12K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R102	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R104	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A18R106	321−0222−00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=T0	19701	5033ED2K00F
A18R108	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R110	315−0151−00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R112	315−0511−00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R114	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R116	315−0151−00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R118	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R120	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A18R123	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R128	315−0244−00			RES,FXD,FILM:240K OHM,5%,0.25W	S5302	CF 1/4 240K JTR
A18R130	322−0356−00			RES,FXD,FILM:49.9K OHM,1%,0.25W,TC=T0	91637	CMF6042G49901F
A18R132	322−0356−00			RES,FXD,FILM:49.9K OHM,1%,0.25W,TC=T0	91637	CMF6042G49901F
A18R140	315−0681−00			RES,FXD,FILM:680 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R142	315−0431−00			RES,FXD,FILM:430 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R200	315−0123−00			RES,FXD,FILM:12K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R202	315−0513−00			RES,FXD,FILM:51K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R204	321−0241−00			RES,FXD,FILM:3.16K OHM,1%,0.125W,TC=T0	19701	5043ED3K160F
A18R206	321−0241−00			RES,FXD,FILM:3.16K OHM,1%,0.125W,TC=T0	19701	5043ED3K160F
A18R208	315−0513−00			RES,FXD,FILM:51K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R210	315−0151−00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R212	315−0751−00			RES,FXD,FILM:750 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R214	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R216	315−0151−00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R218	315−0751−00			RES,FXD,FILM:750 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R220	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R228	315−0124−00			RES,FXD,FILM:120K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R230	323−0327−00			RES,FXD,FILM:24.9K OHM,1%,0.5W,TC=T0	91637	CMF65116G24901F
A18R232	323−0327−00			RES,FXD,FILM:24.9K OHM,1%,0.5W,TC=T0	91637	CMF65116G24901F
A18R240	315−0681−00			RES,FXD,FILM:680 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R242	315−0431−00			RES,FXD,FILM:430 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R300	315−0123−00			RES,FXD,FILM:12K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R306	315−0242−00			RES,FXD,FILM:2.4K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R308	323−0327−00			RES,FXD,FILM:24.9K OHM,1%,0.5W,TC=T0	91637	CMF65116G24901F
A18R310	315−0513−00			RES,FXD,FILM:51K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R312	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R314	315−0682−00			RES,FXD,FILM:6.8K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R316	315−0204−00			RES,FXD,FILM:200K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R318	315−0271−00			RES,FXD,FILM:270 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R320	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R322	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R410	311−2377−00			RES,VAR,NONWW:TRMR,500K OHM,0.5W	80009	311237700
A18R412	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18R420	311−2377−00			RES,VAR,NONWW:TRMR,500K OHM,0.5W	80009	311237700
A18R422	315−0164−00			RES,FXD,FILM:160K OHM,5%,0.25W	TK1727	SFR25 2322−181
A18TP100	214−0579−00	J301393	J302394	TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A18VR100	152−0195−00			DIODE,ZENER:,;5.1V,5%,0.4W	14552	CD332125
A18VR200	152−0195−00			DIODE,ZENER:,;5.1V,5%,0.4W	14552	CD332125

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A19	670−9320−XX			CIRCUIT BD ASSY:LV SUPPLY	80009	6709320XX
A19C100	290−1136−00			CAP,FXD,ELCTLT:6800UF,20%,16V	80009	290113600
A19C102	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A19C120	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A19C132	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A19C134	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A19C140	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A19C150	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A19C200	290−1136−00			CAP,FXD,ELCTLT:6800UF,20%,16V	80009	290113600
A19C232	281−0812−00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V	04222	SA101C102KAA
A19C234	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A19C300	290−0506−01			CAP,FXD,ELCTLT:10000UF,+30−10%,35V	80009	290050601
A19C312	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A19C400	290−0506−01			CAP,FXD,ELCTLT:10000UF,+30−10%,35V	80009	290050601
A19C412	290−0770−00			CAP,FXD,ELCTLT:100UF,+50−20%,25VDC	0H1N5	CEUSM1V101
A19C422	290−0779−00			CAP,FXD,ALUM:;10UF,20%,100V,.562 X 0.351	62643	511D106M100BB4D
A19C500	290−1141−00			CAP,FXD,ELCTLT:220UF,20%,100V	80009	290114100
A19C502	290−1141−00			CAP,FXD,ELCTLT:220UF,20%,100V	80009	290114100
A19C562	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A19C571	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A19C704	285−1272−00			CAP,FXD,PLASTIC:0.22UF,20%,250V	61058	ECQ−E2A224MW
A19C710	290−0922−00			CAP,FXD,ALUM:;1000UF,20%,50V,16 X 25MM	55680	UVX1J102MHA
A19C712	290−0766−00			CAP,FXD,ALUM:2.2UF,+50−20%,160V,8 X 11.5MM	55680	UVX2E2R2MPA
A19C720	290−0922−00			CAP,FXD,ALUM:;1000UF,20%,50V,16 X 25MM	55680	UVX1J102MHA
A19C722	290−0766−00			CAP,FXD,ALUM:2.2UF,+50−20%,160V,8 X 11.5MM	55680	UVX2E2R2MPA
A19CR100	152−1119−00			SEMICOND DVC,DI:RECT,SI,100V,10A	80009	152111900
A19CR104	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A19CR130	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A19CR200	152−1120−00			SEMICOND DVC,DI:RECT,SI,100V,10A	80009	152112000
A19CR230	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A19CR300	152−1119−00			SEMICOND DVC,DI:RECT,SI,100V,10A	80009	152111900
A19CR310	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A19CR400	152−1120−00			SEMICOND DVC,DI:RECT,SI,100V,10A	80009	152112000
A19CR410	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A19CR500	152−0931−00			SEMICOND DVC,DI:BRIDGE,1.5A,200V	80009	152093100
A19CR560	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A19CR562	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A19CR570	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A19CR572	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200
A19CR604	152−0832−00			SEMICOND DVC,DI:SW,SI,50V,0.12A,DO−34	80009	152083200

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A19CR710	152−0932−00			SEMICOND DVC,DI:4A,100V	80009	152093200
A19CR712	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A19CR720	152−0932−00			SEMICOND DVC,DI:4A,100V	80009	152093200
A19CR722	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A19CR730	152−0932−00			SEMICOND DVC,DI:4A,100V	80009	152093200
A19J64	131−3668−00			CONN,RCPT,ELEC:CKT BD,4 PIN	80009	131366800
A19J72	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19J190	131−3668−00			CONN,RCPT,ELEC:CKT BD,4 PIN	80009	131366800
A19J192	131−3658−00			CONN,PLUG,ELEC:HEADER,16 PIN	80009	131365800
A19J194	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19J196	131−3671−00			CONN,RCPT,ELEC:CKT BD,15 PIN	80009	131367100
A19J198	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19J280	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A19J290	131−0608−00			CONN,TERMINAL:PRESSFIT/PCB,;MALE,STR	22526	48283−018
A19Q130	151−0562−00			TRANSISTOR:PNP,SI,PWR	80009	151056200
A19Q230	151−0561−00			TRANSISTOR:NPN,SI,PWR	80009	151056100
A19Q600	151−0561−00			TRANSISTOR:NPN,SI,PWR	80009	151056100
A19Q602	151−0188−00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA	04713	2N3906
A19R100	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322−182
A19R102	315−0124−00			RES,FXD,FILM:120K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R130	315−0151−00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R132	315−0201−00			RES,FXD,FILM:200 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R134	321−0260−00			RES,FXD,FILM:4.99K OHM,1%,0.125W,TC=T0	19701	5033ED4K990F
A19R136	321−0280−00			RES,FXD,FILM:8.06K OHM,1%,0.125W,TC=T0	19701	5033ED8K060F
A19R138	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R230	315−0151−00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R232	315−0201−00			RES,FXD,FILM:200 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R234	321−0300−00			RES,FXD,FILM:13.0K OHM,1%,0.125W,TC=T0	19701	5043ED13K00F
A19R236	321−0260−00			RES,FXD,FILM:4.99K OHM,1%,0.125W,TC=T0	19701	5033ED4K990F
A19R238	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R500	311−2328−00			RES,VAR,NONWW:500 OHM,20%,0.5W	80009	311232800
A19R501	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R502	321−1216−03			RES,FXD,FILM:1.76K OHM,0.25%,0.125W,TC=T2	19701	5033RC1K760C
A19R504	321−0962−03			RES,FXD,FILM:8K OHM,0.25%,0.125W,TC=T2	TK1727	MPR24−2322−141
A19R506	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R508	315−0471−00			RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R510	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R512	321−0281−00			RES,FXD,FILM:8.25K OHM,1%,0.125W,TC=T0	TK1727	2322−151−8K25
A19R514	321−0289−00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5043ED10K00F
A19R516	311−2328−00			RES,VAR,NONWW:500 OHM,20%,0.5W	80009	311232800

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A19R560	315−0154−00			RES,FXD,FILM:150K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R562	315−0154−00			RES,FXD,FILM:150K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R564	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R570	315−0752−00			RES,FXD,FILM:7.5K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R571	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R574	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R576	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R600	315−0511−00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R602	307−1294−00			RES,FXD,FILM:0.51 OHM,5%,2W	80009	307129400
A19R604	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R606	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R700	315−0203−00			RES,FXD,FILM:20K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R701	315−0203−00			RES,FXD,FILM:20K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R702	315−0203−00			RES,FXD,FILM:20K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R704	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R706	315−0621−00			RES,FXD,FILM:620 OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R712	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R722	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A19R750	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322−182
A19TP100	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19TP130	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19TP230	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19TP310	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19TP410	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19TP500	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19TP510	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19TP520	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A19U100	156−2831−00			MICROCKT,LINEAR:VOLTAGE REG,+5V STR	80009	156283100
A19U120	156−1173−00			IC,LINEAR:BIPOLAR,VOLTAGE REFERENCE	04713	MC1403U
A19U130	156−1771−00			MICROCKT,LINEAR:DUAL OP−AMP	80009	156177100
A19U310	156−2830−00			MICROCKT,LINEAR:VOLTAGE REG,+12V	80009	156283000
A19U410	156−0872−03			MICROCKT,LINEAR:VOLTAGE REGULATOR	80009	156087203
A19U500	156−1771−00			MICROCKT,LINEAR:DUAL OP−AMP	80009	156177100
A19U560	156−1778−00			MICROCKT,LINEAR:DUAL COMPARATOR	80009	156177800
A19U700	148−1010−00			RELAY,SOL STATE:5A,250VAC	80009	148101000

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A20	670−9321−XX			CIRCUIT BD ASSY:H.V. REGULATOR	TK0191	ORDER BY DESC
A20C54	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A20C56	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A20C100	290−0927−00			CAP,FXD,ELCTLT:330UF,20%,35V	80009	290092700
A20C102	285−0560−00			CAP,FXD,PLASTIC:0.022UF,10%,630V	80009	285056000
A20C104	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A20C200	283−0000−00			CAP,FXD,CER DI:0.001UF,+100−0%,500V	80009	283000000
A20C202	283−0000−00			CAP,FXD,CER DI:0.001UF,+100−0%,500V	80009	283000000
A20C210	283−0002−00			CAP,FXD,CER DI:0.01UF,+80−20%,500V	59660	811−590−Z5UO−10
A20C220	283−0013−00			CAP,FXD,CER DI:0.01UF,−0+100%,1000V	59660	818−602ZSUO103P
A20C228	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A20C230	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A20C232	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A20C300	290−0821−00	J301393	J302122	CAP,FXD,ELCTLT:10UF,+50−10%,160V	80009	290082100
A20C300	290−1304−00	J302123		CAP,FXD,ALUM:47UH,+/−20%,160V,12.5MM	80009	290130400
A20C310	290−0821−00	J301393	J302122	CAP,FXD,ELCTLT:10UF,+50−10%,160V	80009	290082100
A20C310	290−1304−00	J302123		CAP,FXD,ALUM:47UH,+/−20%,160V,12.5MM	80009	290130400
A20C320	290−0821−00	J301393	J302122	CAP,FXD,ELCTLT:10UF,+50−10%,160V	80009	290082100
A20C320	290−1304−00	J302123		CAP,FXD,ALUM:47UH,+/−20%,160V,12.5MM	80009	290130400
A20C340	285−1376−00			CAP,FXD,PLASTIC:0.01UF,20%,2.5KV	80009	285137600
A20CR200	152−0608−00			SEMICOND DVC,DI:POWER,SI,1000V,0.2A	80009	152060800
A20CR202	152−0242−00			DIODE,SIG:,;225V,200MA	14552	MT5129
A20CR204	152−0242−00			DIODE,SIG:,;225V,200MA	14552	MT5129
A20CR210	152−0608−00			SEMICOND DVC,DI:POWER,SI,1000V,0.2A	80009	152060800
A20CR300	152−0242−00			DIODE,SIG:,;225V,200MA	14552	MT5129
A20CR310	152−0242−00			DIODE,SIG:,;225V,200MA	14552	MT5129
A20CR320	152−0242−00			DIODE,SIG:,;225V,200MA	14552	MT5129
A20J182	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A20J194	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A20J200	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A20L100	108−1431−00			COIL,RF:FXD,300UH	TK0HD	ORDER BY DESC
A20Q100	151−0563−00			TRANSISTOR:NPN,SI	80009	151056300
A20Q200	151−0769−00			TRANSISTOR:NPN,SI,TO−220AB	80009	151076900
A20R50	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R52	321−0388−00			RES,FXD,FILM:107K OHM,1%,0.125W,TC=T0	07716	CEAD10702F
A20R54	321−0205−00			RES,FXD,FILM:1.33K OHM,1%,0.125W,TC=T0	TK1727	MR25−2322−151−1
A20R56	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R100	315−0152−00	J302123	J302800	RES,FXD,FILM:1.5K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R100	315−0272−00	J302801		RES,FXD,FILM:2.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R100	315−0332−00	J302801		RES,FXD,FILM:3.3K OHM,5%,0.25W (TEST SELECTED)	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A20R100	315−0182−00	J302801		RES,FXD,FILM:1.8K OHM,5%,0.25W (TEST SELECTED)	TK1727	SFR25 2322−181
A20R200	315−0513−00			RES,FXD,FILM:51K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R202	315−0513−00			RES,FXD,FILM:51K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R204	315−0184−00			RES,FXD,FILM:180K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R206	315−0184−00			RES,FXD,FILM:180K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R208	315−0472−00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R210	311−1272−00			RES,VAR,NONWW:TRMR,100K OHM,0.5W	32997	3329P−L58−104
A20R214	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R216	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R218	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R220	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R222	315−0475−00			RES,FXD,FILM:4.7M OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R224	315−0473−00			RES,FXD,FILM:47K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R226	315−0104−00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R228	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A20R230	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A20RT100	307−1496−00			RES,THERMAL:8 OHM,15%	S5011	ORDER BY DESC
A20T100	120−1679−00			TRANSFORMER,RF:HIGH VOLTAGE	80009	120167900
A20TP100	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A20TP200	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A20TP300	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A20TP400	214−0579−00			TERM,TEST POINT:PCB,TEST POINT;EYELET	0J260	ORDER BY DESC
A20U100	119−1684−01			MULTIPLIER,HV:2X,W/DC RESTORER	80009	119168401
A20U200	156−1422−00			MICROCKT,LINEAR:DUAL OPNL AMPL	80009	156142200
A20U300	119−2162−01			HV MODULER:2KV INPUT,12KV OUTPUT	80009	119216201
A20VR200	152−0286−00			DIODE,ZENER:,;75V,5%,0.4W	04713	SZG35009K16
A20VR202	152−0265−00			DIODE,ZENER:,;24V,5%,0.4W	04713	1N970BRL

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A22	671−1182−XX			CIRCUIT BD ASSY:INTERFACE	80009	6711182XX
A22C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C120	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C140	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C220	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C240	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C300	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C320	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C340	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C360	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C400	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C440	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C460	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A22C500	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A22C520	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A22C540	290−1007−00			CAP,FXD,ELCTLT:22UF,20%,16V	80009	290100700
A22FL200	119−1762−00			FILTER,RFI:0.022UF,+50/−20%,50VW/FERRITE	80009	119176200
A22FL500	119−1762−00			FILTER,RFI:0.022UF,+50/−20%,50VW/FERRITE	80009	119176200
A22FL520	119−1762−00			FILTER,RFI:0.022UF,+50/−20%,50VW/FERRITE	80009	119176200
A22FL540	119−1762−00			FILTER,RFI:0.022UF,+50/−20%,50VW/FERRITE	80009	119176200
A22J350	131−3652−00			CONN,RCPT,ELEC:CKT,BD,24 PIN,FEMALE	80009	131365200
A22J450	131−3652−00			CONN,RCPT,ELEC:CKT,BD,24 PIN,FEMALE	80009	131365200
A22R102	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R104	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R112	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R114	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R120	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A22R121	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R122	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R123	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R124	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R125	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R126	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R140	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A22R141	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R142	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R143	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R144	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R145	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R146	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A22R147	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R148	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R200	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R300	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R302	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A22R320	307−0881−00			RES NTWK,FXD,FI:8,10K OHM,10%,0.125W	91637	CSC09A01−103G
A22R340	307−0881−00			RES NTWK,FXD,FI:8,10K OHM,10%,0.125W	91637	CSC09A01−103G
A22R360	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A22R440	307−0881−00			RES NTWK,FXD,FI:8,10K OHM,10%,0.125W	91637	CSC09A01−103G
A22R460	307−0881−00			RES NTWK,FXD,FI:8,10K OHM,10%,0.125W	91637	CSC09A01−103G
A22R550	315−0100−00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322−182
A22S360	260−2326−00			SWITCH,TOGGLE:DTS−6H	80009	260232600
A22U100	156−2828−00			IC,DIGITAL:HCMOS,BUFFER;OCTAL	80009	156282800
A22U120	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A22U140	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A22U200	119−2313−00			OSCILLATOR:4MHZ,CRYSTAL	80009	119231300
A22U220	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER	80009	156282500
A22U240	156−2026−00			IC,DIGITAL:HCMOS,GATE;QUAD 2−INPUT NOR	04713	MC74HC02AN
A22U300	156−1444−01			IC,PROCESSOR:NMOS,CONTROLLER;GPIB	80009	156144401
A22U320	156−1414−00			IC,DIGITAL:LSTTL,TRANSCEIVER;OCTAL	01295	SN75160BN
A22U340	156−1415−00			IC,DIGITAL:LSTTL,TRANSCEIVER;OCTAL	01295	SN75161BN
A22U360	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A22U400	156−1444−01			IC,PROCESSOR:NMOS,CONTROLLER;GPIB	80009	156144401
A22U440	156−1415−00			IC,DIGITAL:LSTTL,TRANSCEIVER;OCTAL	01295	SN75161BN
A22U460	156−1414−00			IC,DIGITAL:LSTTL,TRANSCEIVER;OCTAL	01295	SN75160BN
A22W220	174−0295−00			CA ASSY,SP,ELEC:26,28 AWG,11.0 L,RIBBON	80009	174029500

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A23	671−1094−XX			CIRCUIT BD ASSY:FDD INTERFACE	80009	6711094XX
A23C100	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C120	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C140	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C200	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C300	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C360	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C400	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C420	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C430	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C440	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C460	281−0775−00			CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A23C500	290−0745−00			CAP,FXD,ALUM:;22UF,20%,50V,8 X 11MM	0H1N5	CEUSM1J220
A23CR430	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A23CR431	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A23FL500	119−1762−00			FILTER,RFI:0.022UF,+50/−20%,50VW/FERRITE	80009	119176200
A23R100	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A23R120	307−0923−00			RES NTWK,FXD,FI:(8)330K OHM,5%,0.125W	80009	307092300
A23R360	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R400	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R402	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R404	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R406	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R430	315−0102−00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R431	315−0101−00			RES,FXD,FILM:100 OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R432	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R440	307−1181−00			RES NTWK,FXD,FI:(8) 10K OHM,5%,0.1W	80009	307118100
A23R450	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23R460	307−1181−00			RES NTWK,FXD,FI:(8) 10K OHM,5%,0.1W	80009	307118100
A23R470	315−0103−00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322−181
A23TP100	131−0589−00	J301393	J302394	TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A23TP200	131−0589−00	J301393	J302394	TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A23U100	156−2300−00			IC,DIGITAL:HCMOS,TRANSCEIVER;OCTAL	80009	156230000
A23U120	156−2743−00			IC,DIGITAL:HCMOS,BUFFER;OCTAL	80009	156274300
A23U140	156−2825−00			IC,DIGITAL:HCMOS,DEMUX/DECODER;DUAL	80009	156282500
A23U200	156−2027−00			IC,DIGITAL:HCMOS,GATE;HEX INV	01295	SN74HC04N
A23U300	156−2743−00			IC,DIGITAL:HCMOS,BUFFER;OCTAL	80009	156274300
A23U360	119−2314−00	J301393	J302173	OSCILLATOR,DI:32MHZ,CRYSTAL	80009	119231400
A23U360	119−2314−01	J302174		OSCILLATOR,RF:XTAL CONT,32MHZ	80009	119231401
A23U400	156−3701−00			MICROCKT,DGTL:FLOPPY DISK CONTROLLER	80009	156370100

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A23U420	156−3698−00			IC,DIGITAL:HCMOS,MUX/ENCODER;QUAD	80009	156369800
A23U440	156−3712−00			IC,DIGITAL:HCMOS,BUFFER;OCTAL INV, 3−STATE	80009	156371200
A23U460	156−2743−00			IC,DIGITAL:HCMOS,BUFFER;OCTAL	80009	156274300
A23W100	174−1692−00			CA ASSY,SP,ELEC:24,28 AWG,12.0 L,RIBBON	80009	174169200
A23W200	174−1611−00			CA ASSY,SP,ELEC:34,28 AWG,9.0 L,RIBBON	80009	174161100

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A24	119−3456−XX			FLOPPY DISK UNI:3.5 INCH W/INTERFACE (STANDARD ACCESSORY)	80009	1193456XX

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A27	670−9323−XX			CIRCUIT BD ASSY:PRIMARY	80009	6709323XX
A27C100	285−1377−00			CAP,FXD,PLASTIC:0.22UF,20%,250V	80009	285137700
A27C200	285−1377−00			CAP,FXD,PLASTIC:0.22UF,20%,250V	80009	285137700
A27E100	307−1324−00			RES,V SENSITIVE:240VDC,0.8W	80009	307132400
A27E200	307−1324−00			RES,V SENSITIVE:240VDC,0.8W	80009	307132400
A27J270	131−3667−00			CONN,RCPT,ELEC:CKT BD,3 PIN	80009	131366700
A27J272	131−3666−00			CONN,RCPT,ELEC:CKT BD,2 PIN	80009	131366600
A27J274	131−3669−00			CONN,RCPT,ELEC:CKT BD,6 PIN	80009	131366900
A27S200	260−1980−01			SWITCH,SLIDE:DPDT,10A,125V,MKD 115V/230V	7W718	4021.1913
A27S300	260−1980−00			SWITCH,SLIDE:DPDT,10A,125V,HI/LOW	7W718	4021.1914

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A28	670−9324−XX			CIRCUIT BD ASSY:LAMP	80009	6709324XX
A28DS100	150−0097−00			LAMP,INCAND:6.3V,0.2A,#7381,WIRE LEADS	S3774	0L381BP
A28DS102	150−0097−00			LAMP,INCAND:6.3V,0.2A,#7381,WIRE LEADS	S3774	0L381BP
A28DS104	150−0097−00			LAMP,INCAND:6.3V,0.2A,#7381,WIRE LEADS	S3774	0L381BP

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A29	670−9324−XX			CIRCUIT BD ASSY:LAMP	80009	6709324XX
A29DS100	150−0097−00			LAMP,INCAND:6.3V,0.2A,#7381,WIRE LEADS	S3774	0L381BP
A29DS102	150−0097−00			LAMP,INCAND:6.3V,0.2A,#7381,WIRE LEADS	S3774	0L381BP
A29DS104	150−0097−00			LAMP,INCAND:6.3V,0.2A,#7381,WIRE LEADS	S3774	0L381BP

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A33	671−1096−XX			CIRCUIT BD ASSY:CONFIGURATION RELAY	80009	6711096XX
A33CR600	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR602	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR604	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR608	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR610	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR612	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR614	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR630	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33CR640	152−0327−00			SEMICOND DVC,DI:SIG,SI,100MA,75V	80009	152032700
A33E100	276−0752−00			CORE,EM:BEAD ON LEAD;UO=850 30%	TK1442	BP53−BH3.5X10X4
A33E110	276−0752−00			CORE,EM:BEAD ON LEAD;UO=850 30%	TK1442	BP53−BH3.5X10X4
A33J102	131−3666−00			CONN,RCPT,ELEC:CKT BD,2 PIN	80009	131366600
A33J103	131−0589−00			TERMINAL,PIN:PRESSFIT/PCB,;MALE,STR	22526	48283−087
A33J104	131−3668−00			CONN,RCPT,ELEC:CKT BD,4 PIN	80009	131366800
A33K600	148−0189−00			RELAY,ARM:DPST,8A,380V,COIL,12VDC	80009	148018900
A33K602	148−0189−00			RELAY,ARM:DPST,8A,380V,COIL,12VDC	80009	148018900
A33K604	148−0192−00			RELAY,ARM:DPDT,4A,250V COIL,12VDC	80009	148019200
A33K608	148−0192−00			RELAY,ARM:DPDT,4A,250V COIL,12VDC	80009	148019200
A33K610	148−0189−00			RELAY,ARM:DPST,8A,380V,COIL,12VDC	80009	148018900
A33K612	148−0189−00			RELAY,ARM:DPST,8A,380V,COIL,12VDC	80009	148018900
A33K614	148−0228−00			RELAY,ARM:DPDT,5A 250VAC,COIL,12VDC480 OHM	80009	148022800
A33K630	148−0191−00			RELAY,ARM:QPST,4A,250V,COIL,12VDC	80009	148019100
A33K640	148−0191−00			RELAY,ARM:QPST,4A,250V,COIL,12VDC	80009	148019100
A33R600	301−0471−00			RES,FXD,FILM:470 OHM,5%,0.5W	TK1727	SFR30 2322−182
A33W100	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A33W102	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A33W110	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A33W112	131−0566−04			BUS,CONDUCTOR:DUMMY RES,18 OD X 3.2MM L	80009	131056604
A33W302	198−5676−00	J301393	J302261	WIRE SET,ELEC:	80009	198567600
A33W302	198−5812−00	J302262		WIRE SET,ELEC:	80009	198581200
A33W330	174−1951−00			CA ASSY,SP,ELEC:14,28 AWG,11.0 L,RIBBON	80009	174195100
A33W419	198−5675−00			WIRE SET,ELEC:	80009	198567500

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A34	671−1140−XX			CIRCUIT BD ASSY:LOR RELAY	80009	6711140XX
A34CR920a	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A34CR930	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A34CR940	152−0935−00			SEMICOND DVC,DI:SI,1.0A,280V	80009	152093500
A34J91	131−4216−00			CONN,RCPT,ELEC:PWR,FEMALE,15A	80009	131421600
A34J95	131−4216−00			CONN,RCPT,ELEC:PWR,FEMALE,15A	80009	131421600
A34K920	148−0210−01	J301393	J301792	RELAY,ARM:SPST,250V,30A,COIL 12VDC,75 OHM	80009	148021001
A34K920	148−0210−02	J301793		RELAY,ARM:1 FORM A,250V,30A,COIL 12VDC	80009	148021002
A34K930	148−0210−01	J301393	J301792	RELAY,ARM:SPST,250V,30A,COIL 12VDC,75 OHM	80009	148021001
A34K930	148−0210−02	J301793		RELAY,ARM:1 FORM A,250V,30A,COIL 12VDC	80009	148021002
A34K940	148−0210−01	J301393	J301792	RELAY,ARM:SPST,250V,30A,COIL 12VDC,75 OHM	80009	148021001
A34K940	148−0210−02	J301793		RELAY,ARM:1 FORM A,250V,30A,COIL 12VDC	80009	148021002
A34W89	198−5688−00			WIRE SET,ELEC:	80009	198568800
A34W94	196−3276−00			LEAD,ELECTRICAL:18 AWG,37.0 L,9−N	80009	196327600
A34W97	198−5687−00			WIRE SET,ELEC:	80009	198568700
A35	671−1147−XX			CIRCUIT BD ASSY:LOOPING	80009	6711147XX
A35C500	283−0631−00			CAP,FXD,MICA DI:95PF,1%,500V	TK0891	RDM15FD950F03
A35C501	285−1371−00			CAP,FXD,PLASTIC:0.01UF,10%,160V	80009	285137100
A35C502	283−0687−00			CAP,FXD,MICA DI:560PF,2%,300V	TK0891	RDM15FC561G03
A35J84	131−3782−00			CONN,RCPT,ELEC:HEADER,RTANG,1 X 10,0.1 CTR	80009	131378200
A35J85	131−3782−00			CONN,RCPT,ELEC:HEADER,RTANG,1 X 10,0.1 CTR	80009	131378200
A35R200	315−0511−00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322−181
A35R202	315−0511−00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322−181
A35R310	315−0183−00			RES,FXD,FILM:18K OHM,5%,0.25W	TK1727	SFR25 2322−181
A35R312	315−0183−00			RES,FXD,FILM:18K OHM,5%,0.25W	TK1727	SFR25 2322−181
A35R500	311−0606−00			RES,VAR,NONWW:TRMR,500K OHM,0.5W	32997	3329−H−G48−504
A35R501	311−0609−00			RES,VAR,NONWW:TRMR,2K OHM,0.5W	32997	3329H−L58−202
A35R502	311−0609−00			RES,VAR,NONWW:TRMR,2K OHM,0.5W	32997	3329H−L58−202
A35R503	311−0609−00			RES,VAR,NONWW:TRMR,2K OHM,0.5W	32997	3329H−L58−202
A35R504	311−1230−00			RES,VAR,NONWW:TRMR,20K OHM,0.5W	32997	3386F−1−203

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
B100	119−3674−00	J301393	J302156	FAN,TUBEAXIAL:115 VAC,240MA,19W,2650 RPM	80009	119367400
B100	119−2310−01	J302157		FAN,TUBEXIAL:115VAC,230MA,16W,2650RPM	80009	119231001
C704	281−0773−00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
E101	276−0635−00	J301978		CORE,EM:TOROID;FERRITE,UO=5,000 20% (1KHZ)	02114	768 T188/3E2A
E102	276−0635−00	J301978		CORE,EM:TOROID;FERRITE,UO=5,000 20% (1KHZ)	02114	768 T188/3E2A
E103	276−0635−00	J301978		CORE,EM:TOROID;FERRITE,UO=5,000 20% (1KHZ)	02114	768 T188/3E2A
E104	276−0635−00	J301978		CORE,EM:TOROID;FERRITE,UO=5,000 20% (1KHZ)	02114	768 T188/3E2A
E608	119−0181−00			ARSR,ELEC SURGE:230V, +/−15%; GAS	0C8T6	BBS−230V +/−15%
E702	119−0181−00			ARSR,ELEC SURGE:230V, +/−15%; GAS	0C8T6	BBS−230V +/−15%
E704	119−0181−00			ARSR,ELEC SURGE:230V, +/−15%; GAS	0C8T6	BBS−230V +/−15%
F100	159−0259−00			FUSE,CARTRIDGE:4A,125V,MEDIUM (115V ONLY)	80009	159025900
F100	159−0260−00			FUSE,CARTRIDGE:2A,250V,MEDIUM (230V ONLY)	80009	159026000
FL100	119−3603−00			FILTER,RFI:115/230V,4A	80009	119360300
J500	136−0887−00			SOCKET,PIN TERM:0.16 DIA,RED	80009	136088700
J502	136−0887−00			SOCKET,PIN TERM:0.16 DIA,RED	80009	136088700
J504	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J506	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J508	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J510	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J600	136−0887−00			SOCKET,PIN TERM:0.16 DIA,RED	80009	136088700
J602	136−0887−00			SOCKET,PIN TERM:0.16 DIA,RED	80009	136088700
J604	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J606	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J608	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J610	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J702	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J704	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
J706	136−0888−00			SOCKET,PIN TERM:0.16 DIA,GRAY	80009	136088800
L100	108−1345−02			COIL,TUBE DEFL:TRACE ROTATOR	80009	108134502
L120	108−1347−01			COIL,TUBE DEFL:Y−AXIS ALIGNMENT	80009	108134701
R200	301−0104−00			RES,FXD,CMPSN:100K OHM,5%,0.5W	80009	301010400
R202	301−0104−00			RES,FXD,CMPSN:100K OHM,5%,0.5W	80009	301010400
R204	301−0104−00			RES,FXD,CMPSN:100K OHM,5%,0.5W	80009	301010400
R210	311−2457−00			RES,VAR,NONWW:PNL,10K OHM,1/2W,20%	80009	311245700
R300	301−0104−00			RES,FXD,CMPSN:100K OHM,5%,0.5W	80009	301010400
R302	301−0104−00			RES,FXD,CMPSN:100K OHM,5%,0.5W	80009	301010400
R304	301−0104−00			RES,FXD,CMPSN:100K OHM,5%,0.5W	80009	301010400
R400	307−1541−01			RES,FXD,FILM:1.1 OHM TO 25K OHM,2%,W/CONN	80009	307154101
S90	260−2328−01			SWITCH,THRMSTC:NC,OPEN,70.0,3.0 A,250V	S3385	5003F70B1−GUL
S92	260−2332−01			SWITCH,THRMSTC:NC,OPEN 70 DEG C,3A,250V	S3385	ORDER BY DESC

Component Number	Tektronix Part No.	Serial No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
S100	260−2323−00			SWITCH,PUSH:DPST,15A,250V,ON/OFF	80009	260232300
S200	260−2497−01	J301393	J302451	SWITCH,ROTARY:ENCODER	80009	260249701
S200	260−2497−03	J302452		SWITCH,ROTARY:ENCODER	80009	260249703
S400	260−2324−00			SW,SENSITIVE:SPDT,3A,250VAC,INTERLOCK	80009	260232400
S402	260−2324−00			SW,SENSITIVE:SPDT,3A,250VAC,INTERLOCK	80009	260232400
S800	260−2499−00			CIRCUIT BREAKER:SPST,1.5A,250 VAC	80009	260249900
T100	120−1678−01			XFMR,PWR,STU:100−120VAC IN,48−66HZ	80009	120167801
T200	120−1677−01			XFMR,PWR,STU:CLCT SUPPLY,70V IN,40−66HZ	80009	120167701
U300	119−3477−00	J301393	J301399	RELAY MODULE:8 RELAYS	80009	119347700
U300	119−3477−01	J301400	J302534	RELAY MODULE:W/8 RELAYS	80009	119347701
U300	119−3477−02	J302535		RELAY MODULE:W/8 RELAYS (U300 SHOULD BE CHANGED WITH A10C322 20 PF.)	80009	119347702
U800	119−3414−00	J301393	J301399	HV MODULE:W/18 RELAYS	80009	119341400
U800	119−3414−01	J301400	J302154	HIGH V MODULE:W/18 RELAYS,370A	80009	119341401
U800	119−3414−02	J302155		HIGH V MODULE:W/18 RELAYS,370A	80009	119341402
V100	154−0928−00			ELECTRON TUBE:CRT,P31,INT SCALE	80009	154092800
W3	198−5683−00			WIRE SET,ELEC:	80009	198568300
W4	198−5700−00			WIRE SET,ELEC:	80009	198570000
W14	196−3099−00			LEAD,ELECTRICAL:24 AWG,10.0 L	80009	196309900
W16	196−3110−00			LEAD,ELECTRICAL:18 AWG,7.0 L,8−0	80009	196311000
W17	196−3112−01			LEAD,ELECTRICAL:18 AWG,6.0 L,5−4	80009	196311201
W18	196−3111−00			LEAD,ELECTRICAL:18 AWG,7.0 L,8−9	80009	196311100
W19	196−3098−01			LEAD,ELECTRICAL:18 AWG,7.0 L,5−4	80009	196309801
W66	174−0304−00			CA ASSY,SP,ELEC:2,26 AWG,6.0 L,RIBBON	80009	174030400
W72	174−0310−00			CA ASSY,SP,ELEC:10,22 AWG,18.0 L,RIBBON	80009	174031000
W91	198−5680−01			WIRE SET,ELEC:	80009	198568001
W93	198−5696−00			WIRE SET,ELEC:	80009	198569600
W95	198−5680−00			WIRE SET,ELEC:	80009	198568000
W102	198−5679−00			WIRE SET,ELEC:	80009	198567900
W103	198−5682−00			WIRE SET,ELEC:	80009	198568200
W104	198−5681−00	J301393	J301977	WIRE SET,ELEC:	80009	198568100
W104	198−5681−01	J301978		WIRE SET,ELEC:	80009	198568101
W111	196−3096−00			LEAD,ELECTRICAL:18 AWG,3.5 L,5−4	80009	196309600
W112	196−3096−00			LEAD,ELECTRICAL:18 AWG,3.5 L,5−4	80009	196309600
W142	174−1693−00			CA ASSY,SP,ELEC:34,28 AWG,130.0 L,RIBBON	80009	174169300
W180	174−0314−00			CA ASSY,SP,ELEC:9,26 AWG,7.5 L,RIBBON	80009	174031400
W182	174−0309−00			CA ASSY,SP,ELEC:10,22 AWG,5.0 L,RIBBON	80009	174030900
W190	174−0328−00			CA ASSY,SP,ELEC:4,18 AWG,15.5 L	80009	174032800
W194	174−0308−00			CA ASSY,SP,ELEC:6,22 AWG,20.0 L,RIBBON	80009	174030800
W210	198−5686−00			WIRE SET,ELEC:	80009	198568600
W270	174−0327−00			CA ASSY,SP,ELEC:2,18 AWG,7.0 L	80009	174032700

Component Number	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Name & Description	Mfr. Code	Mfr. Part No.
W272	161−0255−01	J301393	J301412	CABLE ASSY,PWR,:2,0.75MM SQ,250V,3A	80009	161025501
W272	198−5733−00	J301413	J301577	WIRE SET,ELEC:	80009	198573300
W272	161−0257−01	J301578	J302156	CABLE ASSY,PWR,:125V,1A.200MM L	80009	161025701
W280	174−0313−00			CA ASSY,SP,ELEC:2,26 AWG,30.0 L,RIBBON	80009	174031300
W290	174−0312−00			CA ASSY,SP,ELEC:2,26 AWG,22.0 L,RIBBON	80009	174031200
W400	174−0296−00			CA ASSY,SP,ELEC:34,28 AWG,5.5 L,RIBBON	80009	174029600
W401	198−5685−00			WIRE SET,ELEC:	80009	198568500
W402	196−3270−00			LEAD,ELECTRICAL:26 AWG,28.0 L,N−0	80009	196327000
W410	198−5468−00			WIRE SET,ELEC:	80009	198546800
W490	198−5714−00			WIRE SET,ELEC:370A,W/D−SUB CONN	80009	198571400
W491	198−5713−00			WIRE SET,ELEC:370A,W/D−SUB CONN	80009	198571300

Diagrams

Schematic Diagrams and Circuit Board Illustrations

Symbols

Graphic symbols and class designation letters are based on ANSI Standard Y32.2-1975.

Logic symbology is based on ANSI/IEEE Std 91-1984 in terms of positive logic. Logic symbols depict the logic function performed and may differ from the manufacturer's data.

The overline on a signal name indicates that the signal performs its intended function when it is in the low state.

Abbreviations are based on ANSI Y1.1-1972.

Other ANSI standards that are used in the preparation of diagrams by Tektronix, Inc. are:

Y14.15, 1966	Drafting Practices.
Y14.2, 1973	Line Conventions and Lettering.
Y10.5, 1968	Letter Symbols for Quantities Used in Electrical Science and Electrical Engineering.

American National Standard Institute
1430 Broadway
New York, New York 10018

Component Values

Electrical components shown on the diagrams are in the following units unless noted otherwise:

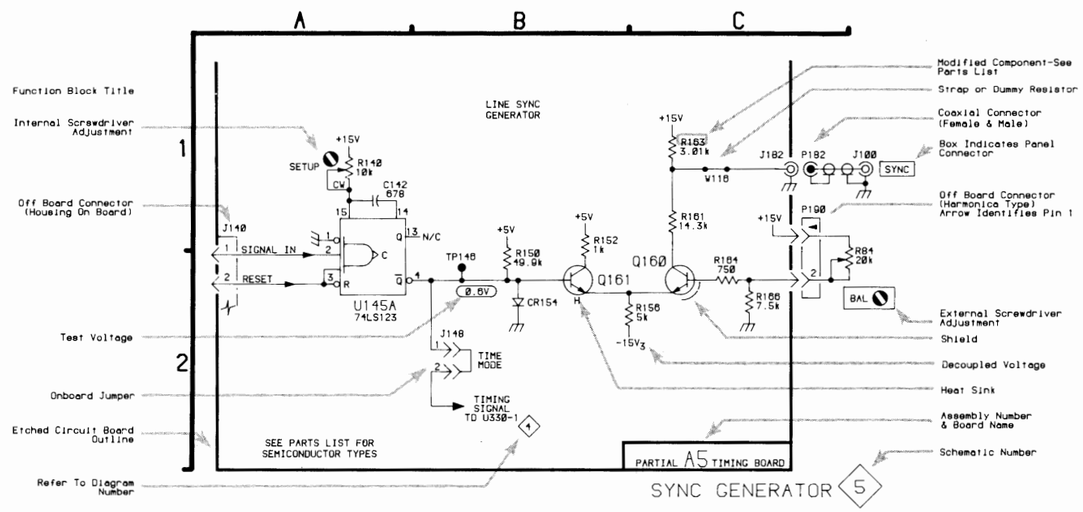
Capacitors =	Values one or greater are in picofarads (pF). Values less than one are in microfarads (μF).
Resistors =	Ohms (Ω).

The information and special symbols below may appear in this manual.

Assembly Numbers and Grid Coordinates

Each assembly in the instrument is assigned an assembly number (e.g., A20). The assembly number appears on the circuit board outline on the diagram, in the title for the circuit board component location illustration, and in the lookup table for the schematic diagram and corresponding component locator illustration. The Replaceable Electrical Parts list is arranged by assemblies in numerical sequence; the components are listed by component number.

The schematic diagram and circuit board component location illustration have grids. A lookup table with the grid coordinates is provided for ease of locating the component. Only the components illustrated on the following diagram are listed in the lookup table. When more than one schematic diagram is used to illustrate the circuitry on a circuit board, the circuit board illustration may only appear previous to the first diagram on which it was illustrated; the lookup table will list the diagram number of other diagrams that the circuitry of the circuit board appears on.



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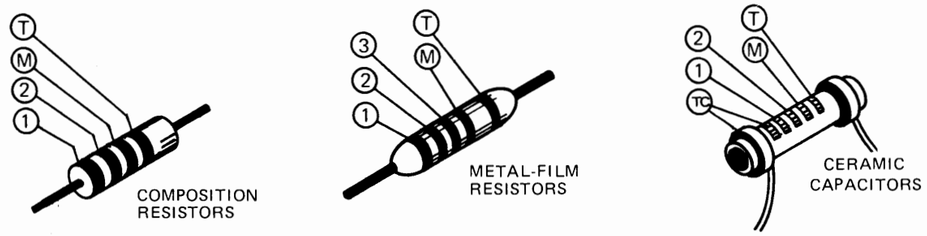
COLOR CODE

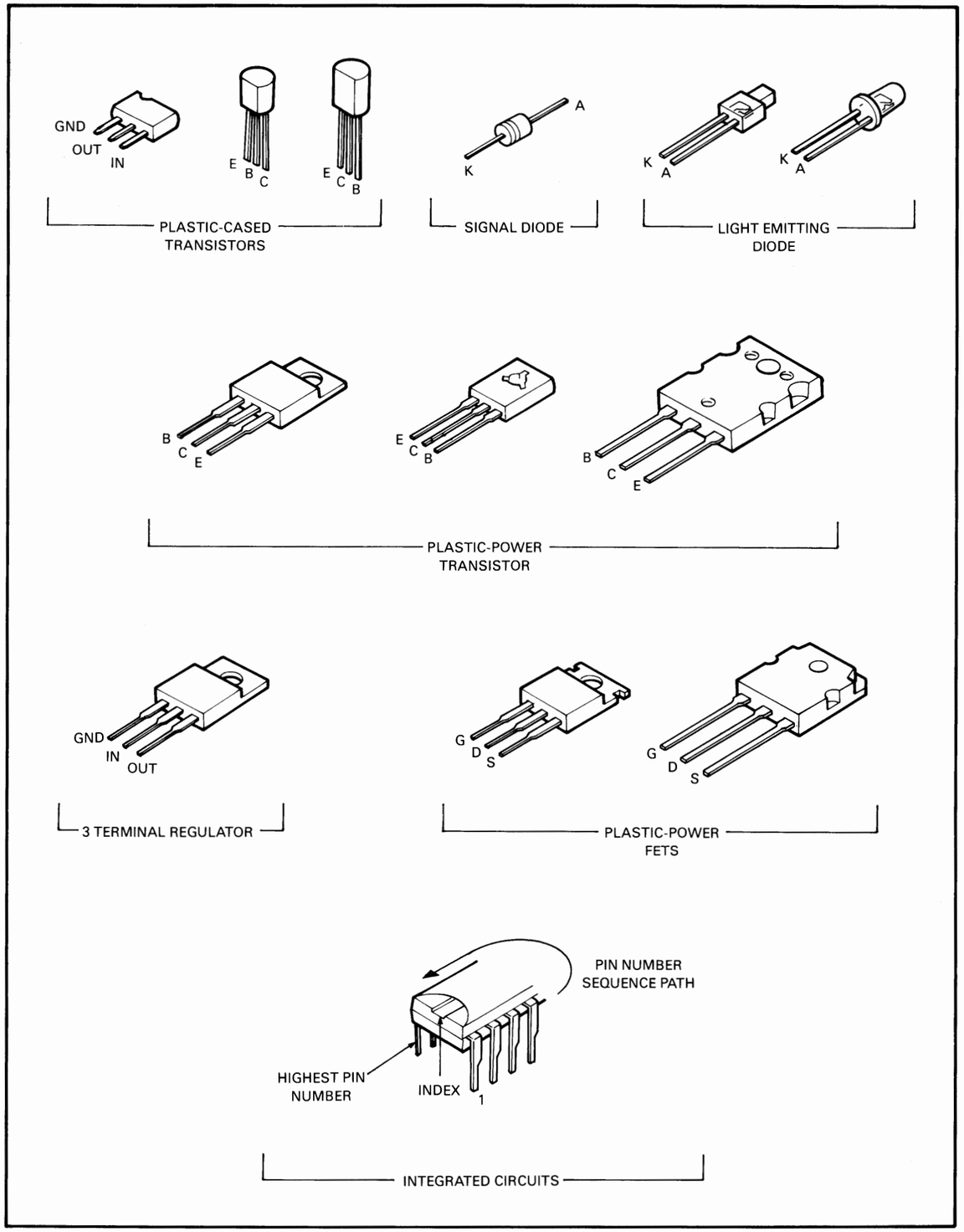


① ② and ③ - 1ST, 2ND, AND 3RD SIGNIFICANT FIGS. Ⓣ AND/OR Ⓣⓒ COLOR CODE MAY NOT BE PRESENT ON SOME CAPACITORS;
Ⓜ - MULTIPLIER Ⓣ - TOLERANCE;
Ⓣⓒ - TEMPERATURE COEFFICIENT.

COLOR	SIGNIFICANT FIGURES	RESISTORS		CAPACITORS		
		MULTIPLIER (OHMS)	TOLERANCE	MULTIPLIER (pF)	TOLERANCE	
					OVER 10pF	UNDER 10pF
BLACK	0	1	---	1	±20%	± 2pF
BROWN	1	10	±1%	10	±1%	±0.1pF
RED	2	10^2 or 100	±2%	10^2or 100	±2%	---
ORANGE	3	10^3or 1 K	±3%	10^3 or 1000	±3%	---
YELLOW	4	10^4 or 10K	±4%	10^4 or 10,000	+100% −0%	---
GREEN	5	10^5 or 100 K	±1/2%	10^5or 100,000	±5%	±0.5pF
BLUE	6	10^6 or 1 M	±1/4%	10^6 or 1,000,000	---	---
VIOLET	7	---	±1/10%	10^7 or 10,000,000	---	---
GRAY	8	---	---	10^{-2} or 0.01	+80% −20%	±0.25pF
WHITE	9	---	---	10^{-1} or 0.1	±10%	±1pF
GOLD	---	10^{-1} or 0.1	±5%	---	---	---
SILVER	---	10^{-2} or 0.01	±10%	---	---	---
NONE	---	---	±20%	---	±10%	±1pF

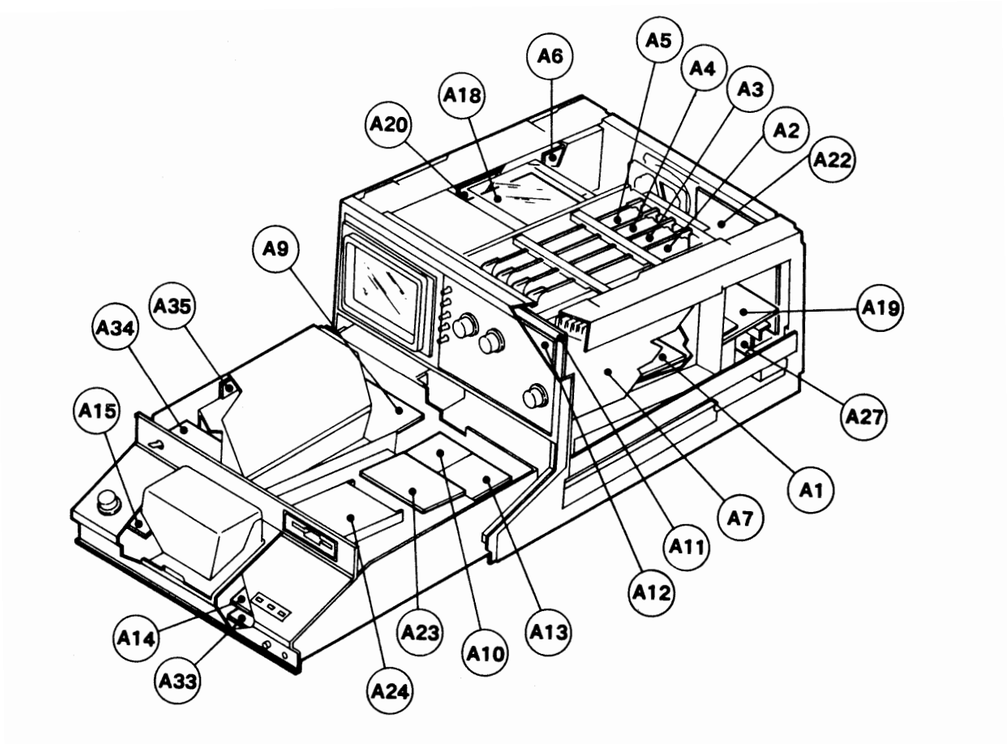
6065-120

Figure 7-1. Resistor and capacitor color coding.



6804-700

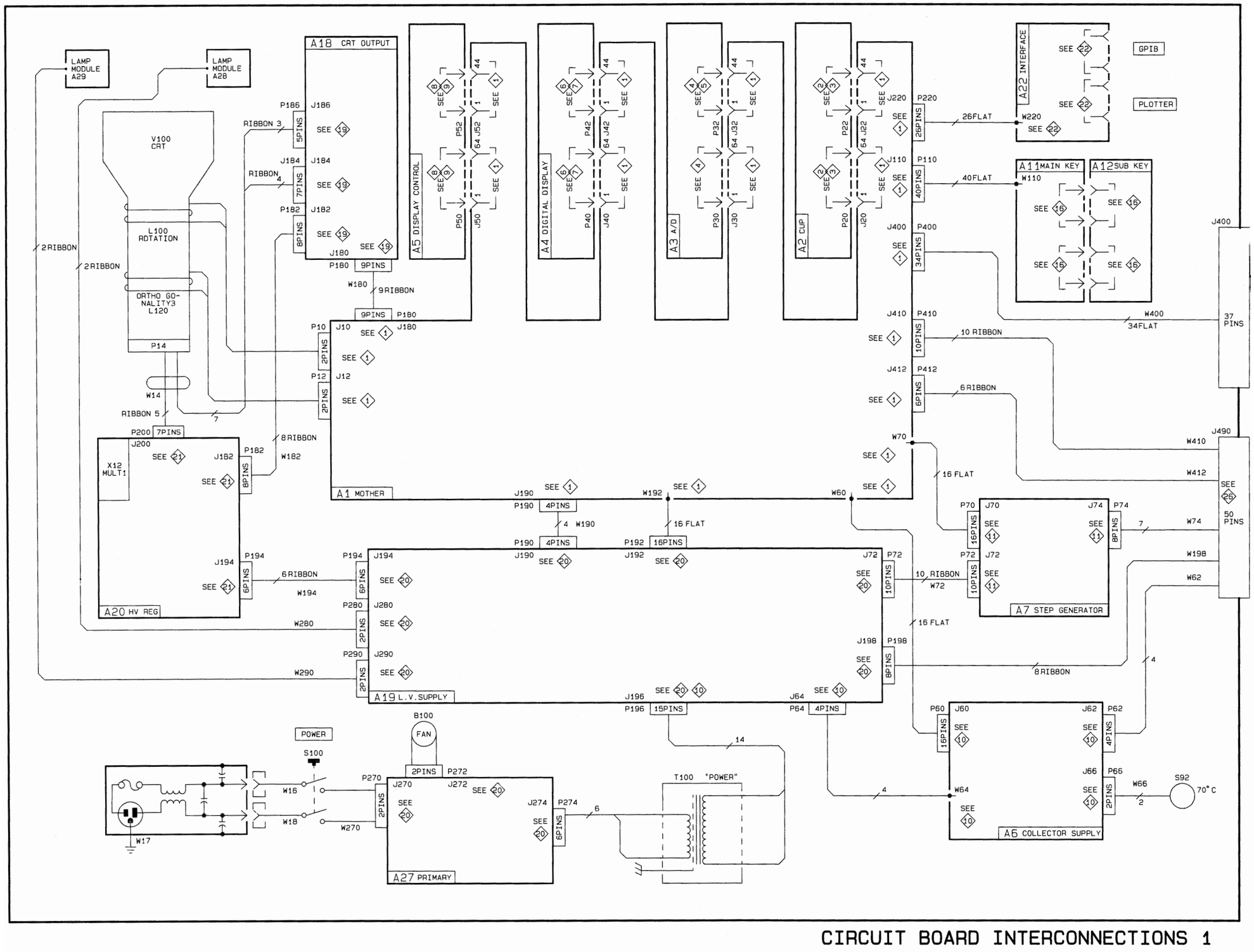
Please cut out the aria below the lines.



ASSEMBLY NUMBER	DIAGRAM NUMBER(S)	ASSEMBLY NUMBER	DIAGRAM NUMBER(S)
A1	1,9	A15	18
A2	2,3	A18	19
A3	4a, 4b, 5	A19	10,20
A4	6,7	A20	21
A5	8,9	A22	22
A6	10	A23	25
A7	11	A24	NO SCHEMATIC
A9	12,13	A27	20
A10	14,15a, 15b	A28	20
A11	16	A29	20
A12	16, 17	A33	23
A13	15b	A34	12
A14	24	A35	13

Figure 7-3. 370A Circuit board locator.

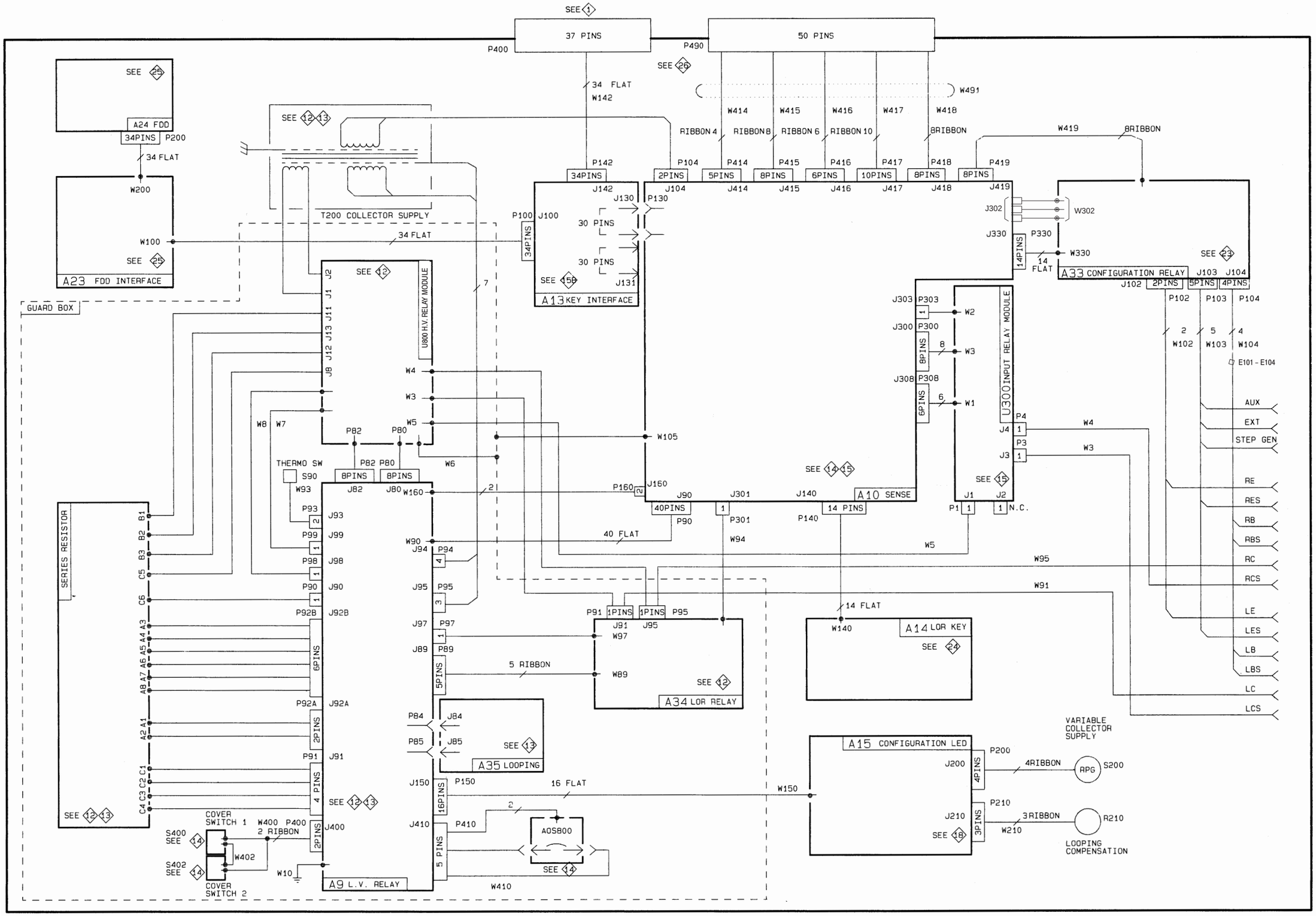
Please cut out the aria below the lines.



CIRCUIT BOARD INTERCONNECTIONS 1

Figure 7-4. Circuit board interconnections.

Please cut out the aria below the lines.



REV MAR 96

Figure 7-5. Circuit board interconnections.

CIRCUIT BOARD INTERCONNECTIONS 2

Please cut out the aria below the lines.

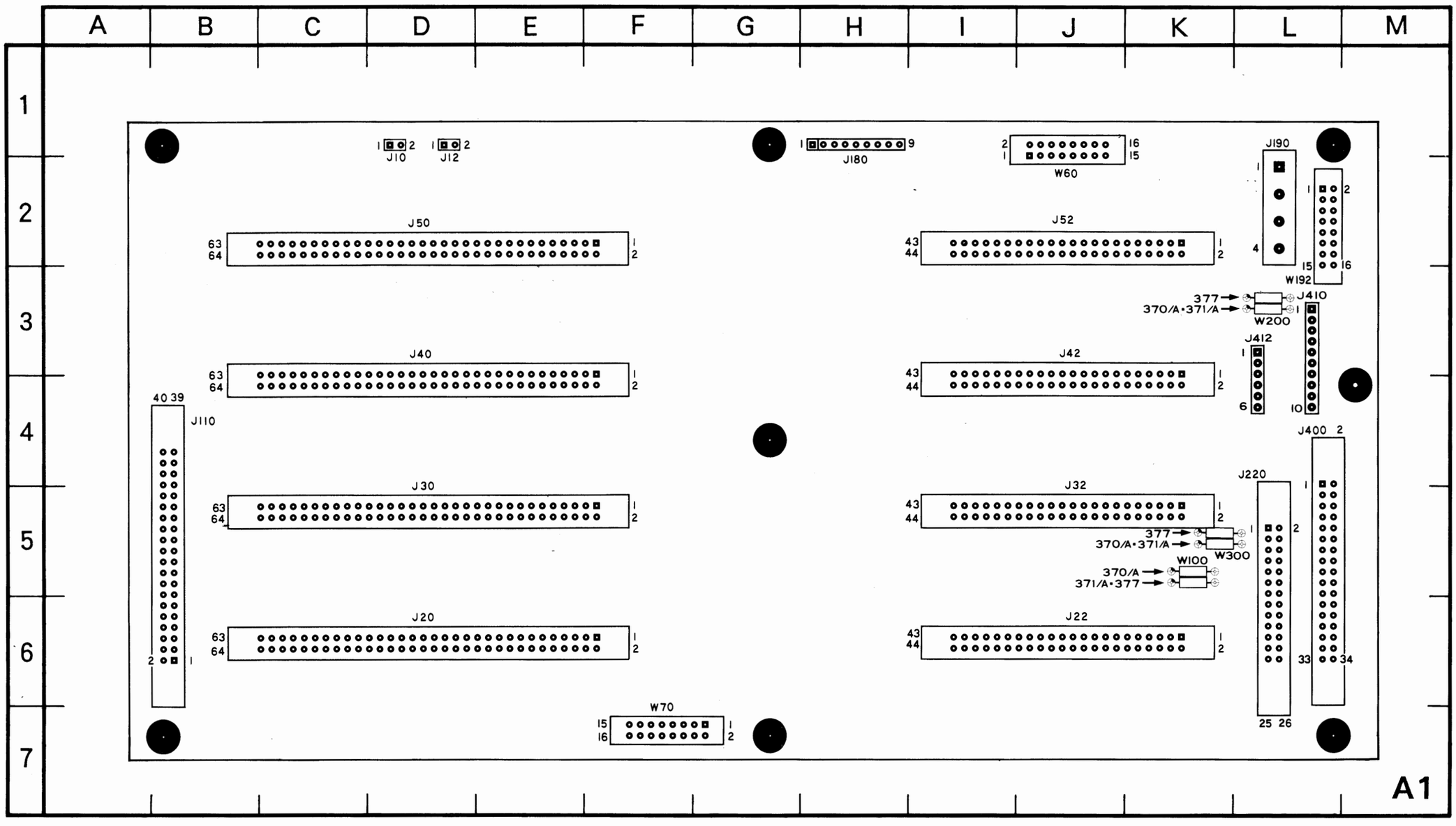


Figure 7-6. A1 — Interconnection circuit board assembly.

Please cut out the aria below the lines.

INTERCONNECTION 1

ASSEMBLY A1

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
J10	A1	D1	J50	B4	D2	J412	D1	L3
J12	A2	D1	J52	B1	J2			
J20	D4	D6	J110	D1	B4	W60	A4	J2
J22	D1	J6	J180	A3	H2	W70	A5	F7
J30	C4	D5	J190	A7	L1	W100	B6	K5
J32	C1J	5	J220	D6	L4	W192	A2	L3
J40	C4	D3	J400	D4	L4	W200	D4	L3
J42	C1	J3	J410	A6	L3	W300	D4	K5

CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
J401	E4	CHASSIS	L100	A1	CHASSIS	P401	E4	CHASSIS
J490	A6,E1	CHASSIS	L120	A2	CHASSIS	P490	A6,E1	CHASSIS

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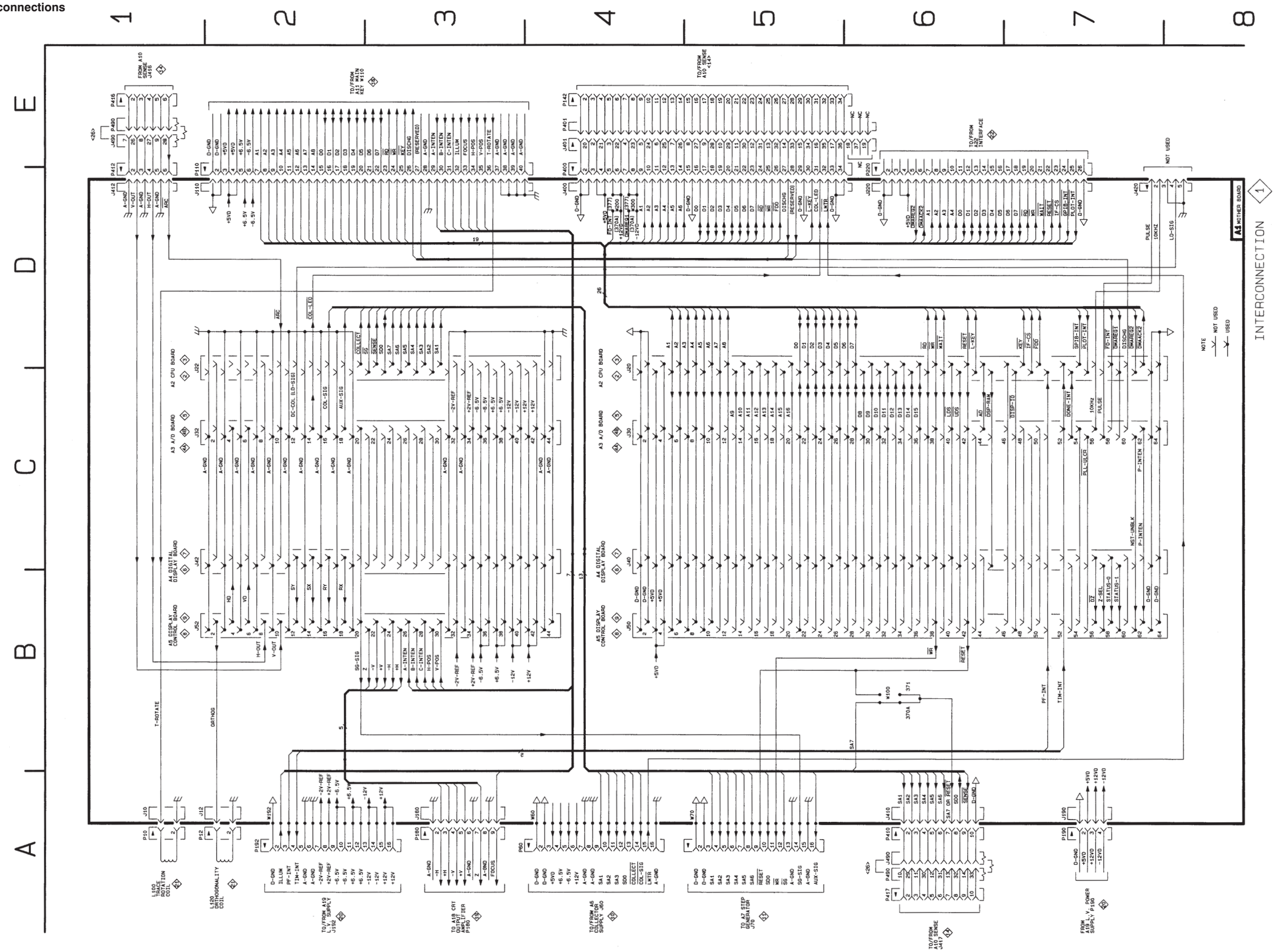

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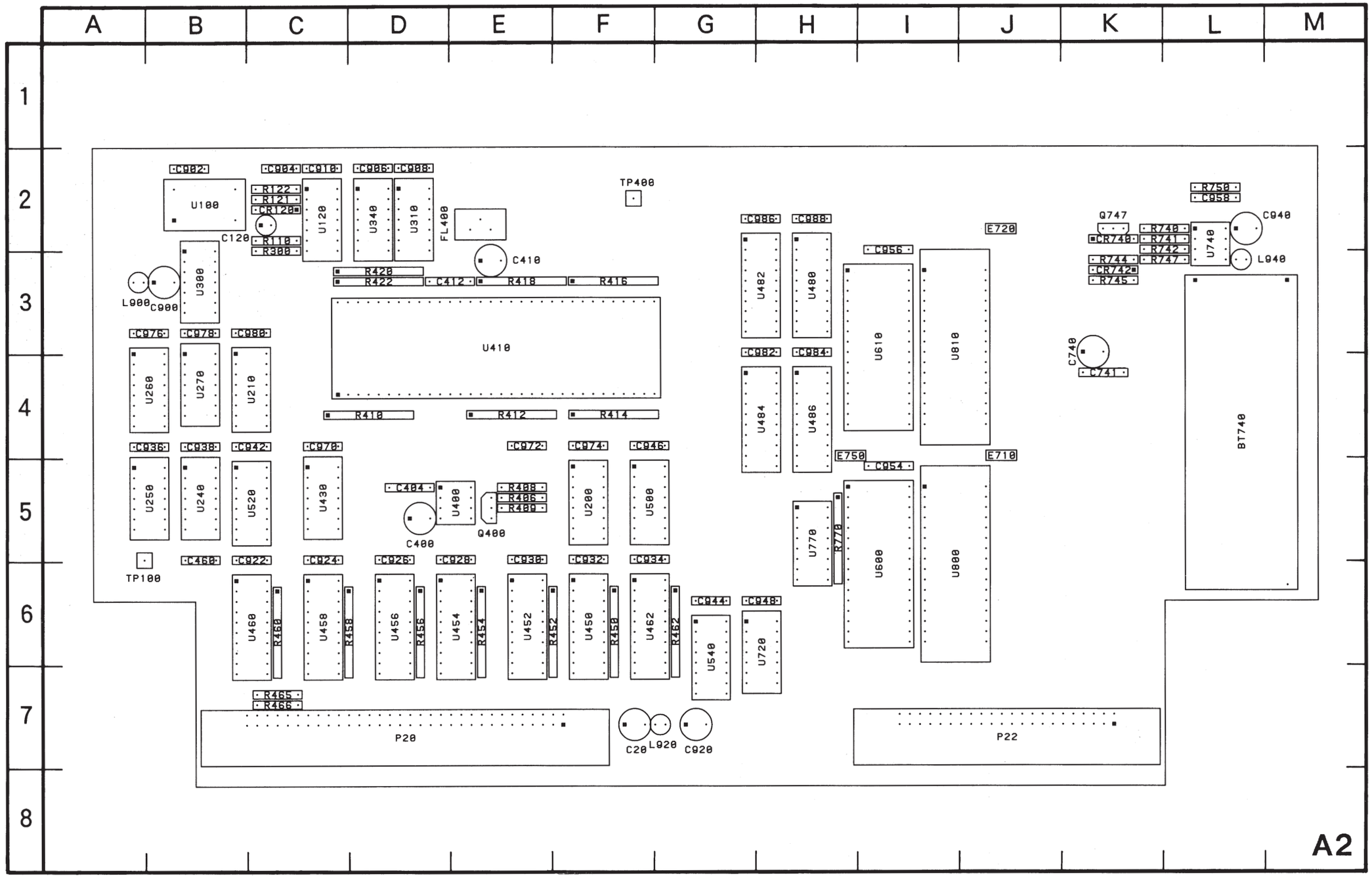


Figure 7-7. A2 — CPU ciruit board assembly.

A2 — CPU circuit board illustration to be used with diagrams ◇2◇ and ◇3◇

Please cut out the aria below the lines.

MPU 2

ASSEMBLY A2

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C20	A5	F7
C120	B5	B2
C400	C5	D5
C404	C5	D5
C410	D4	E3
C412	D4	E3
C460	A2	B5
C900	A5	B3
C902	B5	B2
C904	B5	C2
C906	B5	D2
C908	B5	D2
C910	B5	C2
C920	A5	G7
C922	B5	C5
C924	B5	C5
C926	B5	D5
C928	B5	E5
C930	B5	E5
C932	B5	F5
C934	B5	F5
C936	B5	B4
C938	B5	B4
C940	A5	M2
C942	B5	C4
C944	B5	G6
C946	B5	F4
C948	B5	H6
C954	B5	I5
C956	B5	I2
C958	B5	L2
C970	B5	C4
C972	B5	E4
C974	B5	F4
C976	B5	B3
C978	B5	B3
C980	B5	C3
C982	B5	H3
C984	B5	H3
C986	B5	H2
C988	B5	H2
CR120	B5	C2
FL400	D4	E2
L900	A5	A3
L920	A5	G7
L940	A5	M3
P20	A1,H1,H3	D7
P22	H2	J7
Q400	C5	E5
R110	B4	C2
R121	B4	C2
R122	B4	C2
R300	A4	C2
R406	D4	E5
R408	D5	E5
R409	C4	E5
R410	E3,E4	D4
R412	D3,E5	E4
R414	D2,E1	F4
R416	E1	F3
R418	E2	E3
R420	E2,E4	D3
R422	E3	D3
R450	F1	F6
R452	G1	F6
R454	G3	E6
R456	G3	D6
R458	H4	C6
R460	A1	C6
R462	F2	G6
R465	A2	C7
R466	B2	C7
TP100	E3	A6
U100	A4	B2
U120A	B4	C2
U120B	C4	C2
U200	D2	F5
U210	C2	C4
U240A	C1	B5
U240B	C1	B5
U250A	C2	B5
U250B	C2	B5
U260	D1	B4
U270A	C3	B4
U270B	C3	B4
U270C	C3	B4
U270D	C3	B4
U300A	C3	B3
U300B	C3	B3
U300C	C5	B3
U300D	B4	B3
U310A	C4	D2
U310B	C4	D2
U340A	A3	D2
U340B	B3	D2
U400	C4	E5
U410	E1	E3
U430A	E5	C5
U430B	F4	C5
U430C	F5	C5
U430D	E4	C5
U450	F1	F6
U452	G1	E6
U454	F3	E6
U456	G3	D6
U458	F5	C6
U460	B1	C6
U462	F2	F6

MEMORY 3

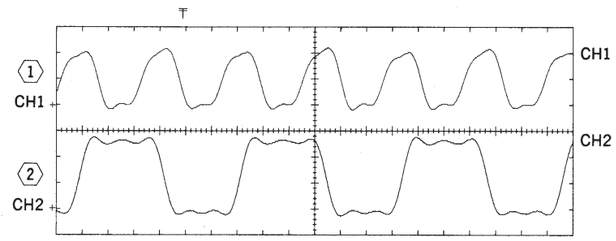
ASSEMBLY A3

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
BT740	C3	L4
C740	C3	K3
C741	C3	K4
CR740	C3	K2
CR742	C3	K3
E710	C3	J4
E720	C3	J2
E750	C3	H4
P20	F1	D7
P22	F2	J7
Q747	C3	K2
R740	B3	L2
R741	B3	L2
R742	B3	L2
R744	C3	K3
R745	C3	K3
R747	C3	L3
R750	C4	L2
R770	C2	H5
TP400	D3	F2
U480	B3	H3
U482	B4	H3
U484	A3	H4
U486	A4	H4
U500A	A2	F5
U500B	A1	F5
U520	A1	C5
U540	B1	G6
U600	D1	I6
U610	D1	I3
U720A	B2	H6
U720B	C2	H6
U720C	C1	H6
U720D	C2	H6
U740	C3	L2
U770	C3	H5
U800	E1	I6
U810	E1	I3

WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings.

CH1	DC	2V/div	AVG	20nSEC/div
CH2	DC	2V/div	AVG	20nSEC/div



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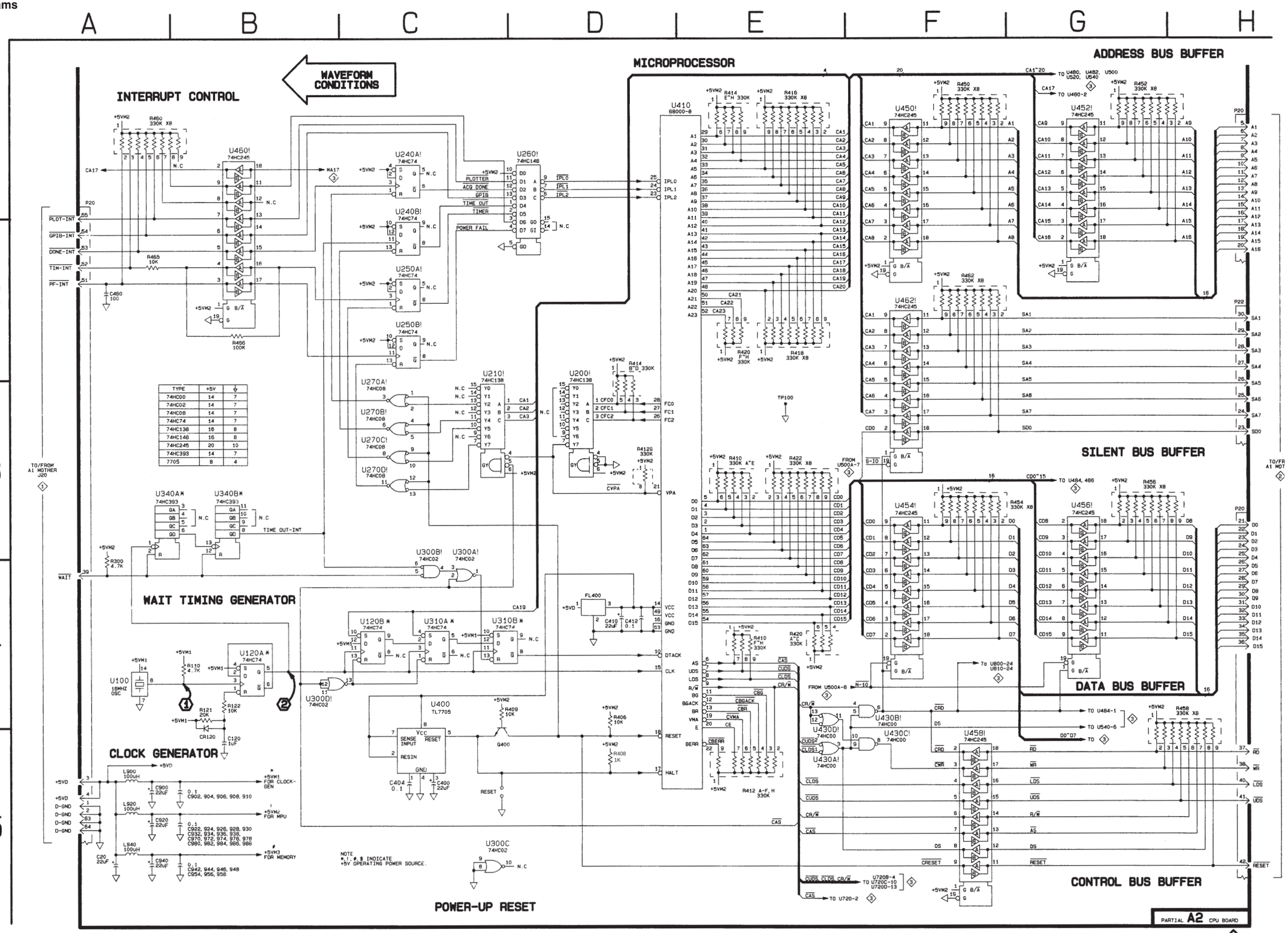
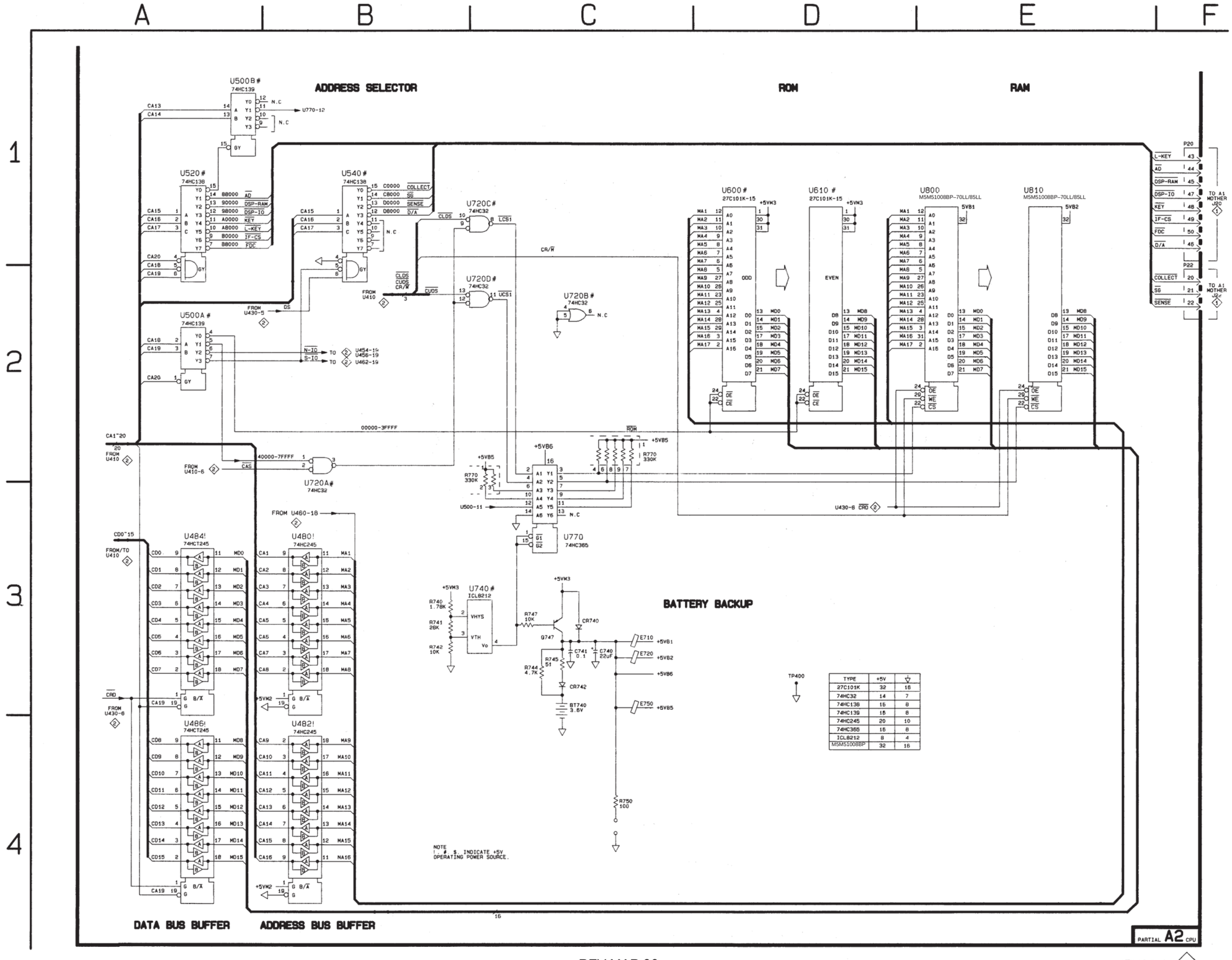


TYPE	+5V	⏚
74HC00	14	7
74HC02	14	7
74HC08	14	7
74HC74	14	7
74HC138	16	8
74HC148	16	8
74HC245	20	10
74HC393	14	7
7705	8	4

Please cut out the aria below the lines.



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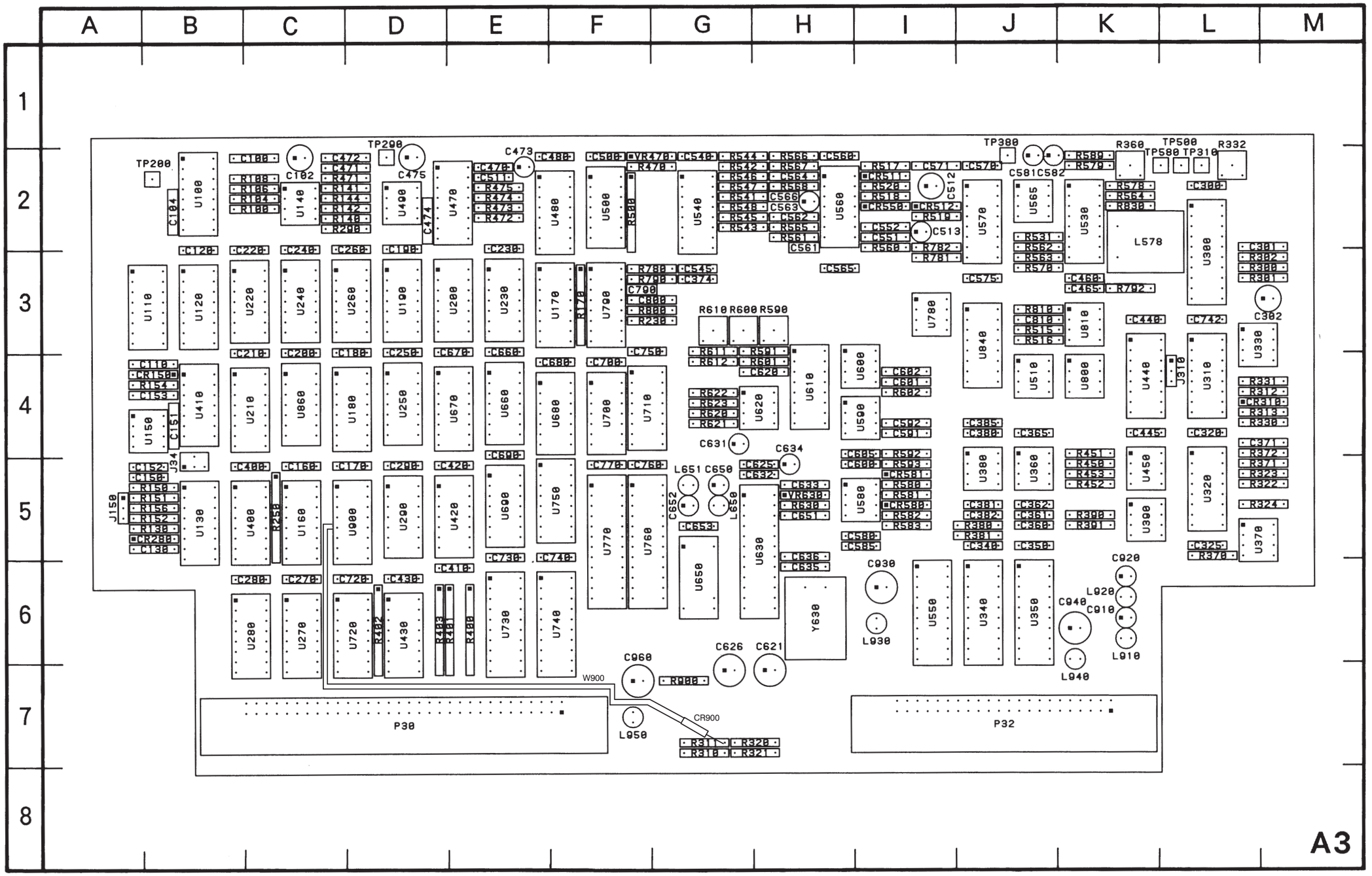

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Figure 7-8. A3 — A/D circuit board assembly.

A3 — A/D circuit board assembly to be used with diagrams ◇4◇ and ◇5◇.

Please cut out the aria below the lines.

GENERATOR 4a

ASSEMBLY A3

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	A1	C2
C102	B2	C2
C104	A2	B2
C110	A4	B4
C120	A4	B2
C130	A4	B5
C150	A4	B5
C151	D3	B4
C152	D3	B5
C153	C2	B4
C160	A4	C5
C170	A4	D5
C180	A4	D3
C190	A4	D2
C200	A4	C3
C210	A4	C3
C220	A4	C2
C230	A4	E2
C240	A4	C2
C250	A4	D3
C260	A4	D2
C270	A4	C6
C280	A4	C6
C290	A4	D5
C300	G4	L2
C301	G4	M2
C302	G4	M3
C320	A3	L4
C325	A3	L5
C340	A4	J5
C350	A4	J5
C360	B3	J5
C361	I4	J5
C362	I4	J5
C365	B3	J4
C371	H2	M4
C374	A3	G3
C380	B3	J4
C381	I5	J5
C382	I5	J5
C385	A3	J4
C400	A4	C5
C410	A4	E6
C420	A4	E5
C430	A4	D6
C440	A3	K3
C445	A3	K4
C460	B3	K3
C465	B3	K3
C480	A4	F2
C500	A4	F2
C540	B3	G2
C545	A3	G3
C560	A3	H2
C565	B3	H3
C580	A3	I5
C585	A3	I5
C600	B3	I5
C605	A3	I4
C620	A4	H4
C621	A4	H6
C625	A4	H5
C626	A4	G6
C660	A4	E3
C670	A4	E3
C680	A4	F4
C690	A4	E4
C700	A4	F4
C720	A4	D6
C730	A4	E5
C740	A4	F5
C742	A3	L3
C750	A4	F3
C760	A4	F5
C770	A4	F5
C910	A3	K6
C920	A3	K6
C930	A3	I6
C940	A3	K6
C960	A4	F6
CR150	D2	B4
CR280	D3	B5
CR310	G4	M4
CR900	H2	G7
J34	C4	B5
J150	D3	A5
J310	H2	L4
L910	A2	K6
L920	A3	K6
L930	A3	I6
L940	A3	K7
L950	A4	F7
P30	A2,A4,I1	D7
	I6	
P32	A1,A2,I2	J7
	I5	
R100	A1	C2
R104	A2	C2
R106	B2	C2
R108	B2	C2
R130	E2	B5
R140	B1	D2
R142	B1	D2
R144	B1	D2
R150	D2	B5
R151	D3	B5
R152	D3	B5
R154	C2	B4
R156	C3	B5
R170	D3	F3
R250A	F2	C5
R250B	F2	C5
R250C	I6	C5
R250D	F2	C5
R250E	C1	C5
R250F	E1	C5
R250G	D2	C5
R250H	E1	C5
R290	E3	D2
R300	F4	M3
R301	F4	M3
R302	F5	M3
R310	G3	G7
R311	H2	G7
R312	I2	M4
R313	I2	M4
R320	G5	H7
R321	G5	H7
R322	G2	M5
R323	G2	M5
R324	G2	M5
R330	G4	M4
R331	G3	M4
R332	G4	L2
R360	I4	K2
R370	G2	L5
R371	G2	M5
R372	H2	M4
R380	I5	J5
R381	I5	J5
R390	H5	K5
R391	H5	K5
R400	A4	E6
R401	A5	E6
R402	A5	D6
R403	A6	D6
R450	G3	K5
R451	G3	K4
R452	H3	K5
R453	H3	K5
R900	A3	G7
TP200	I3	B2
TP290	E3	D1
TP310	I2	L2
TP380	I5	J1
TP500	I3	L1
U100	B1	B2
U110	B1	B3
U120	C3	B3
U130A	E2	B5
U130B	E2	B5
U140A	B1	C2
U140B	B1	C2
U150	D2	B4
U160	D4	C5
U170	D3	F3
U180A	C4	D4
U180B	F2	D4
U190A	C5	D3
U190B	C5	D3
U200A	D1	E3
U200B	D5	E3
U210	E4	C4
U220A	E5	C3
U220B	F4	C3
U230B	F5	E3
U240A	C2	C3
U240B	C6	C3
U240D	E1	C3
U240D	F4	C3
U250A	E2	D4
U250B	D2	D4
U250C	C1	D4
U250D	E4	D4
U260A	E2	D3
U260B	D1	D3
U260C	E1	D3
U260D	E2	D3
U270	B3	C6
U280	B4	C6
U290A	E3	D5
U290B	E3	D5
U300	G4	L3
U310A	G3	L4
U310B	G4	L4
U310C	H2	L4
U320A	G2	L5
U320B	H5	L5
U320C	H4	L5
U330	G4	L3
U340	H5	J6
U350	H4	J6
U360	I4	J5
U370	H2	L5
U380	I5	J5
U390A	I4	K5
U390B	I5	K5
U400	F3	C5
U410A	C3	B4
U410B	C2	B4
U420B	C4	E5
U420F	D6	E5
U430	B5	D6
U440A	H3	K4
U440B	H3	K4
U440C	H2	K4
U450	H3	K5
U860A	F5	C4
U860B	F3	C4
U860C	F6	C4
U860D	F2	C4
U900	B5	D5
W900	H1	C5~G7

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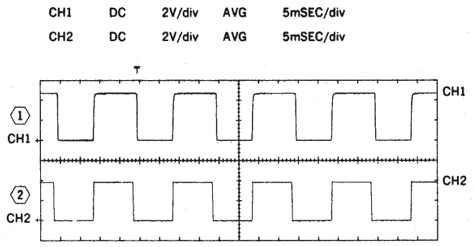
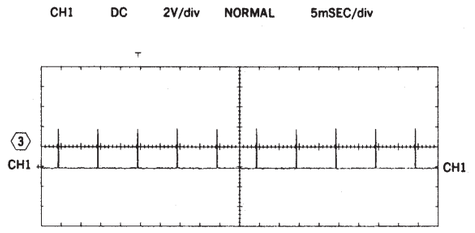
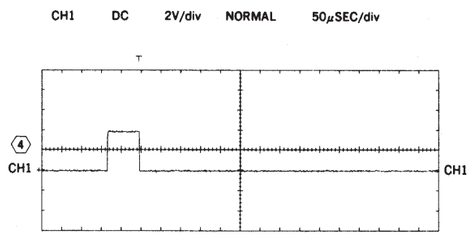
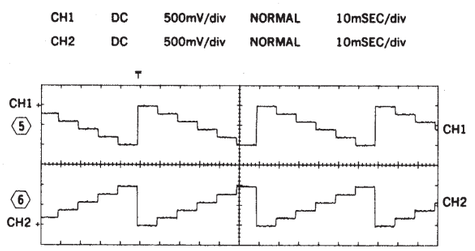
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings.









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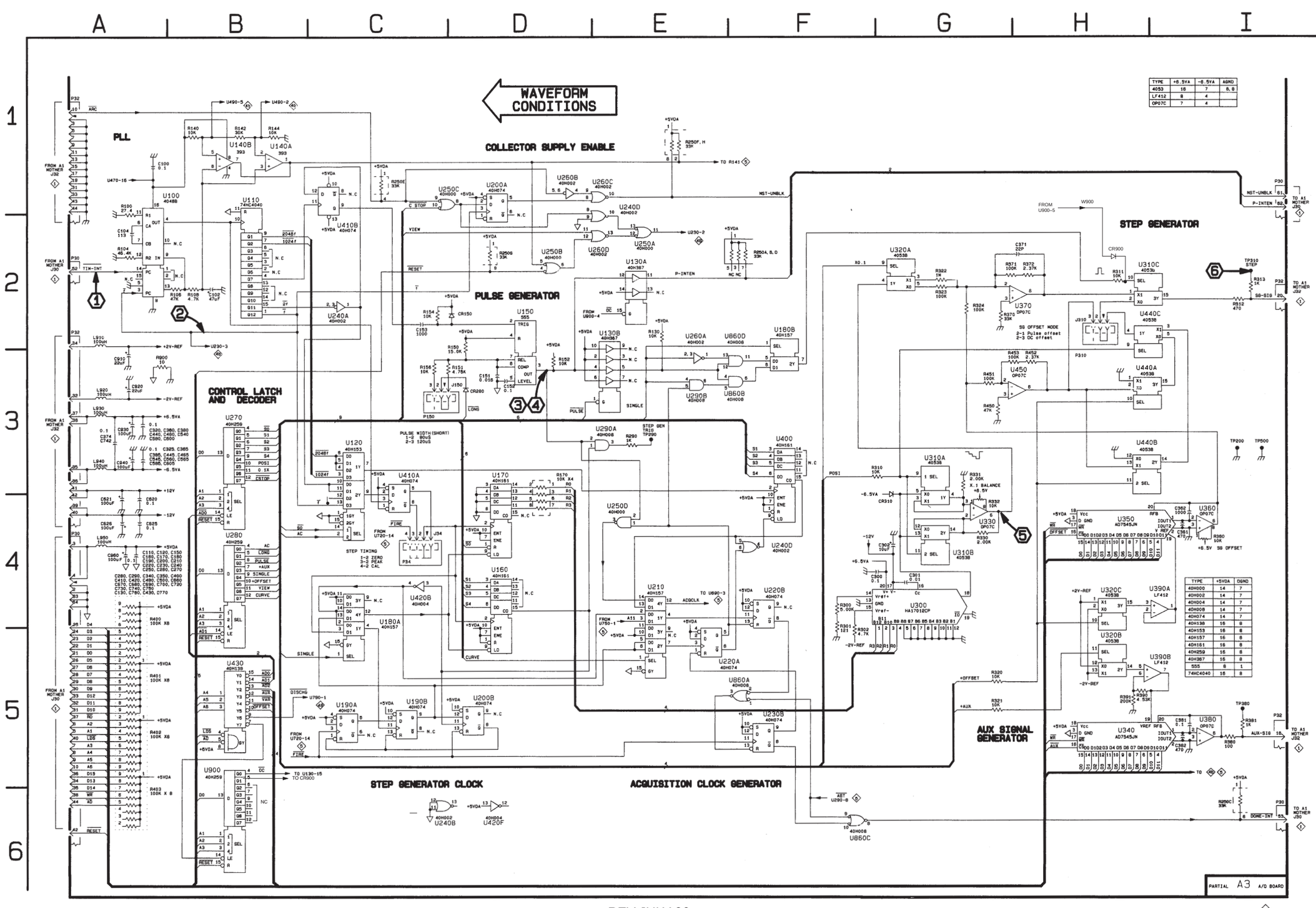

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GENERATOR 4a

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GENERATOR 4b

ASSEMBLY A3

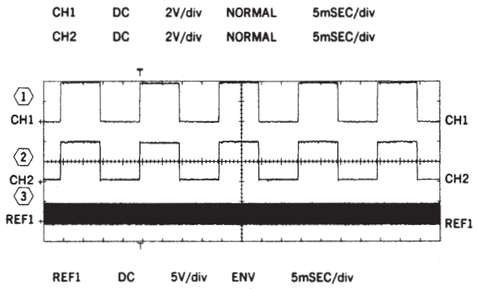
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C470	A2	E2
C471	A3	D2
C472	A2	D2
C473	A2	E2
C474	A3	D2
C475	B3	D2
C511	A4	E2
C512	C4	I2
C513	D4	I2
C551	B2	I2
C552	B2	I2
C561	E4	H2
C562	E4	H2
C563	D3	H2
C564	E3	H2
C566	E4	H2
C570	E4	J2
C571	E3	I2
C575	E4	J3
C581	F2	J2
C582	F2	J2
C790	B1	F3
C800	B1	G3
C810	C2	J3
CR511	C4	I2
CR512	D4	I2
CR550	D4	I2
L578	G2	K2
P30	G1	D7
P32	G2	J7
R230	E2	G3
R470	A2	G2
R471	A3	D2
R472	A3	E2
R473	A3	E2
R474	B3	E2
R475	B3	E2
R500	C3	F2
R515	C3	J3
R516	C3	J3
R517	C4	I2
R518	D4	I2
R519	D4	I2
R520	D4	I2
R531	F2	J2
R541	D3	G2
R542	D3	G2
R543	D3	G2
R544	D3	G2
R545	D3	G2
R546	D3	G2
R547	D3	G2
R548	D3	G2
R560	B2	I2
R561	E4	H2
R562	F3	J2
R563	F3	J3
R564	F3	K2
R565	E4	H2
R566	D3	H2
R567	E3	H2
R568	E3	H2
R570	D2	J3
R578	G2	K2
R579	F2	K2
R589	F2	K2
R780	A4	G3
R781	B4	I3
R782	B4	I2
R790	B1	G3
R792	B1	K3
R800	D1	G3
R810	C1	J3
R830	C2	K2
TP580	G2	L2
U230A	E1	E3
U470	A3	E2
U480	B3	F2
U490A	B4	D2
U490B	B4	D2
U500A	C3	F2
U500B	C3	F2
U500C	C3	F2
U500D	C3	F2
U510A	C3	J4
U510B	C3	J4
U530A	F2	K2
U530B	C1	K2
U530C	C2	K2
U540	D3	G2
U550	B1	I6
U560A	B2	H2
U560B	C4	H2
U560C	E3	H2
U560D	E4	H2
U565A	F2	J2
U565B	F3	J2
U570	E3	J2
U780	A4	I3
U790A	B1	F3
U790B	F4	F3
U800	D2	K4
U810	C2	K3
U840A	F3	J3
U840B	F3	J3
U840C	D3	J3
VR470	A2	G2

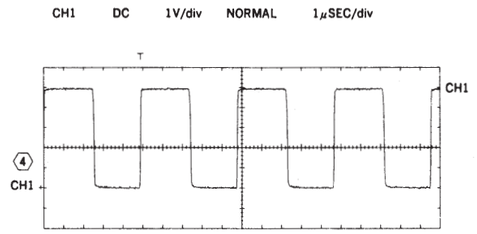
WAVEFORM CONDITIONS

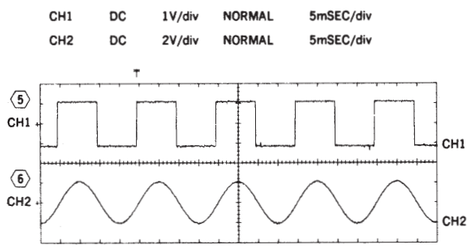
The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A under the following conditions:

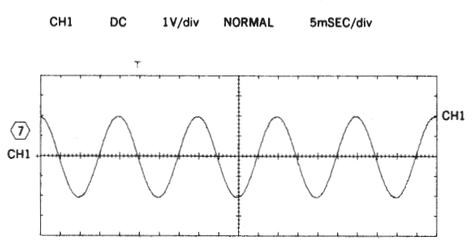
Waveform 1, 2, 3, 4, 5, and 6: These waveforms were obtained from the 370A set to the power-up default (initial) settings.

Waveform 7: This waveform was obtained from the 370A set to the power-up default (initial) settings, except that the VARIABLE COLLECTOR SUPPLY is set to 100%.









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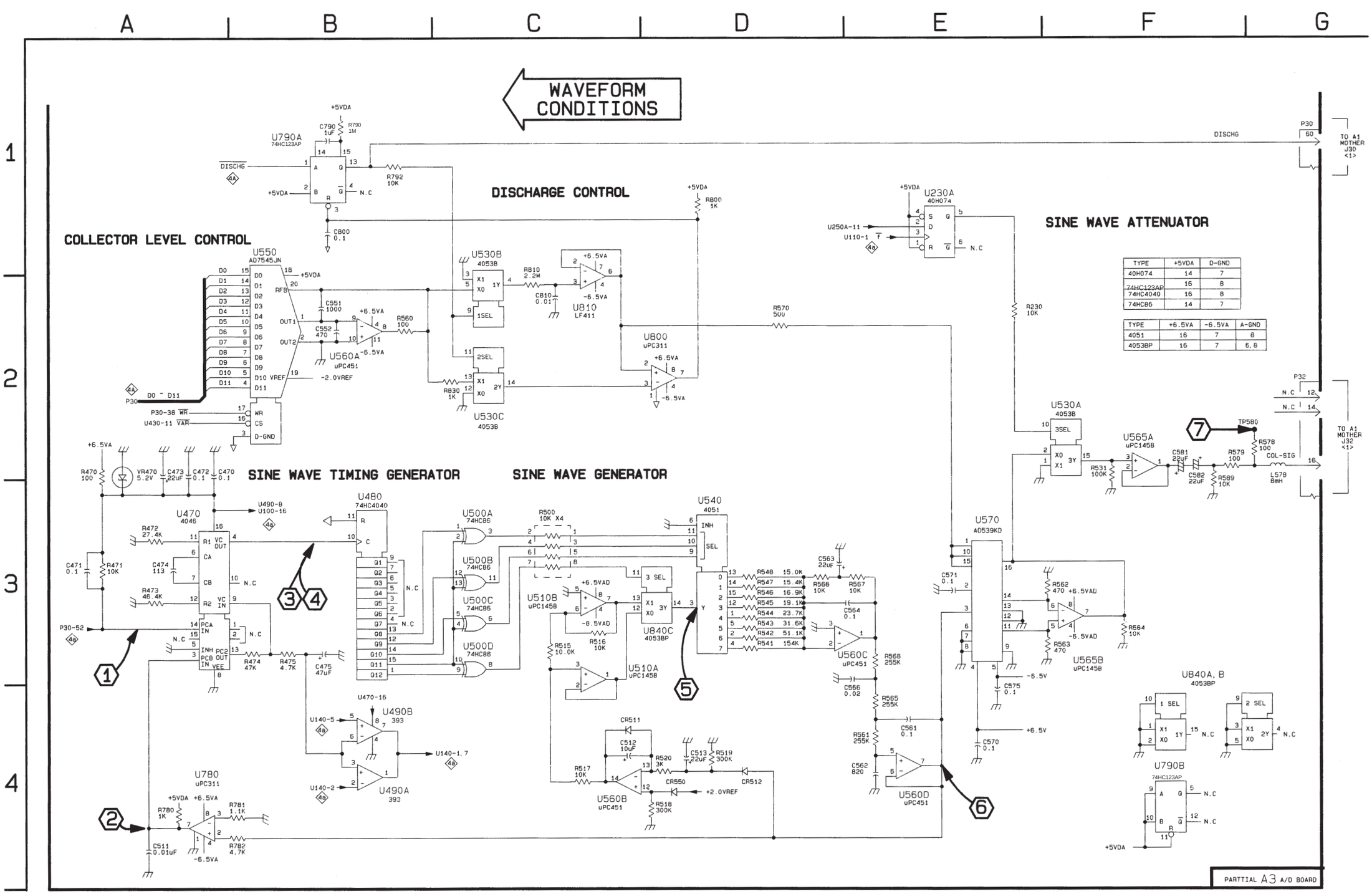


TYPE	+5VDA	D-GND
40H074	14	7
74HC123AP	16	8
74HC4040	16	8
74HC86	14	7

TYPE	+6.5VA	-6.5VA	A-GND
4051	16	7	8
4053BP	16	7	8, 8

REV MAR 96

COLLECTOR SUPPLY GENERATOR 4b

Please cut out the aria below the lines.

ACQUISITION 5

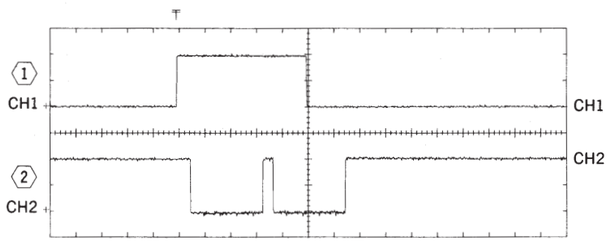
ASSEMBLY A3

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C591	A3	I4
C592	B3	I4
C601	A4	I4
C602	B3	I4
C631	D3	G4
C632	D3	H5
C633	E3	H5
C634	E3	H4
C635	D4	H6
C636	D4	H5
C650	D4	G5
C651	D4	H5
C652	D4	G5
C653	D4	G5
CR580	B2	I5
CR581	B3	I5
L650	D3	G5
L651	C3	G5
P32	A3	J7
R141	D2	D2
R580	A2	I5
R581	A2	I5
R582	A3	I5
R583	A3	I5
R590	B3	H3
R591	B3	H3
R592	A3	I4
R593	A3	I5
R600	B4	G3
R601	B4	H4
R602	A3	I4
R610	C3	G3
R611	C3	G3
R612	C3	G4
R620	D3	G4
R621	D3	G4
R622	D3	G4
R623	D3	G4
R630	E3	H5
U290C	C2	D5
U290D	C1	D5
U420A	D4	E5
U420C	C1	E5
U420D	E1	E5
U420E	B5	E5
U580A	A3	I5
U580B	A2	I5
U590	B3	I4
U600	B4	I4
U610	C3	H4
U620	D3	H4
U630	E3	H5
U650	D3	G6
U660A	D4	E4
U660B	C5	E4
U660C	F4	E4
U670A	C4	E4
U670B	C5	E4
U670C	D4	E4
U670D	D5	E4
U670E	E5	E4
U670F	E5	E4
U680A	B5	F4
U680B	B5	F4
U690A	A4	E5
U690B	B4	E5
U700	F4	F4
U700C	D5	F4
U710	E5	F4
U720	B1	D6
U730	D2	E6
U740	D1	F6
U750	E1	F5
U760	F1	F5
U770	F2	F5
VR630	E3	H5
Y630	D4	H6

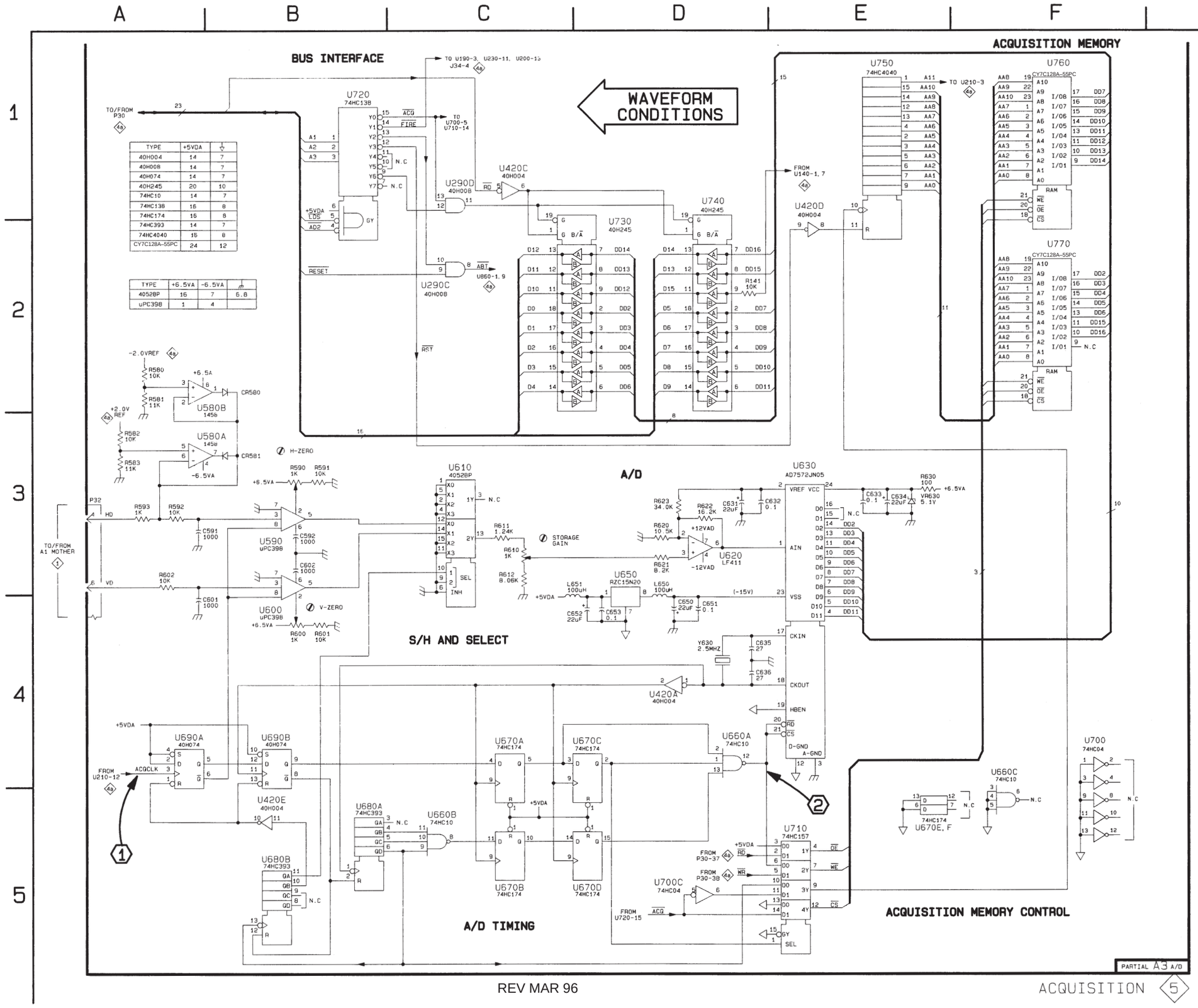
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings.

CH1	DC	2V/div	NORMAL	2μSEC/div
CH2	DC	2V/div	NORMAL	2μSEC/div



Please cut out the aria below the lines.



TYPE	+5VDA	
40H004	14	7
40H008	14	7
40H074	14	7
40H245	20	10
74HC10	14	7
74HC138	16	8
74HC174	16	8
74HC393	14	7
74HC4040	16	8
CY7C128A-55PC	24	12

TYPE	+6.5VA	-6.5VA	
4052BP	16	7	6.8
uPC398	1	4	

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Please cut out the aria below the lines.

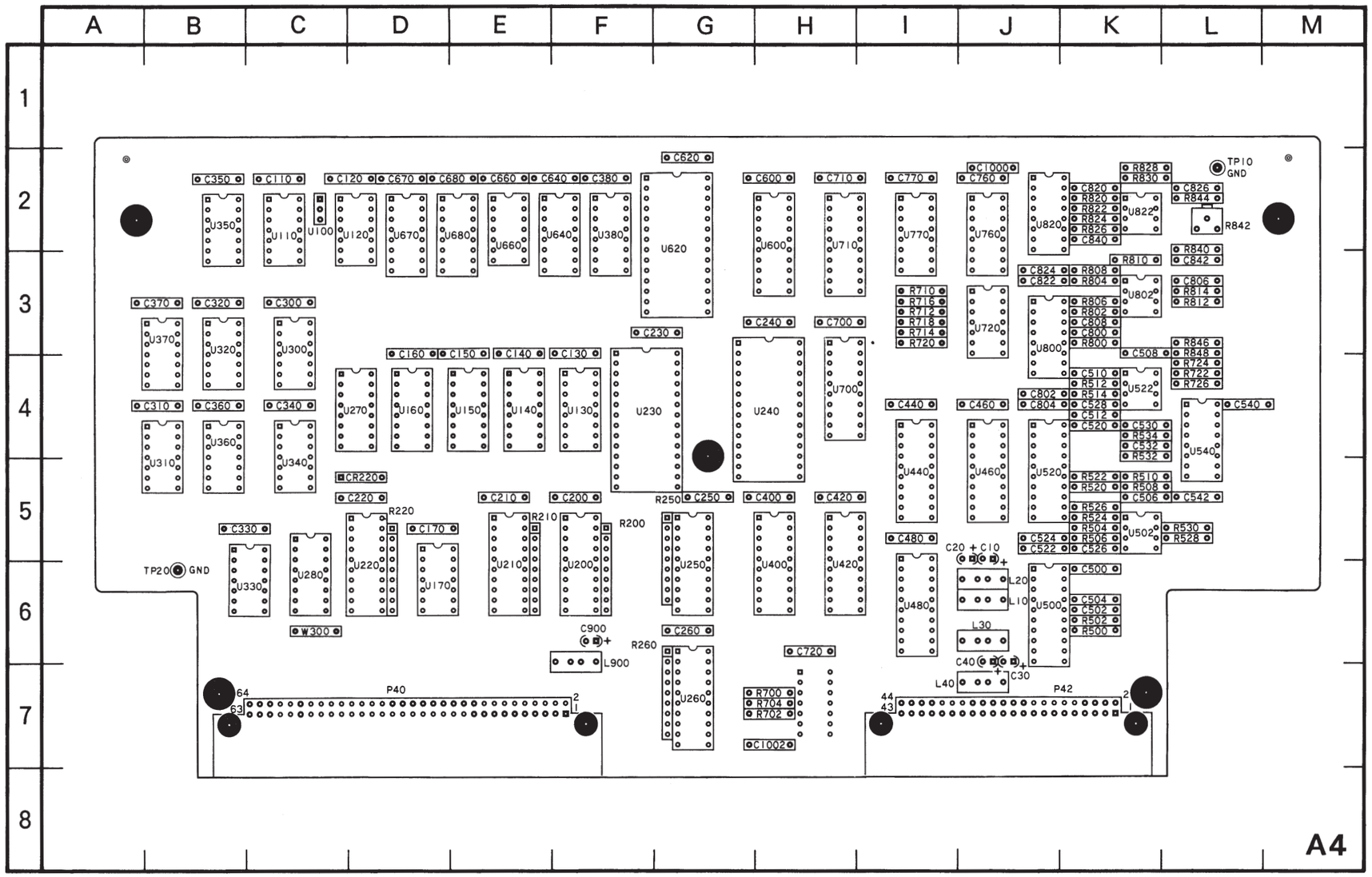


Figure 7-9. A4 — Digital Display circuit board assembly.

A4 — Digital Display circuit board illustration to be used with diagrams 6 and 7.

Please cut out the aria below the lines.

DISPLAY COUNTER 6

ASSEMBLY A4

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C30	G3	J7
C40	G3	J6
C110	B3	C2
C120	B3	D2
C130	B3	F3
C140	B3	E3
C150	B3	E3
C160	B3	D3
C170	B3	D5
C200	B3	F5
C210	B3	E5
C220	B3	D5
C230	B3	G3
C240	B3	H3
C250	B3	G5
C260	B3	G6
C300	B3	C3
C310	B3	B4
C320	B3	B3
C330	B3	B5
C340	B3	C4
C350	B3	B2
C360	B3	B4
C370	B3	B3
C380	B3	F2
C400	B3	H5
C420	B3	H5
C440	B3	I4
C460	B3	J4
C480	B3	I5
C540	G3	L4
C542	G3	L5
C600	B3	H2
C620	B3	G2
C640	B3	F2
C660	B3	E2
C670	B3	D2
C680	B3	E2
C700	B3	H3
C710	B3	H2
C720	G3	H6
C760	B3	J2
C770	B3	I2
C900	A3	F6
CR220	B4	D5
L30	G2	J6
L40	G3	J7
L900	A3	F7
P40	A1,G1	D7
P42	G2	K7
R200	A1	F5
R210	A2	E5
R220	A4	D5
R250	G1	G5
R260	G2	F6
U100	C3	C2
U110A	D2	C2
U110B	C2	C2
U120A	D2	D2
U120B	D2	D2
U130	C1	F4
U140	C1	E4
U150	D1	E4
U160	E1	D4
U170A	D3	D6
U170B	D3	D6
U200	B1	F6
U210	B2	E6
U220	B4	D6
U230	F1	F4
U240	F2	H4
U250	F1	G6
U260	F2	G7
U270	D5	D4
U280A	C5	C6
U280B	C5	C6
U300A	E5	C3
U300B	E5	C3
U300C	E4	C3
U310A	C2	B5
U310C	D3	B5
U310D	E2	B5
U320A	F3	B3
U320B	E4	B3
U320C	E2	B3
U320D	G4	B3
U330A	E3	C6
U330B	D2	C6
U330C	C4	C6
U330D	B4	C6
U340A	G3	C5
U340B	F4	C5
U340C	D4	C5
U340D	C4	C5
U340E	E5	C5
U340F	E2	C5
U350A	F4	B2
U350B	D2	B2
U360A	F5	B4
U360B	G5	B4
U370A	F4	B3
U370B	F4	B3
U380	F5	F2
W300	B5	C6

DISPLAY D/A CONVERTER 7

ASSEMBLY A4

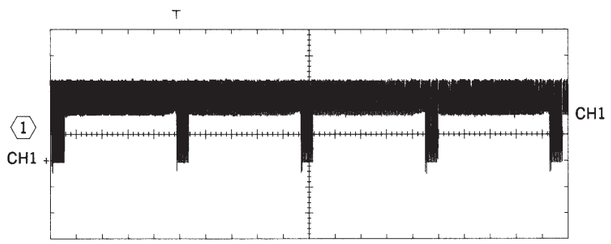
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C20	G1	I5
C500	E1	K6
C502	E2	K6
C504	E2	K6
C506	F1	K5
C508	F1	K3
C510	F1	K4
C512	F2	K4
C520	E2	K4
C522	E2	J5
C524	E3	J5
C526	F1	K5
C528	F2	K4
C530	F2	K4
C532	F3	K4
C800	E3	K3
C802	E3	J4
C804	E3	J4
C806	F3	L3
C808	F3	K3
C820	E4	K2
C822	E4	J3
C824	E4	J3
C826	F4	L2
C840	F4	K2
C842	G4	L3
C1000	F3	J2
C1002	F3	H7
L10	G1	J6
L20	G1	J6
P40	G5	D7
P42	G1	K7
R500	E2	K6
R502	E2	K6
R504	E1	K5
R506	E1	K5
R508	F1	K5
R510	F1	K5
R512	F1	K4
R514	F1	K4
R520	E2	K5
R522	E3	K5
R524	E2	K5
R526	E2	K5
R528	F2	L5
R530	F2	L5
R532	F2	K4
R534	F2	K4
R700	E4	H7
R702	E4	H7
R704	E5	H7
R710	F4	I3
R712	F4	I3
R714	F5	I3
R716	F4	I3
R718	F5	I3
R720	F5	I3
R722	F3	L4
R724	F3	L4
R726	F3	L4
R800	E3	K3
R802	E3	K3
R804	E3	K3
R806	E3	K3
R808	F3	K3
R810	F3	K3
R812	G3	L3
R814	G3	L3
R820	E4	K2
R822	E4	K2
R824	E4	K2
R826	E4	K2
R828	F3	K2
R830	F4	K2
R840	G4	L3
R842	G4	L2
R844	G4	L2
R846	F3	L3
R848	F3	L3
TP10	F1	L2
TP20	F1	B6
U310B	D4	B5
U400	B1	H6
U420	B2	H6
U440	C1	I5
U460	C2	J5
U480	C2	I6
U500	E1	J6
U502A	F1	K5
U502B	F2	K5
U520	E2	J5
U522A	F1	K4
U522B	F2	K4
U540A	G3	L4
U540B	G1	L4
U540C	G2	L4
U600	C4	H2
U620	D4	G2
U640	D4	F2
U660A	B5	E2
U660B	C5	E2
U670A	D1	D2
U670B	D1	D2
U680	E5	E2
U700	B3	H4
U710	B4	H2
U720A	F5	J3
U720B	F5	J3
U720C	F4	J3
U720D	F4	J3
U760	C3	J2
U770	C4	I2
U800	E3	J3
U802A	F3	K3
U802B	G3	K3
U820	E3	J2
U822A	F4	K2
U822B	G4	K2

Please cut out the aria below the lines.

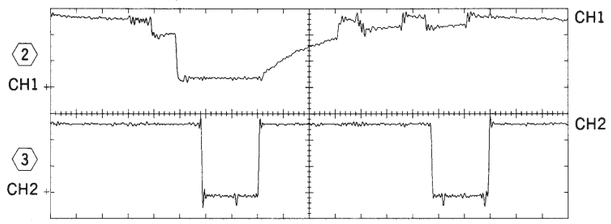
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings.

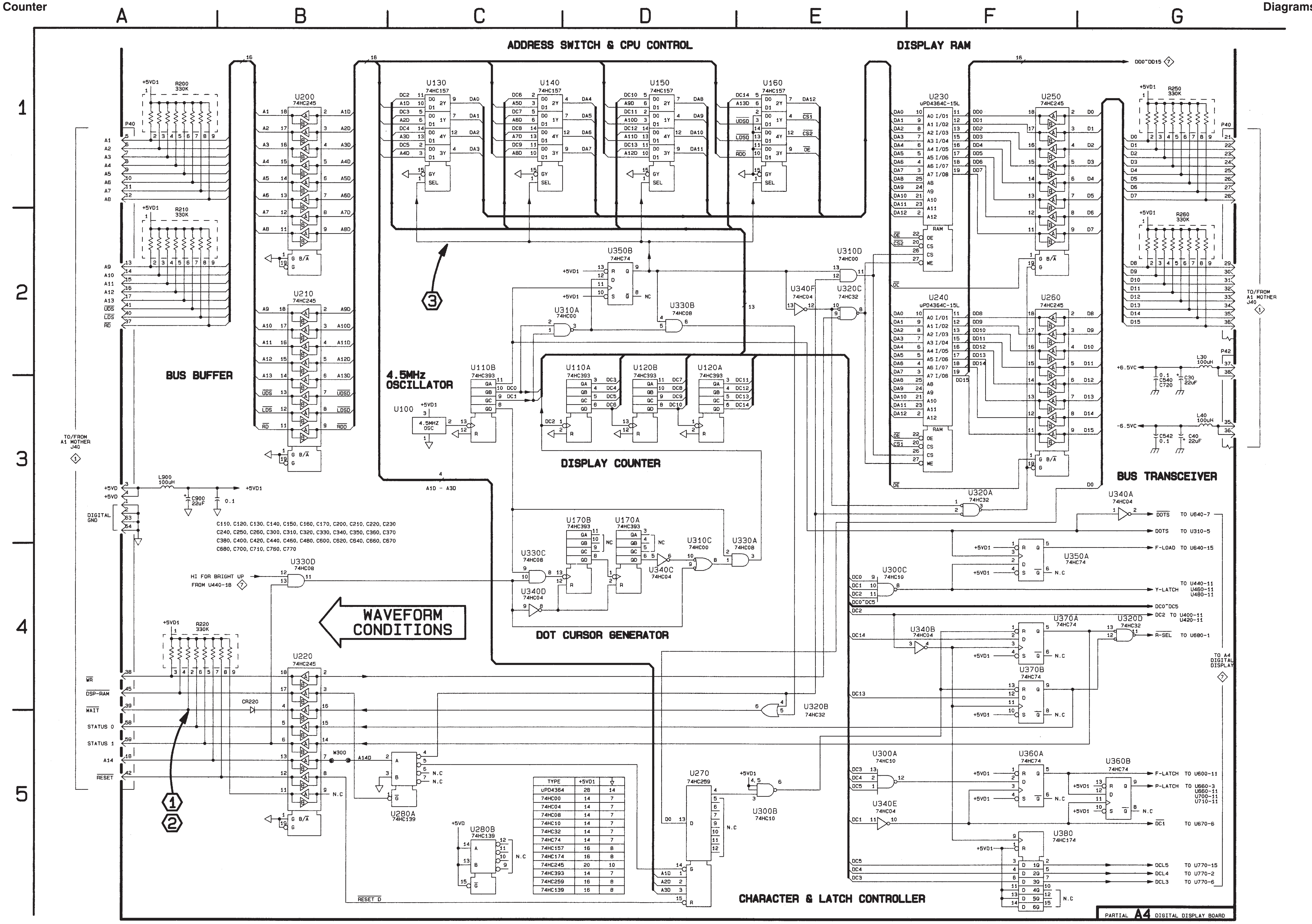
CH1 DC 2V/div ENV 50mSEC/div



CH1	DC	2V/div	NORMAL	200nSEC/div
CH2	DC	2V/div	NORMAL	200nSEC/div



Please cut out the aria below the lines.



TYPE	+5VD1	⏚
uPD4364	28	14
74HC00	14	7
74HC04	14	7
74HC08	14	7
74HC10	14	7
74HC32	14	7
74HC74	14	7
74HC157	16	8
74HC174	16	8
74HC245	20	10
74HC393	14	7
74HC259	16	8
74HC139	16	8

Please cut out the aria below the lines.

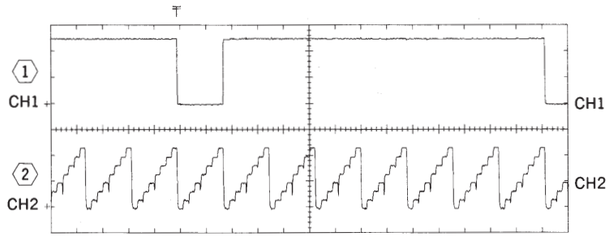
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A under the following conditions:

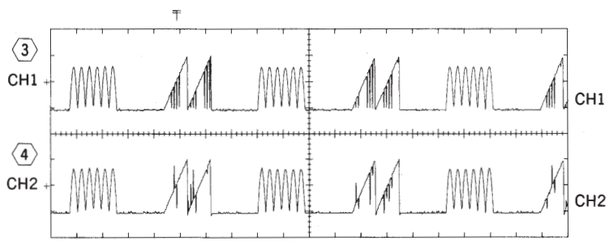
Waveform 1, 2, 5, and 6: These waveforms were obtained from the 370A set to the power-up default (initial) settings.

Waveform 3 and 4: These waveforms ware obtained with the 370A set to the power-up default (initial) settings, except that the COLLECTOR SUPPLY MAX PEAK POWER WATTS is set to 0.4 W, the VARIABLE COLLECTOR SUPPLY is set to 100%, the VERTICAL CURRENT/DIV is set to 2 mA, and the LEFT-RIGHT-STANDBY switch is set to RIGHT. A 1 kΩ, 0.5 watt resistor is connected between the right collector terminal and the right emitter terminal.

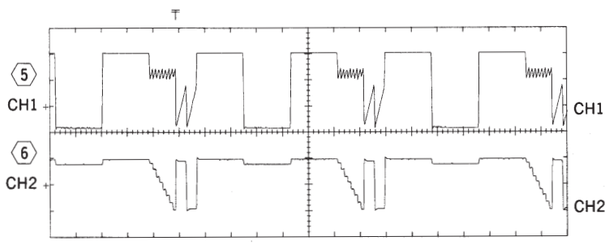
CH1	DC	2V/div	AVG	2μSEC/div
CH2	DC	2V/div	AVG	2μSEC/div



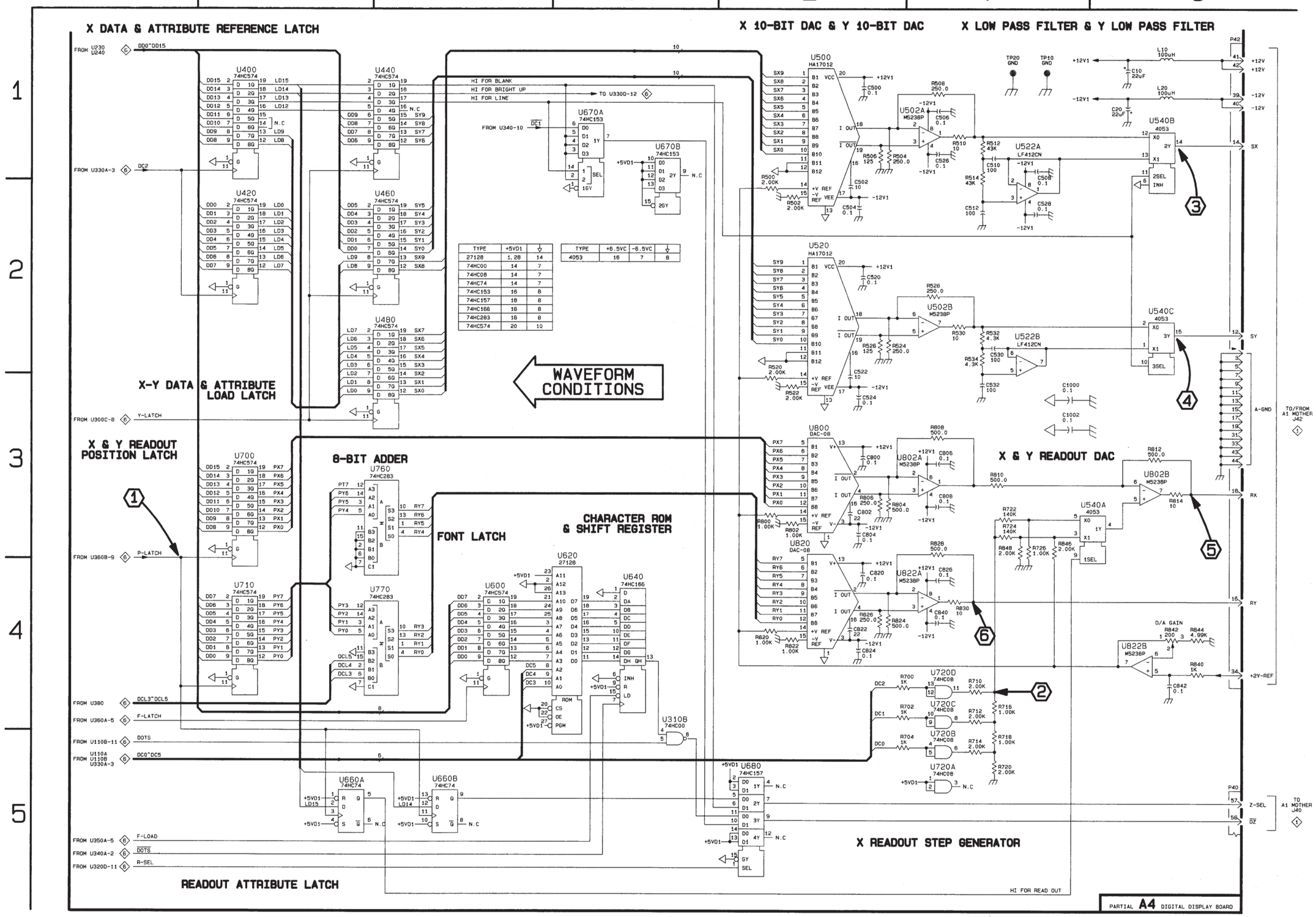
CH1	DC	1V/div	NORMAL	2mSEC/div
CH2	DC	1V/div	NORMAL	2mSEC/div



CH1	DC	1V/div	AVG	2mSEC/div
CH2	DC	1V/div	AVG	2mSEC/div



Please cut out the aria below the lines.



TYPE	+5VD1	
27128	1, 28	14
74HC00	14	7
74HC08	14	7
74HC74	14	7
74HC153	16	8
74HC157	16	8
74HC166	16	8
74HC283	16	8
74HC574	20	10

TYPE	+6.5VC	-6.5VC	
4053	16	7	8

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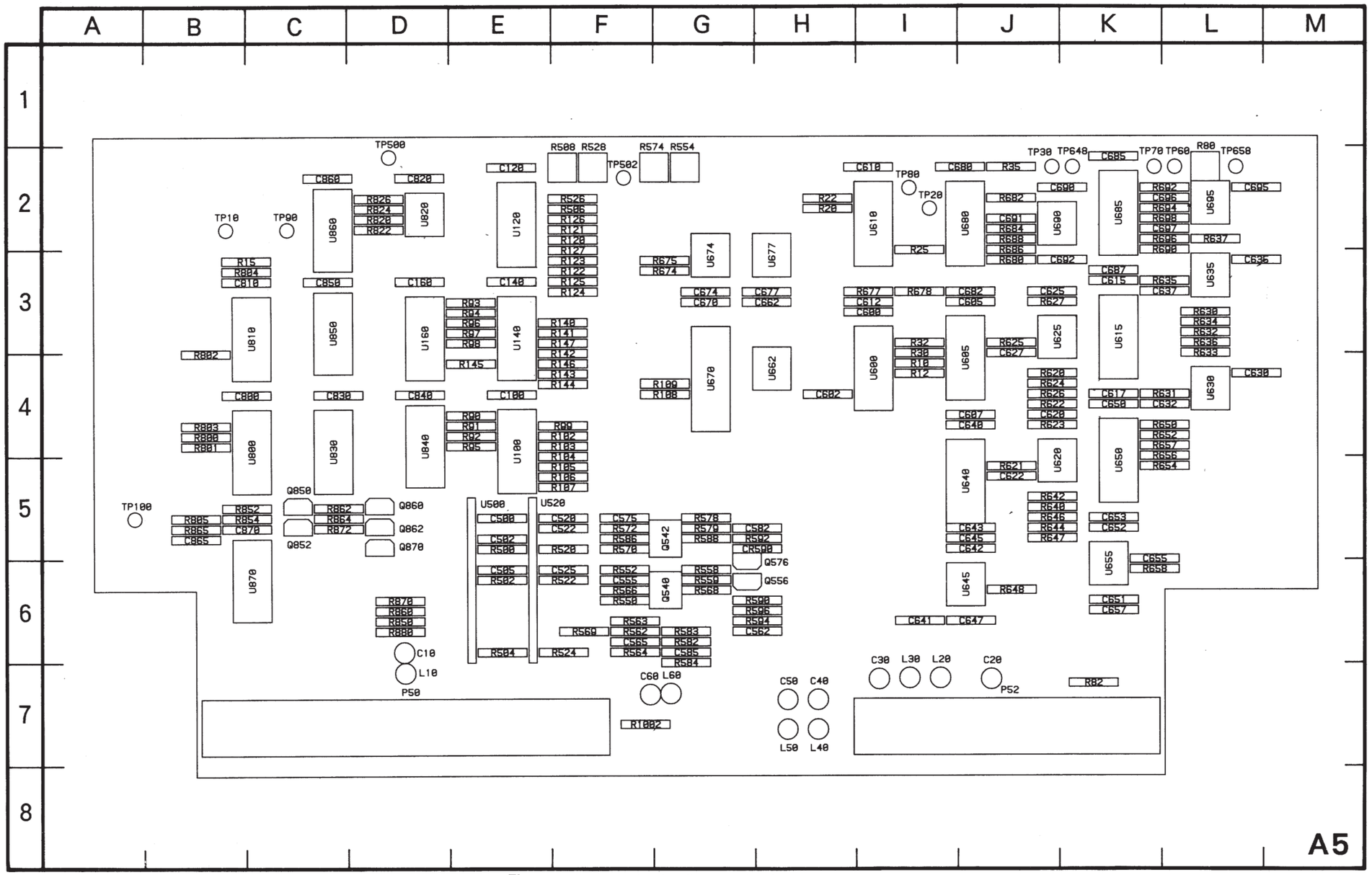

Figure 7-10. A5 — Display Control circuit board assembly.

A5 — Display Control circuit board illustration to be used with diagrams 8 and 9.

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DISPLAY OFFSET 8

ASSEMBLY A5

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C40	F2	H7	R126	C2	F2	R688	E1	J2
C50	F2	H7	R127	C2	F3	R690	D2	L2
C641	F3	I6	R140	C3	F3	R692	E2	L2
C643	F3	J5	R141	C3	F3	R694	E2	L2
C651	F4	K6	R142	C3	F4	R696	E2	L2
C653	F4	K5	R143	C3	F4	R698	E2	L2
C674	C1	G3	R144	C3	F4			
C677	C1	H3	R145	C3	E4	TP60	E2	L2
C691	E1	J2	R146	C3	F4	TP70	E1	K2
C696	E2	L2	R147	C3	F3	TP648	F3	K2
			R620	E3	J4	TP658	F3	L2
L40	F2	H7	R621	E3	J5			
L50	F2	H7	R622	E3	J4	U100	B1	E4
			R623	E3	J4	U120	B2	E2
P50	A1	D7	R624	E3	J4	U140	B3	E3
P52	A4,G2	J7	R625	E3	J3	U160	B1	D3
			R626	E3	J4	U600	D3	I4
R10	B4	I4	R627	E3	J3	U605	D3	J4
R12	A4	I4	R630	E4	L3	U610	D3	I2
R20	B4	H2	R631	E4	L4	U615	D3	K3
R22	B4	H2	R632	E4	L3	U620	E3	J5
R30	B4	I4	R633	E4	L3	U625	E3	J3
R32	B4	I3	R634	E4	L3	U630	E3	L4
R90	A1	E4	R635	E4	L3	U635	E4	L3
R91	A1	E4	R636	E4	L3	U640A	F3	J5
R92	A1	E4	R637	E4	L2	U640B	D1	J5
R93	A1	E3	R640	E3	J5	U640C	F3	J5
R94	A1	E3	R642	E3	J5	U645	F3	J6
R95	A2	E4	R644	E3	J5	U650A	F4	K5
R96	A2	E3	R646	E3	J5	U650B	D1	K5
R97	A2	E3	R647	F3	J5	U650C	F4	K5
R98	A2	E3	R648	F3	J6	U655	F4	K6
R99	A1	F4	R650	E4	L4	U662A	D1	H4
R102	C1	F4	R652	E4	L4	U662B	D1	H4
R103	C1	F4	R654	E4	L5	U670	C1	G4
R104	C1	F5	R656	E4	L4	U674	C1	G3
R105	C1	F5	R657	F3	L4	U677	C2	H3
R106	C1	F5	R658	F4	K6	U680	E1	J2
R107	C1	F5	R674	D2	G3	U685	E2	K2
R108	C1	G4	R675	D2	G3	U690	E1	J2
R109	C1	G4	R677	D2	I3	U695	E2	L2
R120	C2	F2	R678	D2	I3	U820B	F1	D2
R121	C2	F2	R680	D1	J3	U840E	A3	D4
R122	C2	F3	R682	E1	J2	U870B	A3	C6
R123	C2	F3	R684	E1	J2	U870C	B2	C6
R124	C2	F3	R686	E1	J2	U870D	B2	C6
R125	C2	F3						

DISPLAY SELECT 9

ASSEMBLY A5

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C10	A5	D6	C860	B5	C2	R584	G2	G7
C20	F5	J6	C865	B3	B5	R586	F2	F5
C30	F4	I6	C870	B5	B5	R588	F2	G5
C60	F3	F7				R590	F2	H6
C100	B5	E4	CR590	E2	H5	R592	E2	H5
C120	B5	E2				R594	E2	H6
C140	B5	E3	L10	A4	D7	R596	E2	H6
C160	B5	D3	L20	G5	I6	R800	A4	B4
C500	F4	E5	L30	G4	I6	R801	A4	B4
C502	F5	E5	L60	G3	G7	R802	A3	B4
C505	D1	E6				R803	A3	B4
C520	F4	F5	P50	A3,A4	D7	R804	A3	B3
C522	F5	F5	P52	A1,A2,A4	J7	R805	B3	B5
C525	D2	F6		G1		R820	A3	D2
C555	F1	F6				R822	A3	D2
C562	E2	H6	Q540A	F1	G6	R824	B4	D2
C565	F1	F6	Q540B	F1	G6	R826	B3	D2
C575	F3	F5	Q542A	F2	G5	R850	B4	D6
C582	E2	H5	Q542B	F2	G5	R852	D4	B5
C585	F2	G6	Q556	E2	H6	R854	E4	B5
C600	F4	I3	Q576	E2	H6	R860	B4	D6
C602	F5	H4	Q850	D4	C5	R862	D4	C5
C605	F4	J3	Q852	E4	C5	R864	D4	C5
C607	F5	J4	Q860	D4	D5	R865	B3	B5
C610	F4	I2	Q862	D4	D5	R870	B4	D6
C612	F5	I3	Q870	D4	D5	R872	D4	C5
C615	F4	K3				R880	E3	D6
C617	F5	K4	R15	B4	B3	R1002	B2	F7
C620	F4	J4	R25	F4	I3			
C622	F5	J5	R35	F4	J2	TP10	B4	B2
C625	F4	J3	R80	F3	L2	TP20	F4	I2
C627	F5	J4	R82	G3	K7	TP30	F4	J2
C630	F4	L4	R500	D1	E5	TP80	F3	I2
C632	F5	L4	R502	D1	E6	TP90	A5	C2
C635	F4	L3	R504	D1	E6	TP100	F3	A5
C637	F5	L3	R506	D1	F2	TP500	E1	D1
C640	F4	J4	R508	D1	F2	TP502	E2	F2
C642	F5	J5	R520	D2	F5			
C645	F4	J5	R522	D2	F6	U500	D1	E5
C647	F5	J6	R524	D2	F6	U520	D2	E5
C650	F4	K4	R526	D2	F2	U800A	D4	C4
C652	F5	K5	R528	D2	F2	U800B	B4	C4
C655	F4	K5	R550	E1	F6	U810	C3	C3
C657	F5	K6	R552	F1	F6	U820A	B3	D2
C662	F5	H3	R554	F1	G2	U830A	D3	C4
C670	F4	G3	R558	F2	G6	U830B	D4	C4
C680	F4	J2	R559	F2	G6	U840A	B4	D4
C682	F5	J3	R562	F1	F6	U840B	D3	D4
C685	F4	K2	R563	F1	F6	U840C	B3	D4
C687	F5	K3	R564	G1	F6	U840D	D3	D4
C690	F4	K2	R566	F1	F6	U840F	B3	D4
C692	F5	K3	R568	F1	G6	U850A	B3	C3
C695	F4	L2	R569	G1	F6	U850B	C3	C3
C697	F5	L2	R570	E2	F5	U850C	C4	C3
C800	B5	B4	R572	F2	F5	U850D	C4	C3
C810	B5	B3	R574	F2	G2	U860A	B4	C2
C820	B5	D2	R578	F3	G5	U860B	D3	C2
C830	B5	C4	R579	F3	G5	U860C	B3	C2
C840	B5	D4	R582	F2	G6	U860D	B3	C2
C850	B5	C3	R583	F2	G6	U870A	B3	C6

CHASSIS MOUNTED PARTS

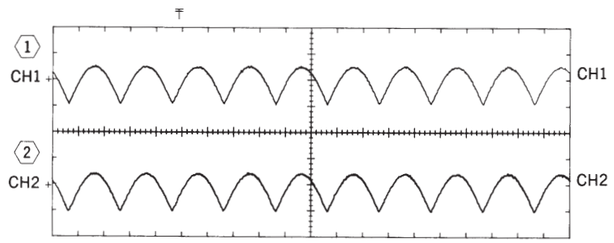
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
L120	G3	CHASSIS						

Please cut out the aria below the lines.

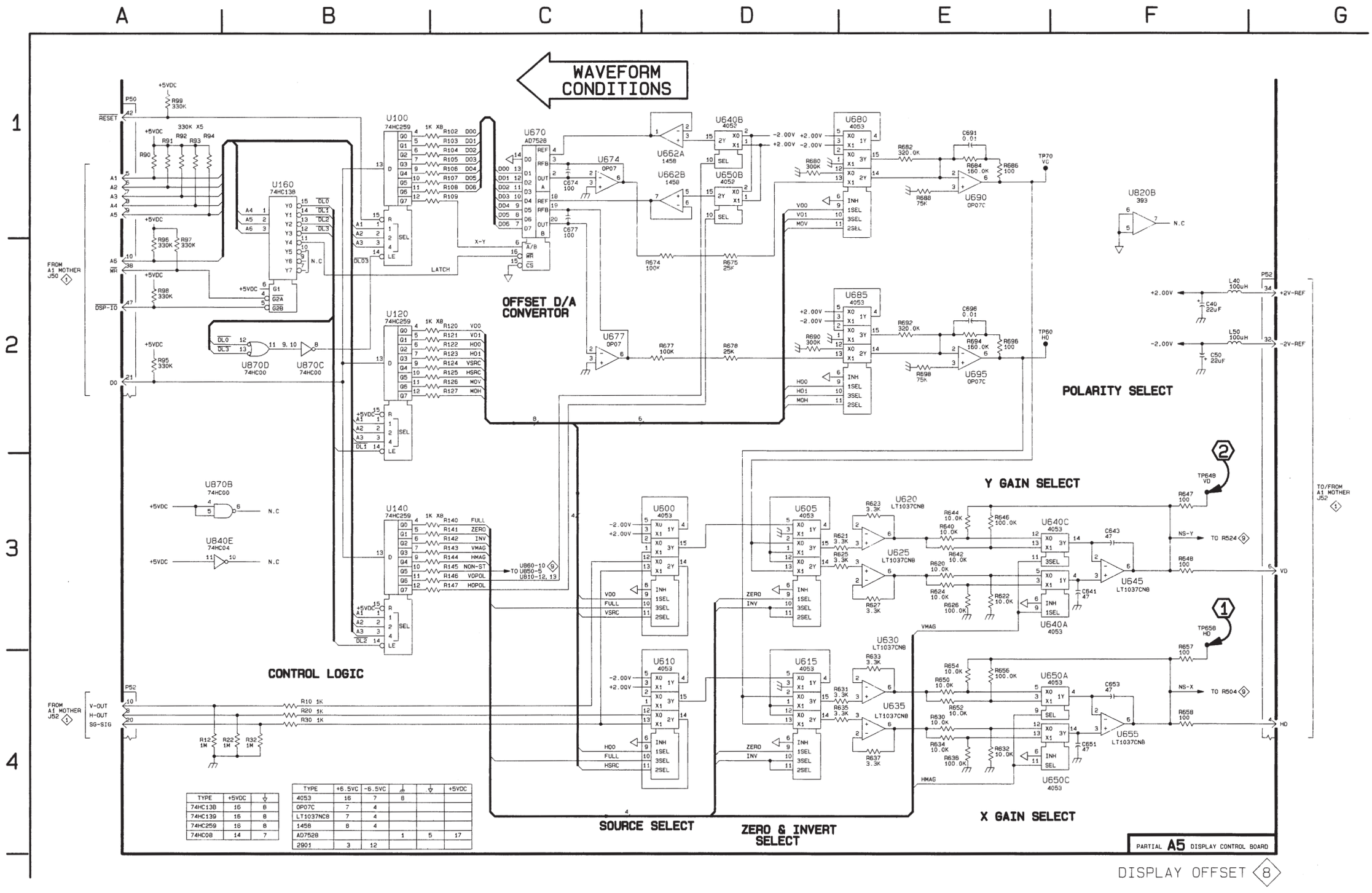
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings, except that the COLLECTOR SUPPLY MAX PEAK POWER WATTS is set to 0.4 W, the VARIABLE COLLECTOR SUPPLY is set to 100%, the VERTICAL CURRENT/DIV is set to 2 mA, and the LEFT-RIGHT-STANDBY switch is set to RIGHT. A 1 kΩ, 0.5 watt resistor is connected between the right collector terminal and the right emitter terminal.

CH1	DC	1V/div	NORMAL	5mSEC/div
CH2	DC	1V/div	NORMAL	5mSEC/div



Please cut out the aria below the lines.



TYPE	+5VDC	⏚
74HC138	16	8
74HC139	16	8
74HC259	16	8
74HC08	14	7

TYPE	+6.5VC	-6.5VC	⫫	⏚	+5VDC
4053	16	7	8		
OP07C	7	4			
LT1037NC8	7	4			
1458	8	4			
AD7528			1	5	17
2901	3	12			

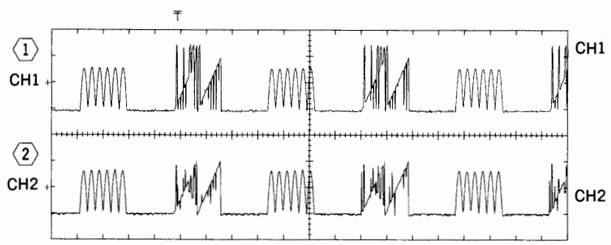
Please cut out the aria below the lines.

VOLTAGE AND WAVEFORM CONDITIONS

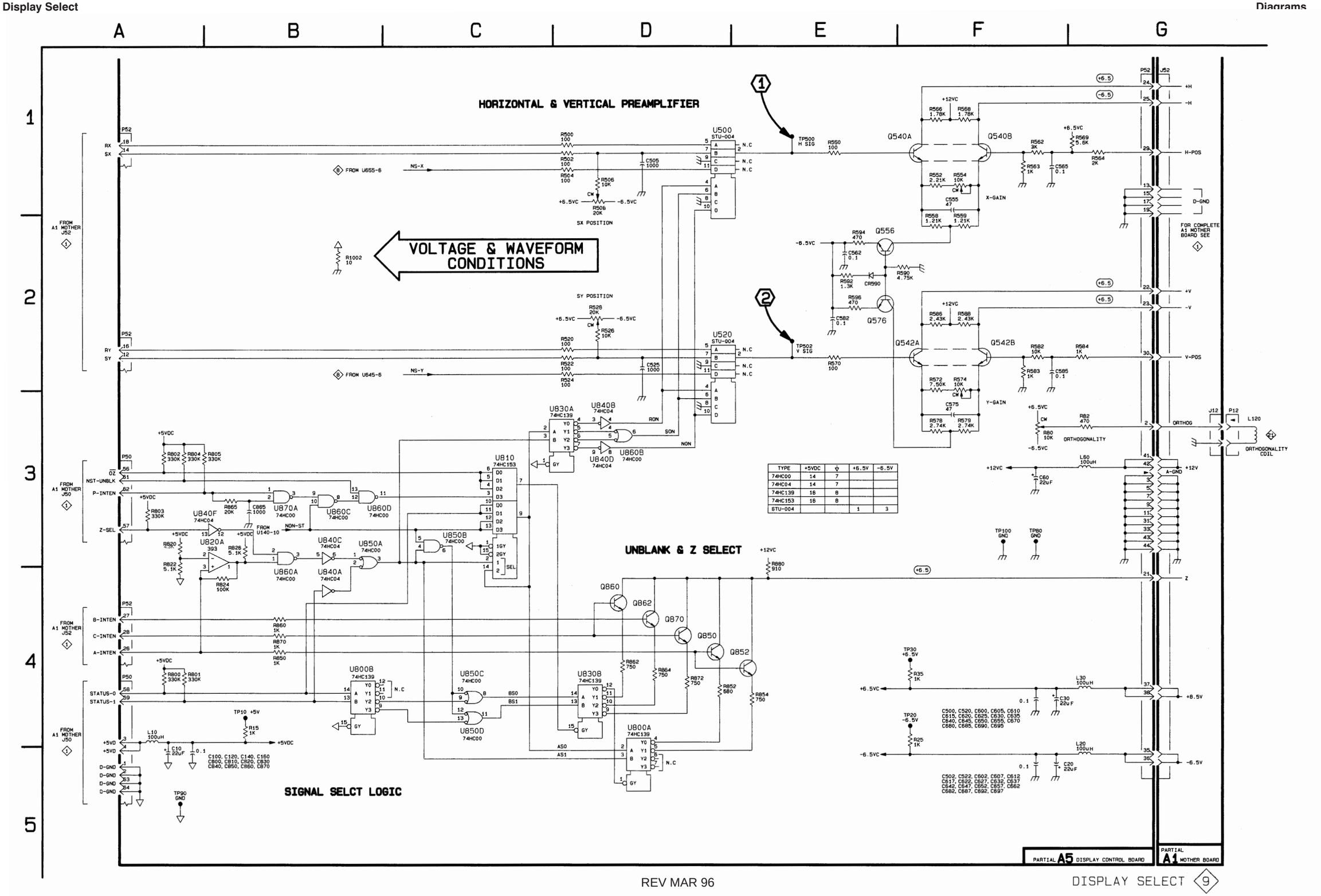
Voltage Conditions. The voltages shown on the diagram were obtained using a digital multimeter with a 10 MΩ input impedance. These voltages are not affected by the 370A setting.

Waveform Conditions. The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings, except that the COLLECTOR SUPPLY MAX PEAK POWER WATTS is set to 0.4 W, the VARIABLE COLLECTOR SUPPLY is set to 100%, the VERTICAL CURRENT/DIV is set to 2 mA, and the LEFT-RIGHT-STANDBY switch is set to RIGHT. A 1 kΩ, 0.5 watt resistor is connected between the right collector terminal and the right emitter terminal.

CH1	DC	1V/div	NORMAL	2mSEC/div
CH2	DC	1V/div	NORMAL	2mSEC/div



Please cut out the aria below the lines.



TYPE	+5VDC	⏚	+6.5V	-6.5V
74HC00	14	7		
74HC04	14	7		
74HC139	16	8		
74HC153	16	8		
STU-004			1	3

Please cut out the aria below the lines.

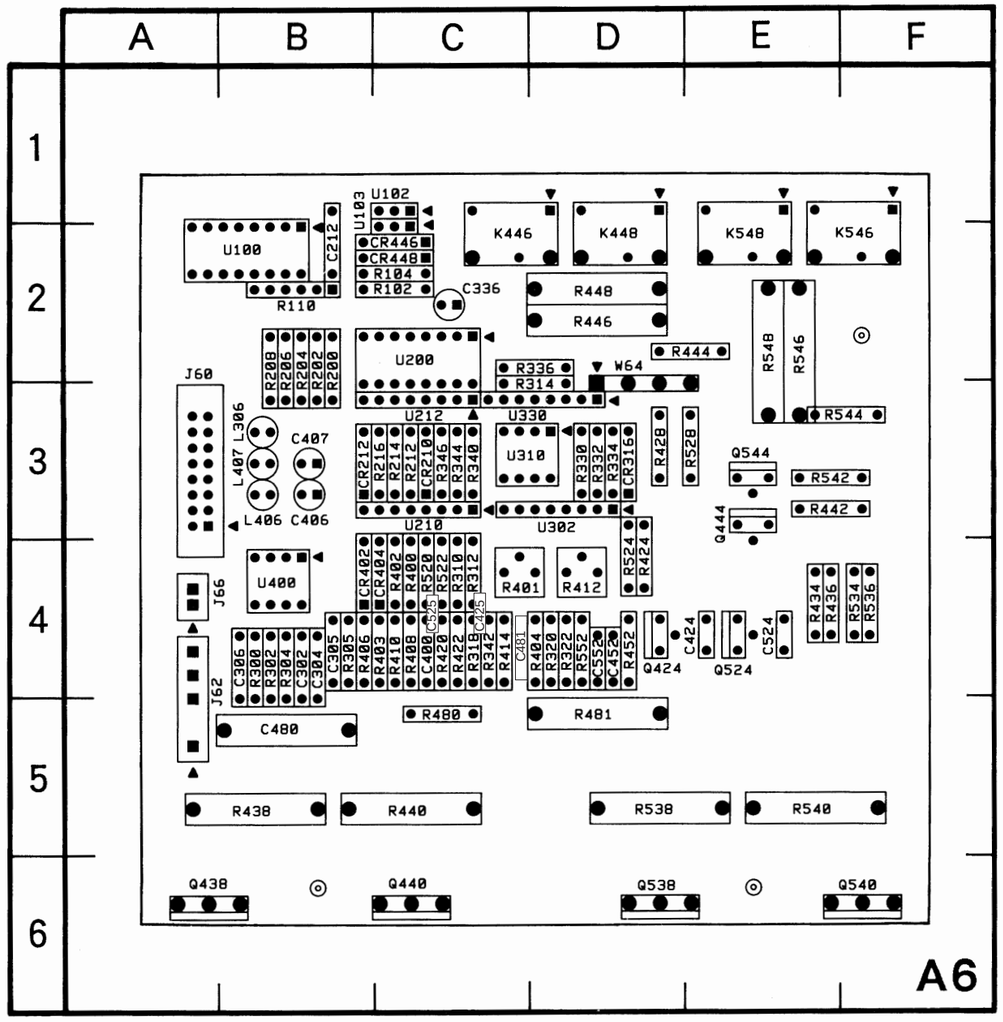


Figure 7-11. Collector Supply Output circuit board assembly.

A19 — Low Voltage Supply circuit board illustration and component locator grid is located on the reverse side of ⟨19⟩.

COLLECTOR SUPPLY AMPLIFIER ⟨10⟩

ASSEMBLY A6

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C212	B1	B2
C302	B1	B4
C304	B1	B4
C305	B1	B4
C306	B1	B4
C336	D3	C2
C400	C2	C4
C406	A1	B3
C407	A1	B3
C424	D1	E4
C425	D1	C4
C452	D1	D4
C480	D2	B5
C481	D2	D4
C524	D2	E4
C525	D1	C4
C552	D1	D4
CR210	C2	C3
CR212	C2	B3
CR316	D3	D3
CR402	D1	B4
CR404	D1	C4
CR446	E2	C2
CR448	E2	C2
J60	A1	A2
J62	F1	A4
J66	F1	A4
K446	E2	C2
K448	E2	D2
K546	E2	F2
K548	E2	E2
L306	A1	B3
L406	A1	B3
L407	A1	B3
Q424	D1	D4
Q438	E1	A6
Q440	E1	C6
Q444	D1	E3
Q524	D2	E4
Q538	E2	D6
Q540	E2	F6
Q544	D2	E3
R102	B2	C2
R104	B2	C2
R110	A2	B2
R200	B1	B2
R202	B1	B2
R204	B2	B2
R206	B2	B2
R208	B2	B2
R212	C2	C3
R214	C2	C3
R216	C1	C3
R300	B1	B4
R302	B1	B4
R304	B1	B4
R305	B1	B4
R310	D3	C4
R312	D3	C4
R314	D2	D3
R318	E3	C4
R320	E3	D4
R322	E3	D4
R330	D3	D3
R332	D3	D3
R334	D3	D3
R336	D3	D2
R340	D3	C3
R342	D3	C4
R344	D3	C3
R346	D3	C3
R400	C1	C4
R401	C1	C4
R402	C1	C4
R403	C2	C4
R404	D2	D4
R406	D1	B4
R408	C1	C4
R410	C1	C4
R412	C1	D4
R414	C1	C4
R420	D1	C4
R422	D1	C4
R424	D1	D4
R428	D1	D3
R434	D1	E4
R436	E1	E4
R438	E1	B5
R440	E1	C5
R442	D1	E3
R444	E1	E2
R446	E1	D2
R448	E1	D2
R452	D1	D4
R480	D2	C5
R481	D2	D5
R520	D2	C4
R522	D2	C4
R524	D1	D4
R528	D2	E3
R534	D2	F4
R536	E2	F4
R538	E2	D5
R540	E2	E5
R542	D2	E3
R544	E2	F3
R546	E2	E2
R548	E2	E2
R552	D2	D4
U100	B2	B2
U102	E2	C1
U103	E2	B2
U200	B1	C2
U210A	C2	C3
U210B	C2	C3
U212A	B1	C3
U212B	C2	C3
U302A	D3	D3
U302B	E3	D3
U310A	D3	C3
U310B	D2	C3
U330A	D3	C3
U330B	D4	C3
U400A	D1	B4
U400B	B1	B4
W64	D3	D2

CHASSIS MOUNTED PARTS

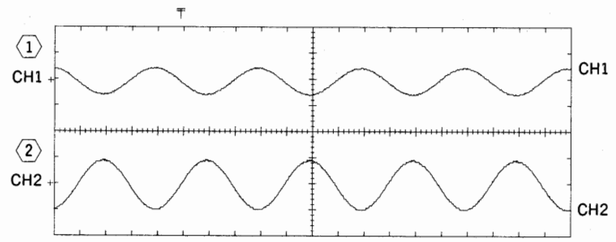
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
J490	F1	CHASSIS
P490	F1	CHASSIS
S92	F1	CHASSIS
T100	A3	CHASSIS

Please cut out the aria below the lines.

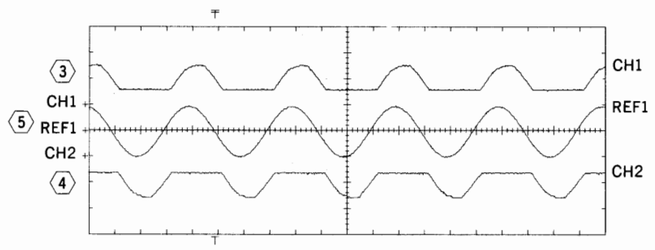
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings, except that the VARIABLE COLLECTOR SUPPLY is set to 50%.

CH1 DC 2V/div NORMAL 5mSEC/div
CH2 DC 50V/div NORMAL 5mSEC/div



CH1 DC 50V/div NORMAL 5mSEC/div
CH2 DC 50V/div NORMAL 5mSEC/div



REF1 DC 50V/div NORMAL 5mSEC/div

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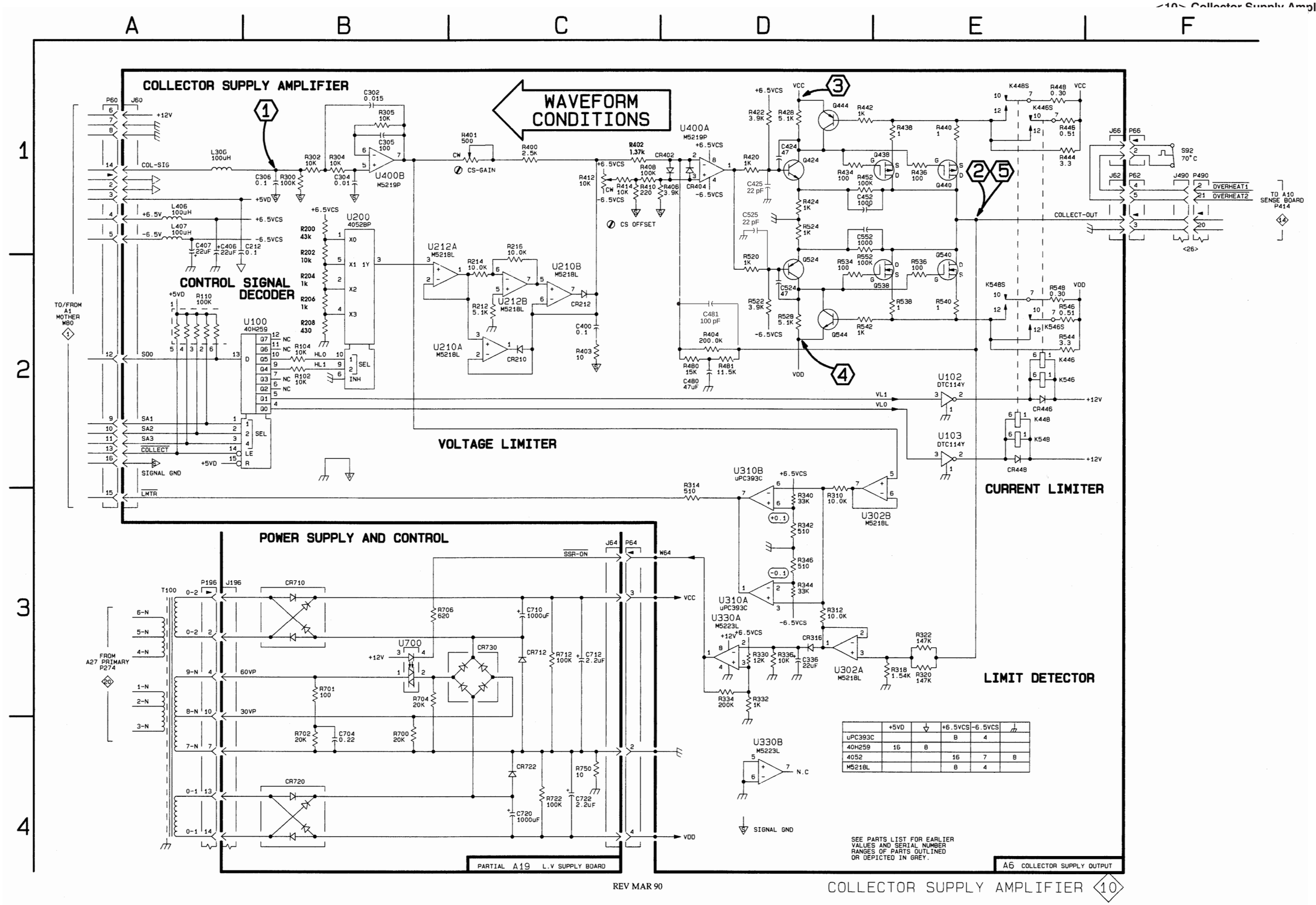
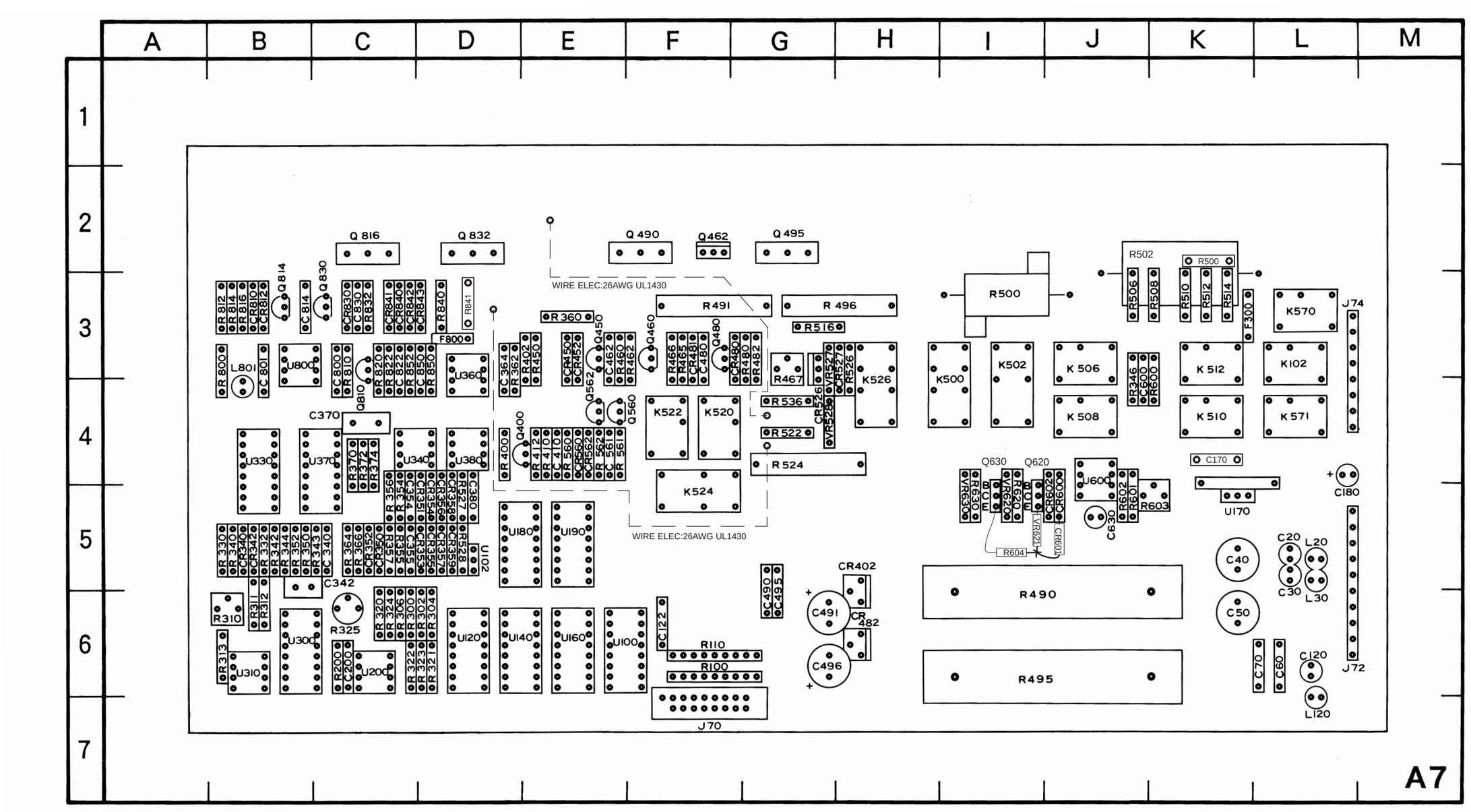


	+5VD	⏚	+6.5VCS	-6.5VCS	⏚
uPC393C			8	4	
40H259	16	8			
4052			16	7	8
M5218L			8	4	

Please cut out the aria below the lines.



REV FEB 97

Figure 7-12. A7 – Step Generator circuit board assembly

Please cut out the aria below the lines.

STEP AMPLIFIER 11

ASSEMBLY A7

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C20	G5	L5
C30	G5	L6
C40	G4	K5
C50	G5	K6
C60	G4	L6
C70	G4	L6
C120	G5	L6
C122	G5	F6
C170	G5	K5
C180	G5	L5
C200	A2	C6
C340	C2	C5
C342	B2	C5
C354	F1	C5
C355	F1	C5
C364	D2	D3
C370	C1	C4
C380	D2	D5
C410	D2	E4
C462	E1	E3
C480	E2	F3
C490	E1	G6
C491	E1	G6
C495	E2	G6
C496	E2	G6
C561	E2	E4
C600	C3	J4
C630	B3	J5
C800	D4	C3
C801	D3	B3
C814	D3	B3
C822	D4	C3
C830	E4	C3
C850	D4	D3
CR340	B2	B5
CR342	B2	B5
CR350	C2	C5
CR351	F1	D5
CR352	C2	C5
CR353	F1	D5
CR354	F1	D5
CR355	F1	D5
CR356	F1	D5
CR357	F1	D5
CR358	F1	D5
CR359	F1	D5
CR402	E1	H5
CR450	D1	E3
CR452	D1	E3
CR480	D2	G3
CR481	D2	F3
CR482	E3	H6
CR526	F2	G4
CR527	F2	H3
CR560	E2	E4
CR562	E2	E4
CR600	B3	J5
CR601	C3	J5
CR602	B3	J5
CR810	D3	B3
CR812	D3	B3
CR830	D4	C3
CR840	E3	C3
CR841	E3	C3
CR842	E4	C3
CR843	E4	D3
F300	F1	K3
F500	F2	K2
F800	E4	D3
J70	A1	F7
J72	H4	L6
J74	H1	L3
K102	G4	L3
K500	F5	I4
K502	F5	I3
K506	F5	J3
K508	F5	J4
K510	F4	K4
K512	F5	K3
K520	E5	F4
K522	E5	F4
K524	E5	F5
K526	F4	H4
K570	G4	L3
K571	G5	L4
L20	G5	L5
L30	G5	L6
L120	G5	L7
L801	D3	B3
Q400	D1	D4
Q450	D1	E3
Q460	E1	F3
Q462	E2	F2
Q480	E2	F3
Q490	E1	F2
Q495	E2	G2
Q560	E2	F4
Q562	E2	E4
Q620	B3	I5
Q630	B3	I5
Q810	D3	C4
Q814	D3	B3
Q816	E3	C2
Q830	E4	C3
Q832	E4	D2
R100	A3	F6
R110	A4	F6
R200	A2	C6
R300	A1	C6
R302	A2	D6
R304	A2	D6
R306	B1	C6
R310	B1	B6
R311	B1	B6
R312	B1	B6
R313	B1	B6
R320	B2	C6
R321	C2	D6
R322	A2	C6
R323	B2	D6
R324	C2	C6
R325	B2	C6
R330	B1	B5
R332	C1	B5
R340	B2	B5
R342	B2	B5
R343	B2	C5
R344	C2	B5
R346	C3	J4
R350	C1	B5
R352	C2	B5
R354	C1	C5
R355	F1	C5
R356	C1	C5
R357	F1	C5
R360	D2	E3
R362	D2	D3
R364	C2	C5
R366	C2	C5
R370	C1	C4
R372	D1	C4
R374	C1	C4
R400	D1	D4
R402	D1	E3
R410	D2	E4
R412	D2	E4
R450	E1	E3
R460	E1	E3
R462	E2	F3
R465	D2	F3
R466	D2	F3
R467	D2	G4
R480	E2	G3
R482	E2	G3
R490	E1	I6
R491	E2	F3
R495	E2	I6
R496	E2	H3
R500	F2	I3
R502	F2	K2
R506	F2	J3
R508	F2	K3
R510	F2	K3
R512	F3	K3
R514	F3	K3
R516	E2	G3
R520	E2	G4
R522	E2	G4
R524	E3	G4
R526	F1	H3
R527	E1	D5
R528	E1	D5
R536	E2	G4
R560	E2	E4
R561	E2	E4
R562	E2	E4
R600	C3	K4
R601	B3	J5
R602	B3	J5
R603	B3	K5
R604	C3	I5
R620	B3	I5
R630	B3	I5
R800	D3	B3
R810	D3	C3
R812	D3	B3
R814	D3	B3
R816	D3	B3
R820	D4	C3
R822	D4	C3
R832	E4	C3
R840	E3	D3
R841	E4	D3
R850	D4	D3
R852	D4	C3
U100	B4	E6
U102	D4	D5
U120	B4	D6
U140	C4	D6
U160	C4	E6
U170	G5	K5
U180	D4	D5
U190	D5	E5
U200	A1	C6
U300	B1	B6
U310	B2	B6
U330A	C2	B4
U330B	C1	B4
U330C	B1	B4
U340	C1	C4
U360	D2	D3
U370A	G2	C4
U370B	G2	C4
U370C	D1	C4
U380	D1	D4
U600	C3	J4
U800	D3	B3
VR527	F1	G3
VR528	F2	G4
VR620	B3	I5
VR621	C3	I5
VR630	B2	I5

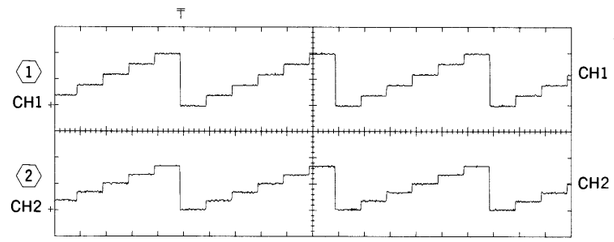
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A under the following conditions:

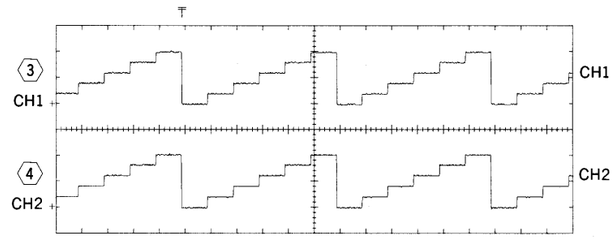
Waveform 1 and 2: These waveforms were obtained with the 370A set to the power-up default (initial) settings, except that the STEP AMPLITUDE is set to 200 mA, and the LEFT-RIGHT-STANDBY switch is set to RIGHT. A patch cord is connected between the right base terminal and the right emitter terminal.

Waveform 3 and 4: These waveforms were obtained with the 370A set to the power-up default (initial) settings, except that the Step Generator output mode is set to VOLTAGE and the STEP AMPLITUDE is set to 2 V.

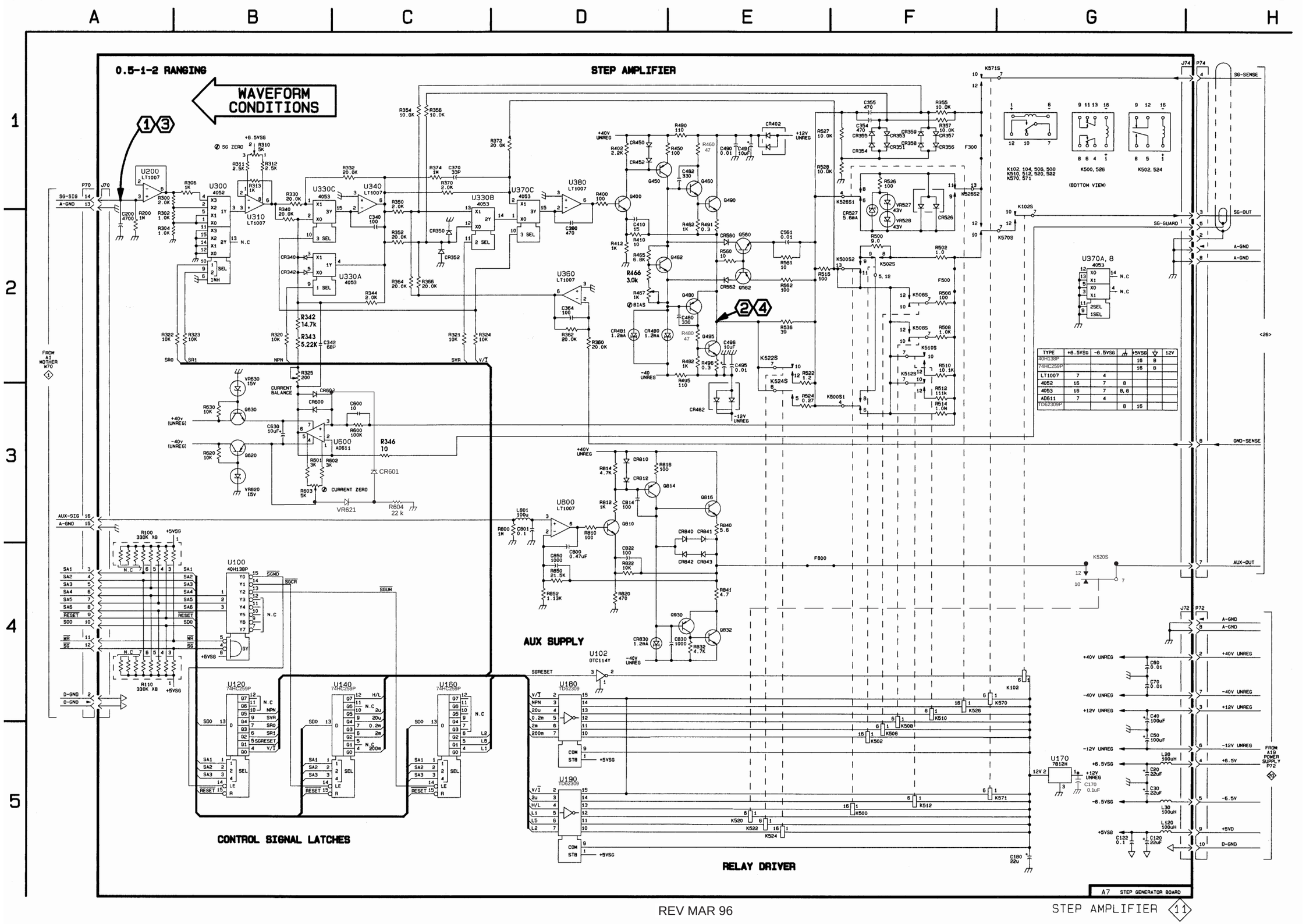
CH1	DC	500mV/div	NORMAL	10mSEC/div
CH2	DC	1V/div	NORMAL	10mSEC/div



CH1	DC	500mV/div	NORMAL	10mSEC/div
CH2	DC	5V/div	NORMAL	10mSEC/div



Please cut out the aria below the lines.



Please cut out the aria below the lines.

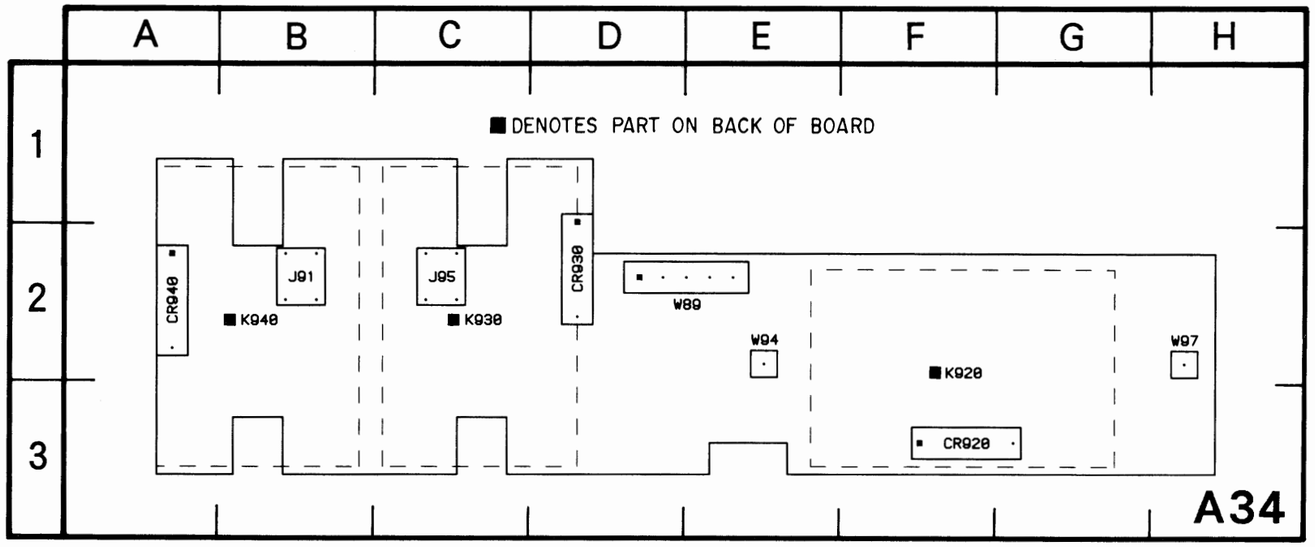


Figure 7-13. A34 — LOR Relay circuit board assembly.

LOR RELAY 12

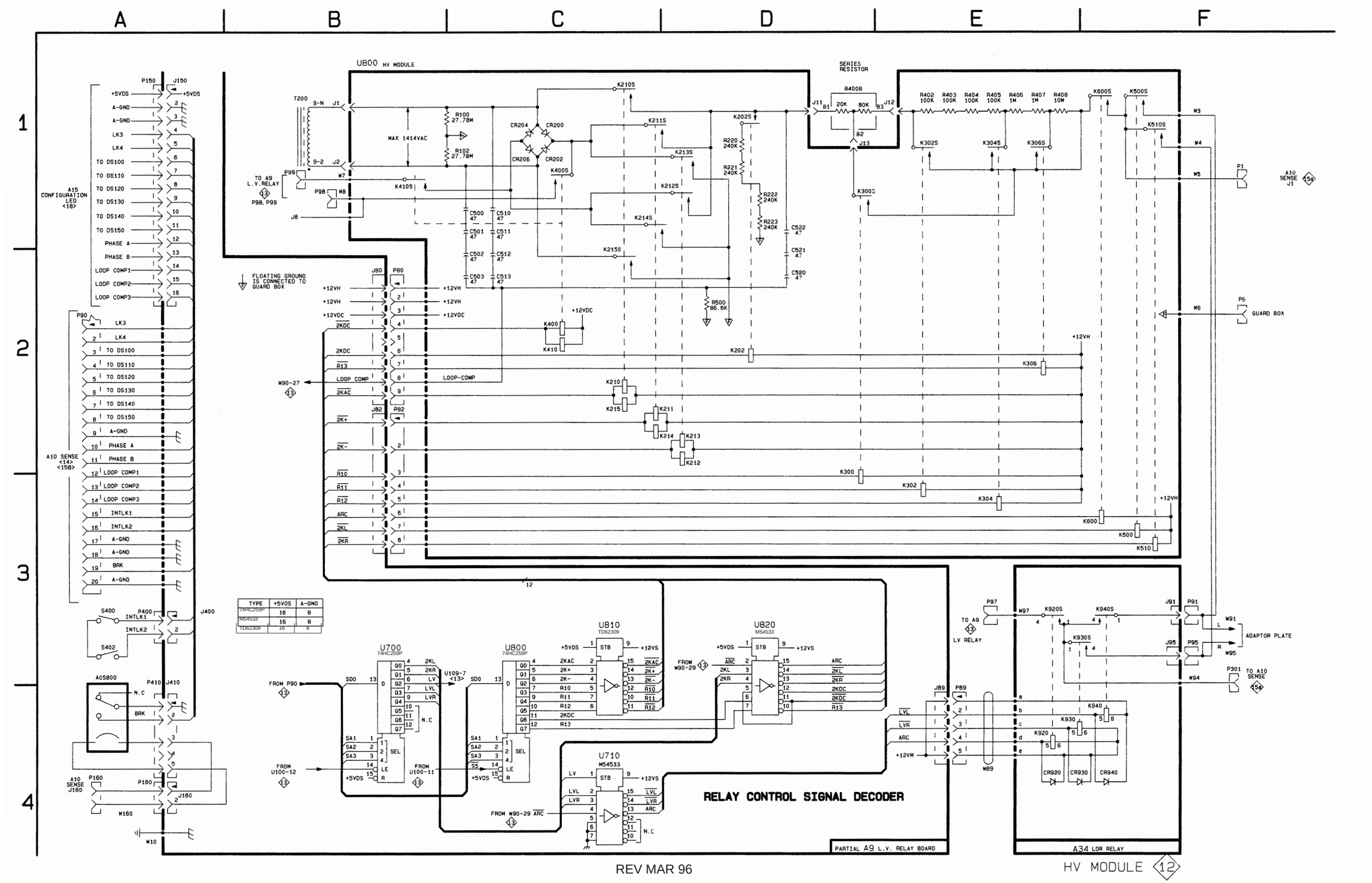
ASSEMBLY A34

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
CR920	E4	F3	K920	E4	F2			
CR930	E4	D2	K930	E4	C2			
CR940	F4	A2	K940	F4	B2			
J91	F3	B2	W89	E4	E2			
J95	F3	C2	W94	F3	E2			
			W97	E3	H2			

CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
R400B	D1	CHASSIS						
T200	B1	CHASSIS						
U800	B1	CHASSIS						

Please cut out the aria below the lines.



Please cut out the aria below the lines.

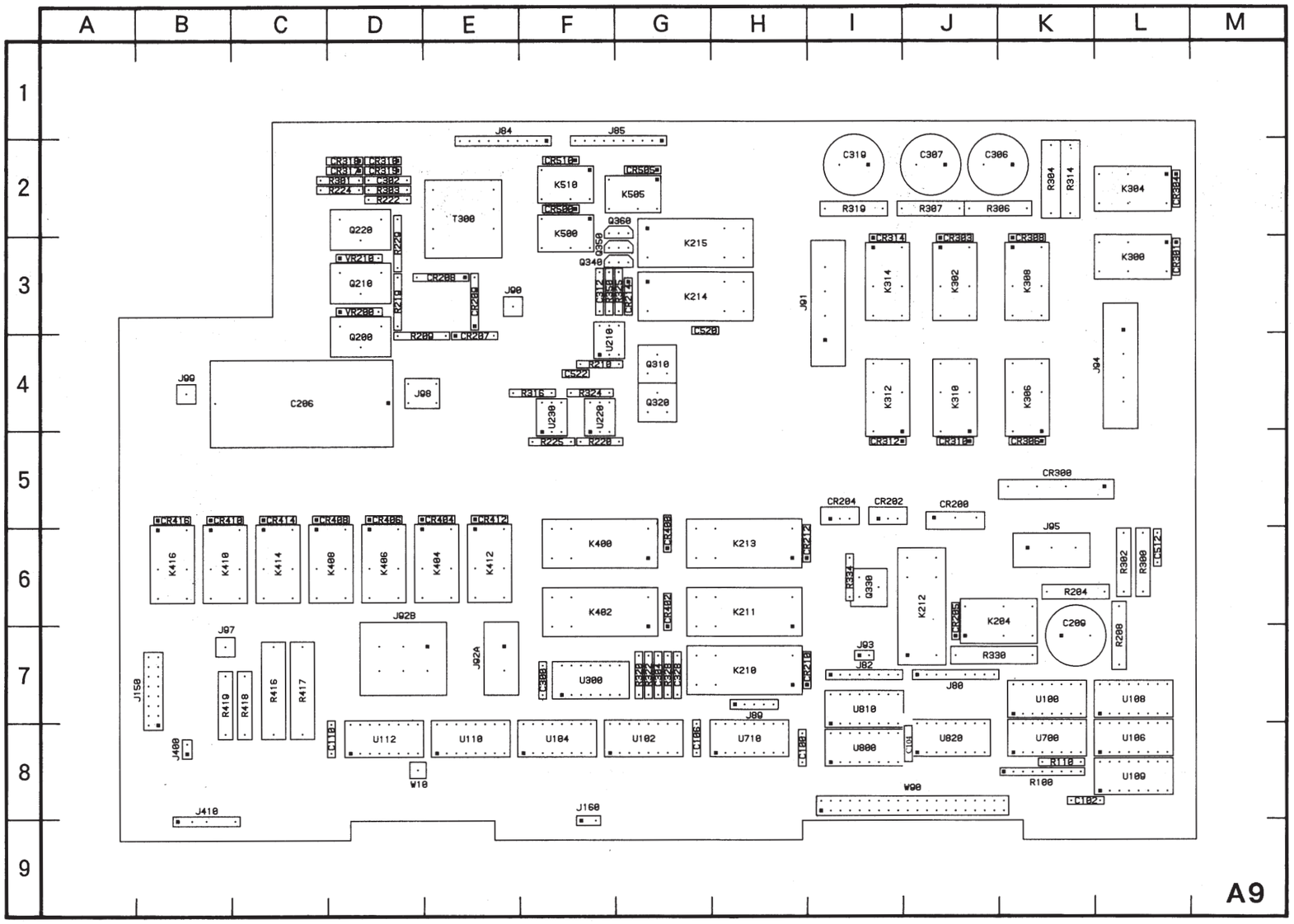


Figure 7-14. A9 — Low Voltage Relay circuit board assembly.

Please cut out the aria below the lines.

LOOPING 13

ASSEMBLY A35

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C500	E2	B1	R200	D2	B1	R502	E2	B1
C501	E2	B1	R202	E2	B2	R503	D2	C1
C502	E2	A2	R310	E2	A1	R504	E2	B1
			R312	E2	B2			
J84	D2,F2	C2	R500	E2	C1			
J85	E2	A2	R501	E2	B1			

CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
R400	AB1,C1,E1 E3	CHASSIS						
S90	E3	CHASSIS						
T200	A1	CHASSIS						
U800	F1	CHASSIS						

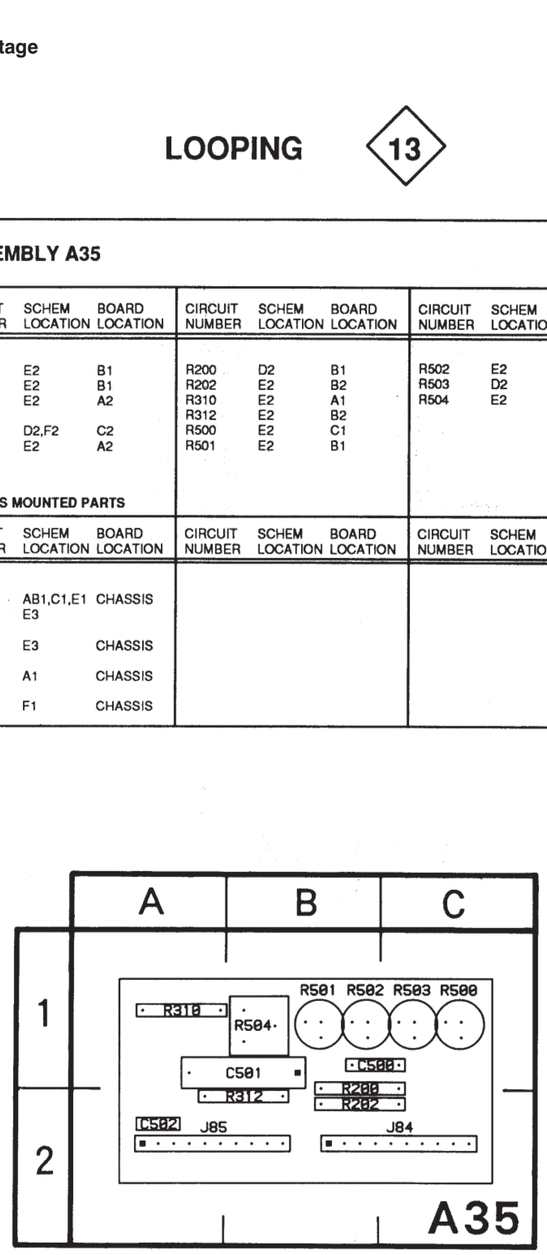


Figure 7-15. A35 — Looping circuit board assembly.

COLLECTOR SUPPLY LOW VOLTAGE 13

ASSEMBLY A9

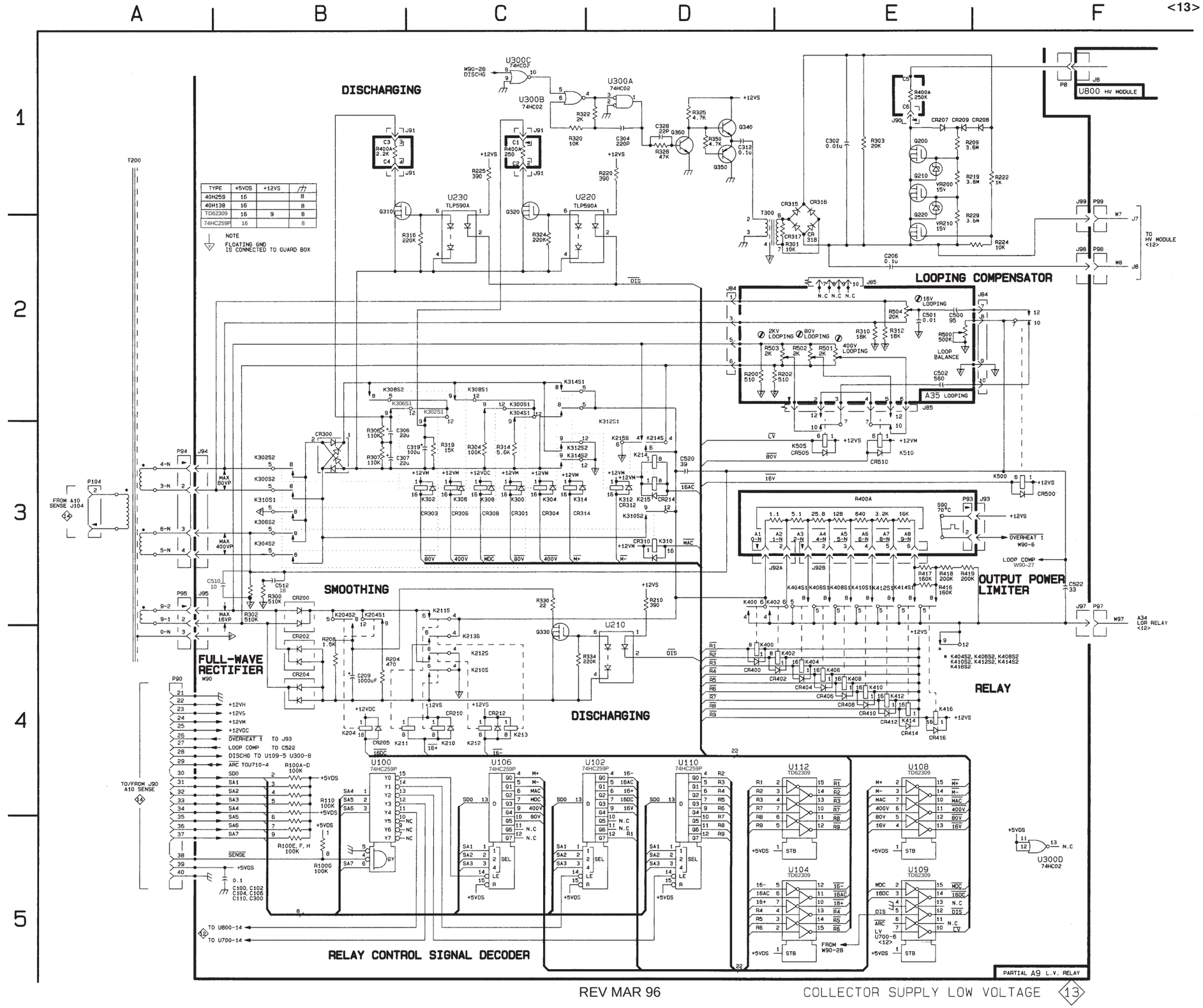
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	B5	H8				R208	B4	L7
C102	B5	K8	J90	E1	E3	R209	E1	D4
C106	B5	G8	J91	B1,C1	H3	R210	D3	F4
C110	B5	D8	J92A	D3	E7	R219	E1	D3
C206	E2	C4	J92B	E3	D6	R220	D1	F5
C209	B4	K6	J93	F3	I7	R222	F1	D2
C300	B5	F7	J94	A3	L4	R224	F2	D2
C302	E1	D2	J95	A3	K6	R225	C1	F5
C304	D1	G7	J97	F3	B7	R229	E2	D3
C306	B3	J2	J98	F2	D4	R300	B3	L6
C307	B3	J2	J99	F1	B4	R301	E2	D2
C312	D1	F3				R302	B3	L6
C319	C3	I2	K204	B4	J6	R303	E1	D2
C328	D1	G7	K210	C4	H7	R304	C3	K2
C510	B3	L6	K211	B4	H6	R306	B3	K2
C512	B3	L6	K212	C4	J6	R307	B3	J2
C520	D3	G3	K213	C4	H6	R314	C3	K2
C522	F3	F4	K214	D3	G3	R316	C2	F4
			K215	D3	G3	R319	C3	I2
CR200	B3	J5	K300	C3	L3	R320	C1	G7
CR202	B4	I5	K302	C3	J3	R322	D1	G7
CR204	B4	I5	K304	C3	L2	R324	C2	F4
CR205	B4	J6	K306	C3	K4	R325	D1	G3
CR207	E1	E4	K308	C3	K3	R328	D1	G7
CR208	F1	E3	K310	D3	J4	R330	C3	J7
CR209	E1	E3	K312	D3	I4	R334	C4	I6
CR210	C4	H7	K314	C3	I3	R350	D1	F3
CR212	C4	H6	K400	D4	F6	R416	E3	C7
CR214	D3	G3	K402	E4	F6	R417	E3	C7
CR300	B3	K5	K404	E4	E6	R418	E3	C7
CR301	C3	L3	K406	E4	D6	R419	E3	B7
CR303	C3	J3	K408	E4	D6			
CR304	C3	L2	K410	E4	B6	T300	D2	E2
CR306	C3	K5	K412	E4	E6			
CR308	C3	K3	K414	E4	C6	U100	B4	K7
CR310	D3	J5	K416	E4	B6	U102	D4	G8
CR312	D3	I5	K500	F3	F2	U104	E5	F8
CR314	C3	I3	K505	E3	G2	U106	C4	L8
CR315	E1	D2	K510	E3	F2	U108	E4	L7
CR316	E1	D2				U109	E5	L8
CR317	E2	D2	Q200	E1	D4	U110	D4	E8
CR318	E2	D2	Q210	E1	D3	U112	E4	D8
CR400	D4	G6	Q220	E2	D2	U210	D4	F4
CR402	E4	G6	Q310	B1	G4	U220	D1	F4
CR404	E4	E5	Q320	C1	G4	U230	C1	F4
CR406	E4	D5	Q330	C4	I6	U300A	D1	F7
CR408	E4	D5	Q340	D1	F3	U300B	C1	F7
CR410	E4	B5	Q350	D1	F3	U300C	C1	F7
CR412	E4	E5	Q360	D1	G2	U300D	F5	F7
CR414	E4	C5						
CR416	E4	B5	R100	B4	K8	VR200	E1	D3
CR500	F3	F2	R110	B4	K8	VR210	E2	D3
CR505	E3	G2	R204	B4	K6			
CR510	E3	F2				W90	A4	J8

HV MODULE 12

ASSEMBLY A9

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
J80	B2	J7	J400	A3	B8	U800	C3	I8
J82	B2	I7	J410	A3	B8	U810	C3	I7
J89	E4	H7				U820	D3	J8
J150	A1	B7	U700	B3	K8			
J160	A4	F8	U710	C4	H8	W10	A4	D8

Please cut out the aria below the lines.



Please cut out the aria below the lines.

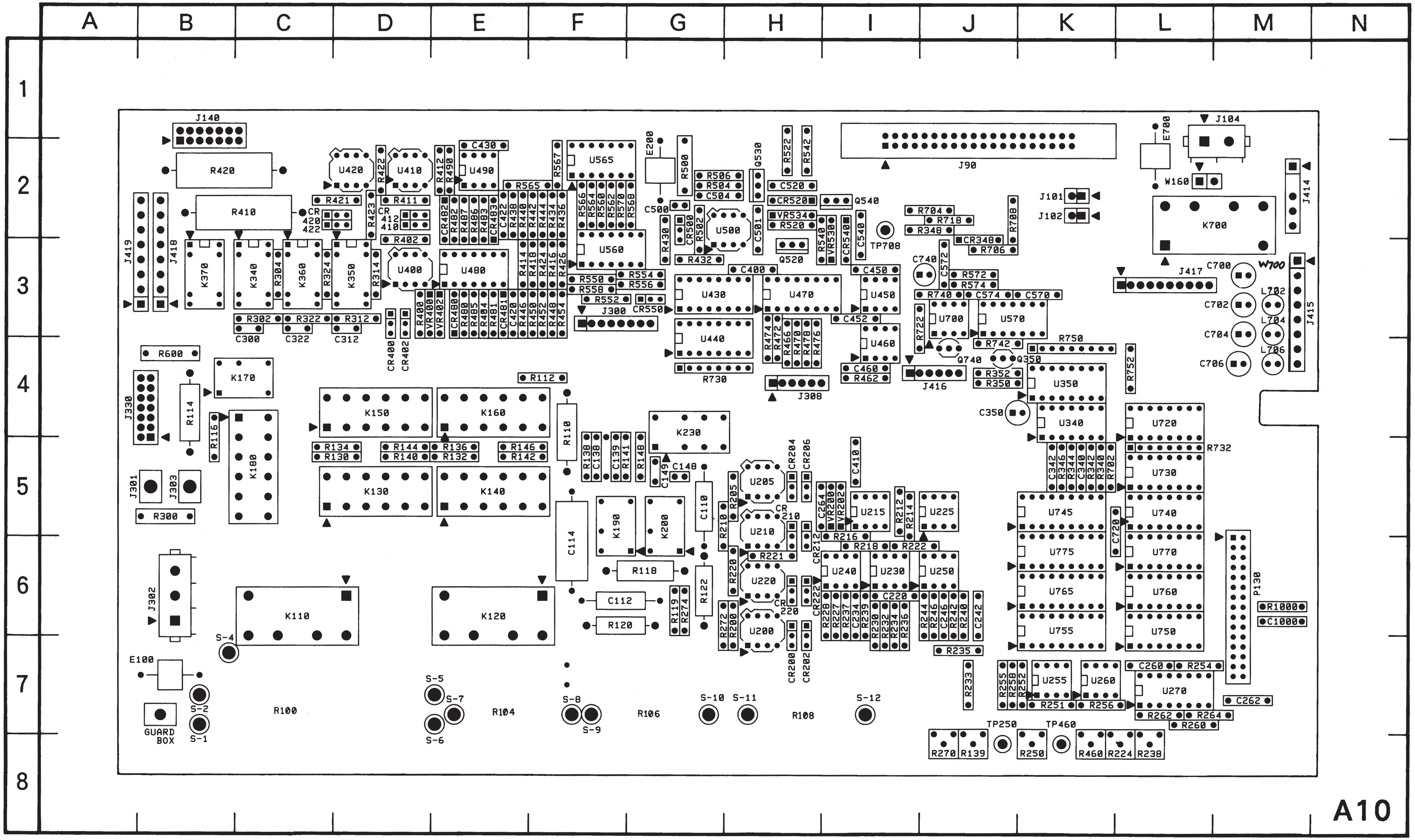


Figure 7-16. A10 — Sense circuit board assembly.

A10 — Sense circuit board illustration to be used with diagrams ⟨14⟩, ⟨15a⟩, and ⟨15b⟩.

Please cut out the aria below the lines.

VERTICAL SENSE 14

ASSEMBLY A10

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C110	D2	G5
C112	D2	F6
C114	D2	F6
C138	B3	F5
C139	B3	F5
C148	B3	G5
C149	B3	G5
C220	B1	I6
C234	F4	I6
C242	E2	J6
C246	E2	J6
C260	F2	L7
C262	B1	M7
C264	B1	I5
C400	B1	H3
C410	B1	I5
C420	B1	E3
C422	B1	E2
C430	B1	E2
C570	A2	K3
C700	B1	M3
C702	B1	M3
C704	B1	M3
C706	B2	M4
C720	A2	L5
C740	G2	J3
CR200	E2	H7
CR202	E2	H7
CR204	E2	H5
CR206	E3	H5
CR210	E3	H5
CR212	E3	H6
CR220	D3	H6
CR222	D4	H6
CR348	H2	J3
E700	H3	L1
J90	A3,H4,H2	J2
J101	G3	K2
J102	G4	K2
J104	H3	M1
J140	H2	B1
J330	A4	A4
J414	H2	M2
J415	A1	M3
J416	H2	J4
J417	A4	L3
K110	B4	C6
K120	B4	E6
K130	B4	D5
K140	C4	E5
K150	C4	D4
K160	C4	E4
K170	C4	C4
K180	C4	C5
K190	D4	F5
K200	D4	G5
K230	B4	G4
K700	G3	M2
L702	A1	M3
L704	A1	M3
L706	A1	M4
Q740	G2	J4
R100	B2	C7
R104	B2	E7
R106	C2	G7
R108	C2	H7
R110	C2	F4
R112	C2	F4
R114	C2	B4
R116	C2	B5
R118	D2	G6
R119	D2	G6
R120	D2	F6
R122	D2	G6
R130	B3	D5
R132	C3	E5
R134	C3	D5
R136	C3	E5
R138	B3	F5
R139	B3	J8
R140	B3	D5
R141	B3	F5
R142	C3	E5
R144	C3	D5
R146	C3	E5
R148	B3	G5
R200	D2	H6
R205	D3	H5
R210	D3	G5
R212	E3	I5
R214	E3	I5
R216	E3	I6
R218	E3	I6
R220	D4	H6
R221	D4	H6
R222	E3	I6
R224	F3	L8
R227	F3	I6
R228	F3	I6
R230	E4	I6
R232	E4	I6
R233	E3	J7
R234	E3	I6
R235	E3	J7
R236	E3	I6
R237	F4	I6
R238	E3	L8
R239	F4	I6
R240	E2	J6
R242	E2	J6
R244	E2	J6
R246	E2	J6
R250	F2	K8
R251	E2	K7
R252	E2	K7
R254	G2	L7
R255	F2	J7
R256	F2	K7
R258	F2	J7
R260	F2	L7
R262	G2	L7
R264	G3	L7
R270	D2	J8
R272	D2	G6
R274	D2	G6
R348	H2	J2
R702	G1	K5
R704	G2	J2
R706	G2	J3
R708	H2	J2
R718	G2	J2
R722	G2	J3
R730	E4	G4
R740	G2	J3
R742	G2	J4
R750	G5	K4
R752	G5	L4
TP250	G2	J7
TP708	A1	I3
U200	D2	H6
U205	D3	H5
U210	D3	H5
U215	E3	I5
U220	D4	H6
U225	F3	J5
U230	E4	I6
U240	F4	I6
U250	E2	J6
U255	F2	K7
U260	F2	K7
U270A	F2	L7
U270B	F3	L7
U270C	G3	L7
U700	G1	J3
U720	B4	L4
U730	E4	L5
U740	F4	L5
U745	G4	K5
U750	B4	L6
U755	B4	K6
U760	C4	L6
U765	C4	K6
U770	D4	L6
U775	D4	K6
VR200	E2	I5
VR202	E2	I5
W105	A2	B7
W160	H3	L2
W700	A1	M3

CHASSIS MOUNTED PARTS

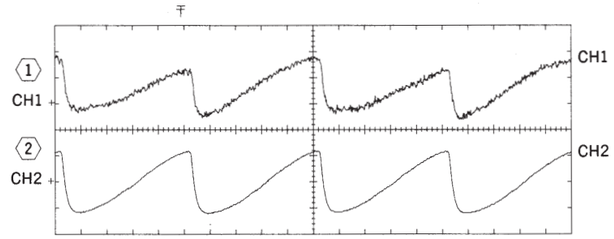
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
J490	A1,H2	CHASSIS
P490	A1,H2	CHASSIS
R210	F4	CHASSIS
T200	H3	CHASSIS

REV MAR 96

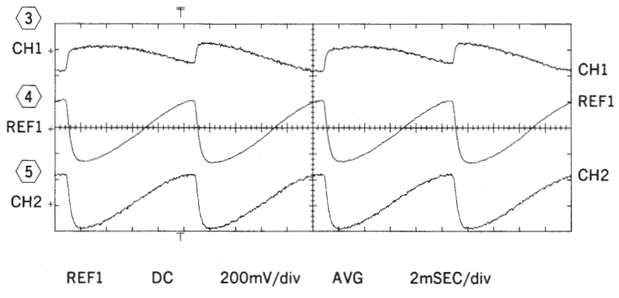
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A the power-up default (initial) settings, except that the VARIABLE COLLECTOR SUPPLY is set to 100%, the VERTICAL CURRENT/DIV is set to 1 µA. The LOOPING COMPENSATION control knob is turned fully counterclockwise.

CH1 DC 20mV/div AVG 2mSEC/div
CH2 DC 200mV/div AVG 2mSEC/div



CH1 DC 50mV/div AVG 2mSEC/div
CH2 DC 50mV/div AVG 2mSEC/div



REF1 DC 200mV/div AVG 2mSEC/div

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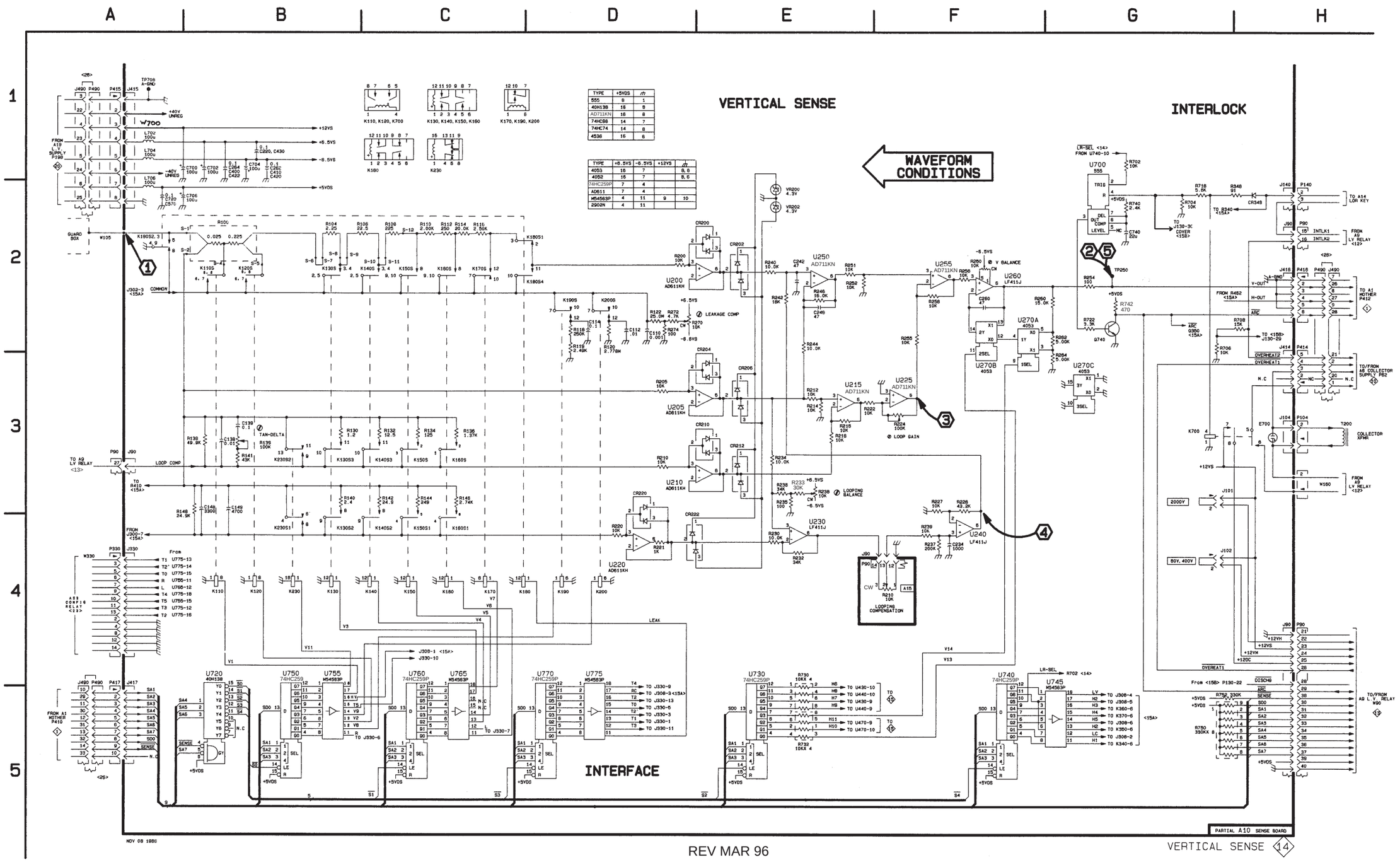

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HORIZONTAL SENSE 15a

ASSEMBLY A10

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C300	D3	C3
C312	D4	D3
C322	D4	C3
C340	D1	K5
C342	D1	K5
C350	E1	J4
C450	G4	I3
C452	G3	I3
C460	H3	I4
C500	D2	G2
C501	E2	H2
C504	D2	G2
C520	C2	H2
C540	C3	I2
C572	F2	J3
C574	G2	J3
CR400	D3	D4
CR402	D4	D4
CR410	E4	D2
CR412	E4	D2
CR420	D5	C2
CR422	D5	C2
CR480	E3	E3
CR481	E4	E3
CR482	E4	E2
CR483	E4	E2
CR500	D3	G2
CR520	C2	H2
CR540	C2	I3
CR550	E3	G3
E100	C5	B7
E200	D3	G2
J300	C3	F3
J301	A3	A5
J302	A3	B6
J303	A3	B5
J308	C1	H4
J418	H2	B3
J419	A4,H2	A3
K340	D3	C3
K350	D4	D3
K360	D4	C3
K370	D5	B3
Q350	E1	K4
Q520	C2	H3
Q530	D2	H2
Q540	C3	I2
R300	A3	B5
R302	D3	C3
R304	D3	C3
R312	D4	D3
R314	D4	D3
R322	D4	C3
R324	D4	C3
R340	D1	K5
R342	C1	K5
R344	D1	K5
R346	D1	K5
R350	E1	J4
R352	E1	J4
R400	E3	D3
R402	E3	D3
R410	D4	C2
R411	E4	D2
R412	E4	E2
R414	E5	E3
R416	E5	F3
R418	E5	F3
R420	D5	B2
R421	E5	D2
R422	E5	D2
R423	E5	D2
R424	E5	F3
R426	E5	F3
R430	F3	G3
R432	F3	G3
R434	F4	F2
R436	F4	F2
R438	F4	E2
R440	F4	E2
R442	F4	F2
R444	F4	F2
R446	G5	E3
R448	G5	F3
R450	G5	F3
R452	G5	F3
R454	G5	F3
R460	H4	K8
R462	H3	I4
R466	G3	H4
R470	G3	H4
R472	G3	H3
R474	G3	H3
R476	G4	H4
R478	G3	H4
R480	E4	E3
R481	E4	E3
R482	E4	E2
R483	E4	E2
R484	F4	E3
R485	F3	E3
R486	E4	E2
R487	E4	E2
R490	E4	E2
R500	D2	G2
R502	E2	G2
R504	D2	G2
R506	D2	G2
R520	D2	H2
R522	C2	H2
R540	D2	H3
R542	C3	H2
R550	F2	F3
R552	F3	F3
R554	F2	G3
R556	F3	G3
R558	F3	F3
R560	E2	F2
R562	E2	F2
R564	F2	F2
R565	G1	E2
R566	F2	F2
R567	G1	F2
R568	F2	G2
R570	F2	F2
R572	F2	J3
R574	F2	J3
R600	B5	B4
TP460	H3	K7
U340A	D1	K4
U340B	D1	K4
U340C	D1	K4
U340D	E1	K4
U350	E2	K4
U400	E3	D3
U410	E4	D2
U420	E5	D2
U430	F3	G3
U440	G3	G4
U450	G3	I3
U460	H3	I4
U470	H3	H3
U480A	E3	E3
U480B	E4	E3
U480C	E4	E3
U480D	E4	E3
U490	E4	E2
U500	E2	H2
U560A	F2	F3
U560B	F2	F3
U565A	F1	F2
U565B	F1	F2
U570A	G1	J3
U570B	G2	J3
VR400	D4	D3
VR402	E4	E3
VR530	D3	I3
VR534	D2	H2

CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
U300	B1	CHASSIS

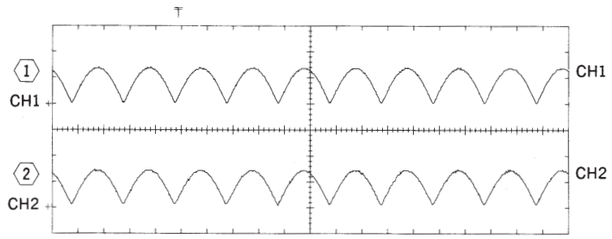
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) from the 370A under the following conditions:

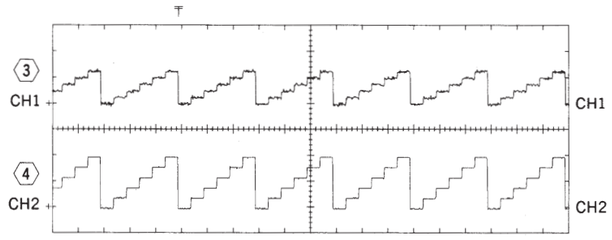
Waveform 1 and 2: These waveforms were obtained with the 370A set to the power-up default (initial) settings, except that the VARIABLE COLLECTOR SUPPLY is set to 100%.

Waveform 3 and 4: These waveforms were obtained from the 370A set to the power-up default (initial) settings, except that the HORIZONTAL VOLTS/DIV is set to 50 mV BASE/EMITTER, the Step Generator output mode is set to VOLTAGE.

CH1	DC	1V/div	NORMAL	5mSEC/div
CH2	DC	1V/div	NORMAL	5mSEC/div



CH1	DC	200mV/div	AVG	20mSEC/div
CH2	DC	500mV/div	AVG	20mSEC/div



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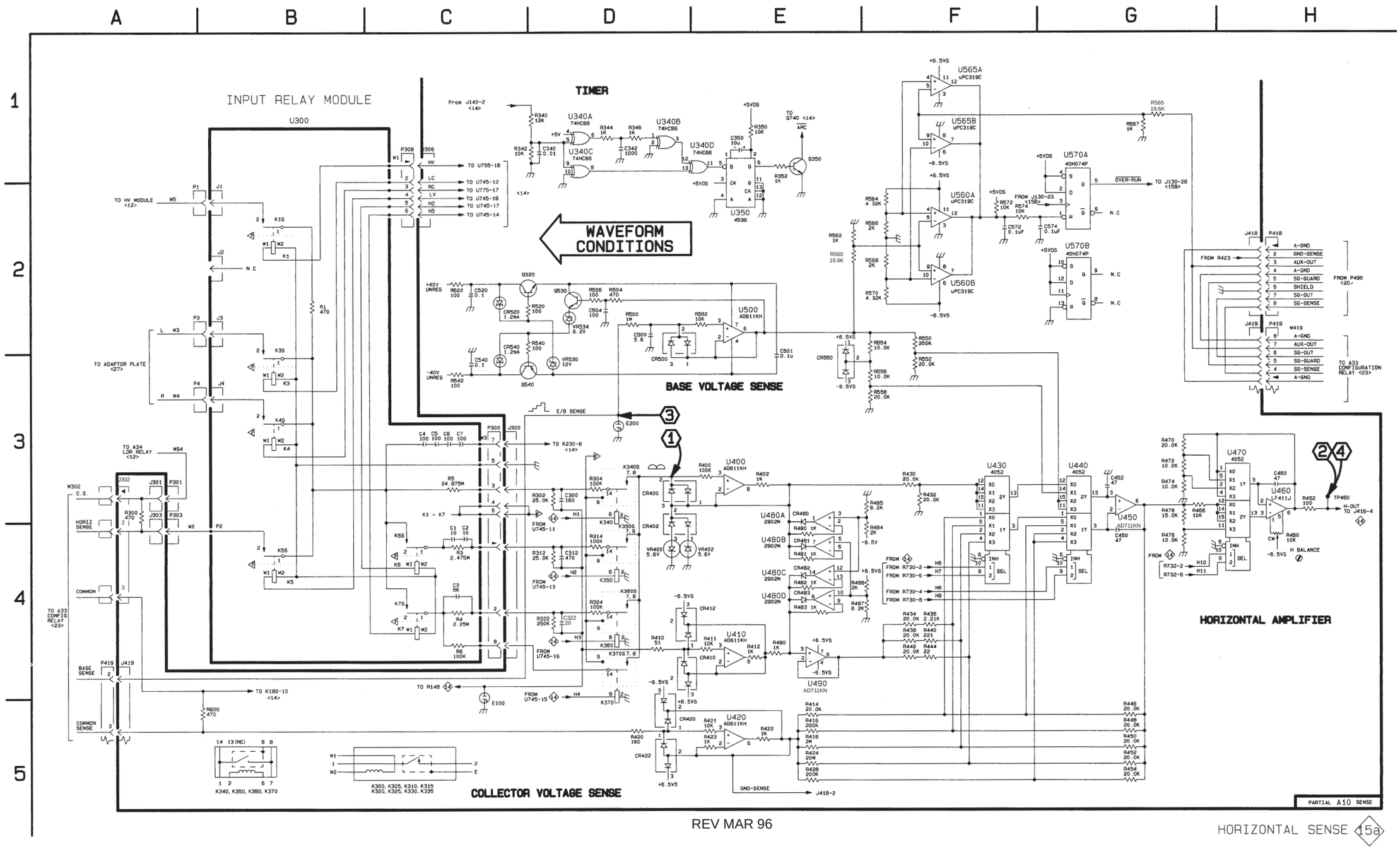

REV MAR 96

HORIZONTAL SENSE 15a

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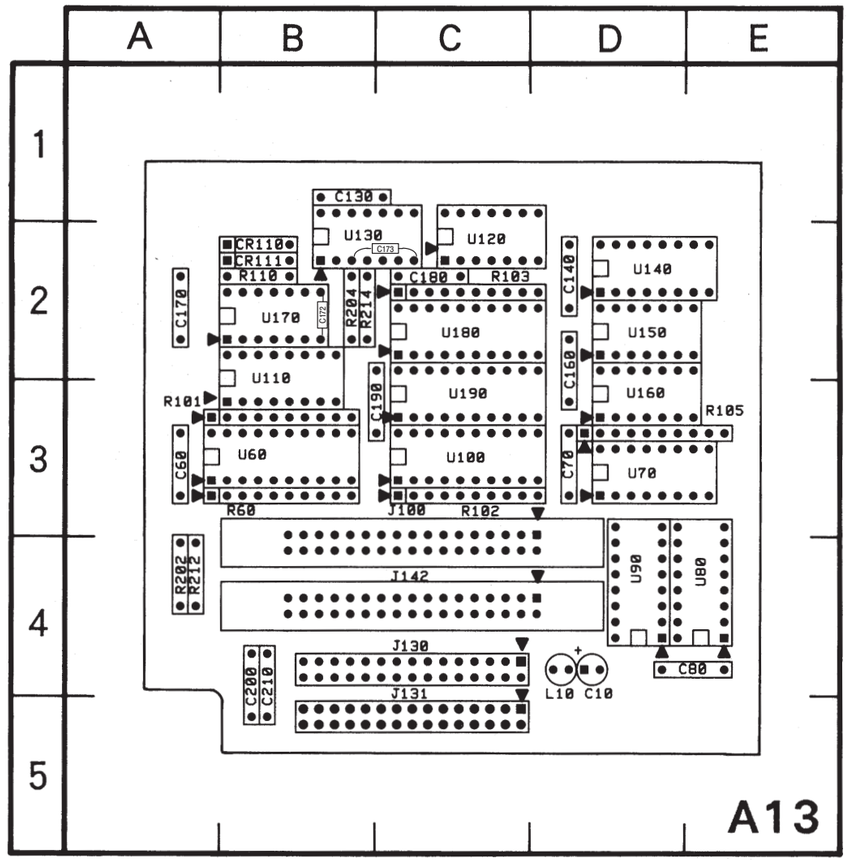


REV MAR 96

Figure 7-17. A13 — Key Interface circuit board assembly.

A10 – Sence circuit board illustration and component locator grid is located on the reverse side of <13> .

LOR KEY INTERFACE <15b>

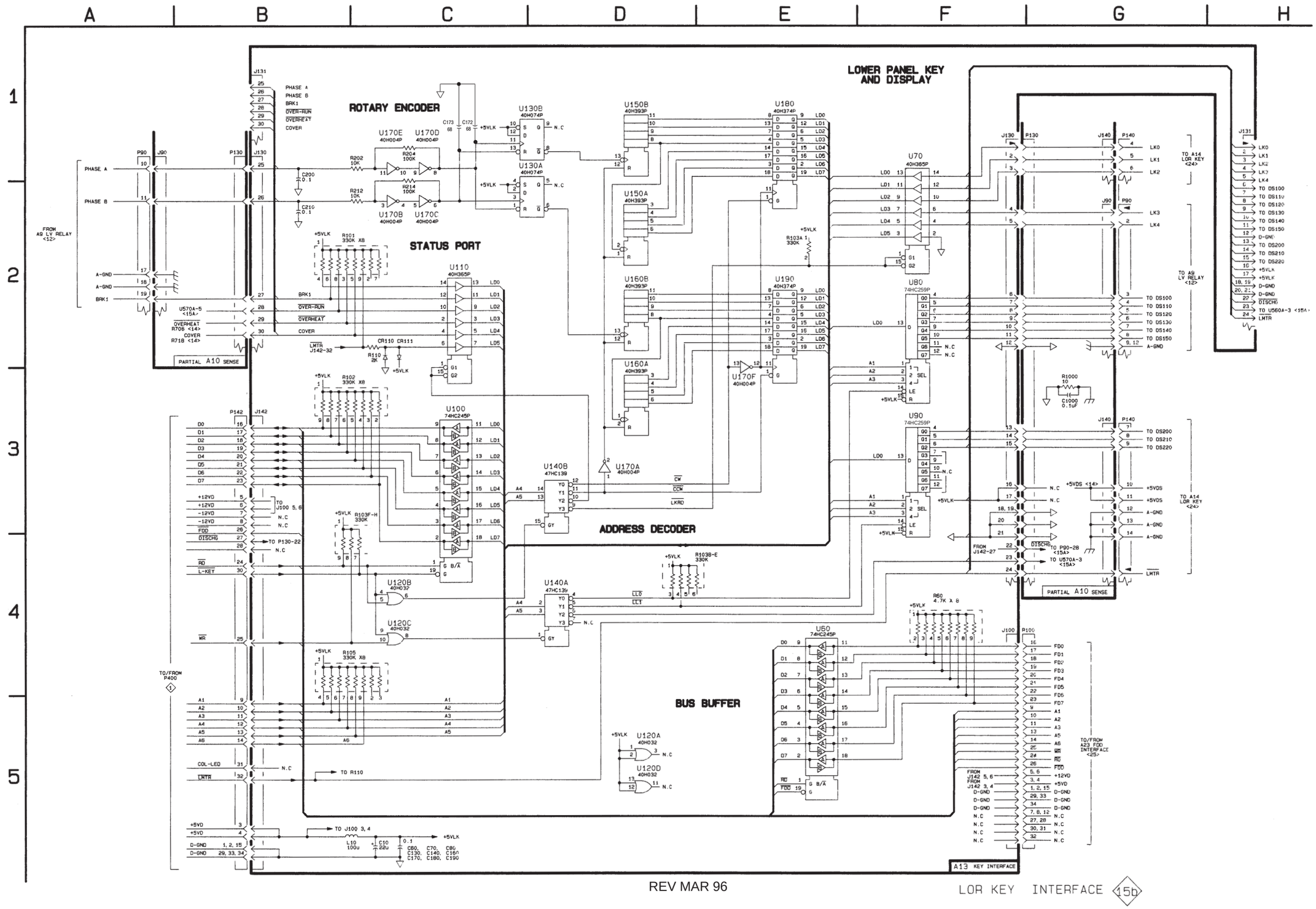
ASSEMBLY A10								
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C1000	G3	M6	J90	A1,G2	J2	P130	B1,G1	M6
			J140	G1,G3	B1	R1000	G3	M6

LOR KEY INTERFACE <15b>

ASSEMBLY A13								
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C10	C5	D4						
C60	C5	A3	L10	B5	D4	U120B	C4	C2
C70	C5	D3				U120C	C4	C2
C80	C5	E4	R60	F4	B3	U120D	D5	C2
C130	C5	B1	R101	B2	A3	U130A	D1	B2
C140	C5	D2	R102	B3	C3	U130B	D1	B2
C160	C5	D2	R103	C3,E4,E2	C2	U140A	D4	D2
C170	C5	A2	R105	B4	E3	U140B	D3	D2
C172	C1	B2	R110	C2	B2	U150A	D2	D2
C173	C1	C2	R202	C1	A4	U150B	D1	D2
C180	C5	C2	R204	C1	B2	U160A	D2	D3
C190	C5	C3	R212	C2	A4	U160B	D2	D3
C200	B1	B4	R214	C2	B2	U170A	D3	B2
C210	B2	B4				U170B	C2	B2
			U60	E4	B3	U170C	C2	B2
CR110	C2	B2	U70	F1	D3	U170D	C1	B2
CR111	C2	B2	U80	F2	E4	U170E	C1	B2
			U90	F3	D4	U170F	E3	B2
J100	F4	C3	U100	C3	C3	U180	E1	C2
J130	B1,F1	C4	U110	C2	B2	U190	E2	C3
J131	B1,H1	C4	U120A	D5	C2			
J142	B3	C4						

REV MAR 96

Please cut out the aria below the lines.



REV MAR 96

LOR KEY INTERFACE 15b

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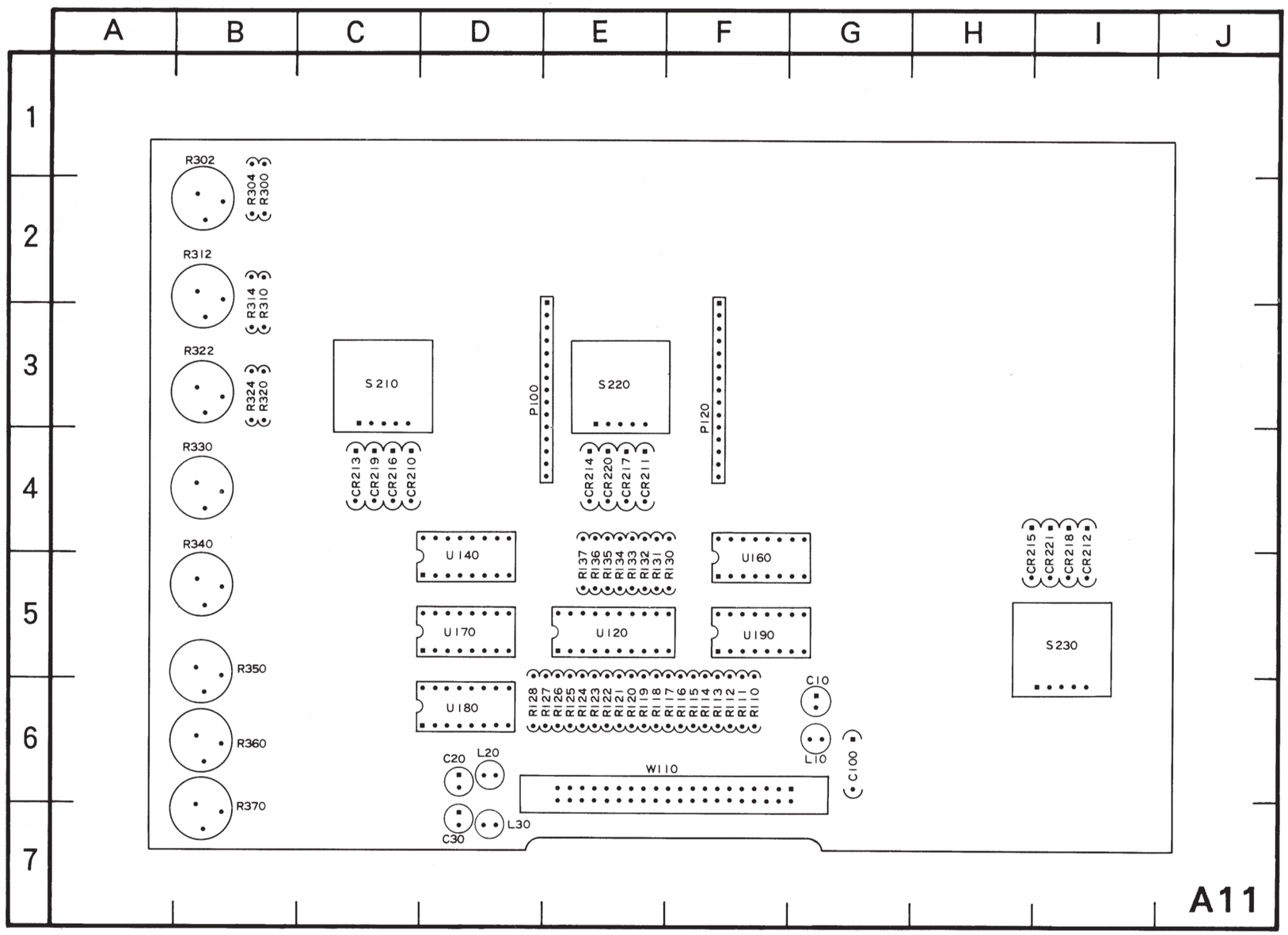


Figure 7-18. A11 — Main Key circuit board assembly.

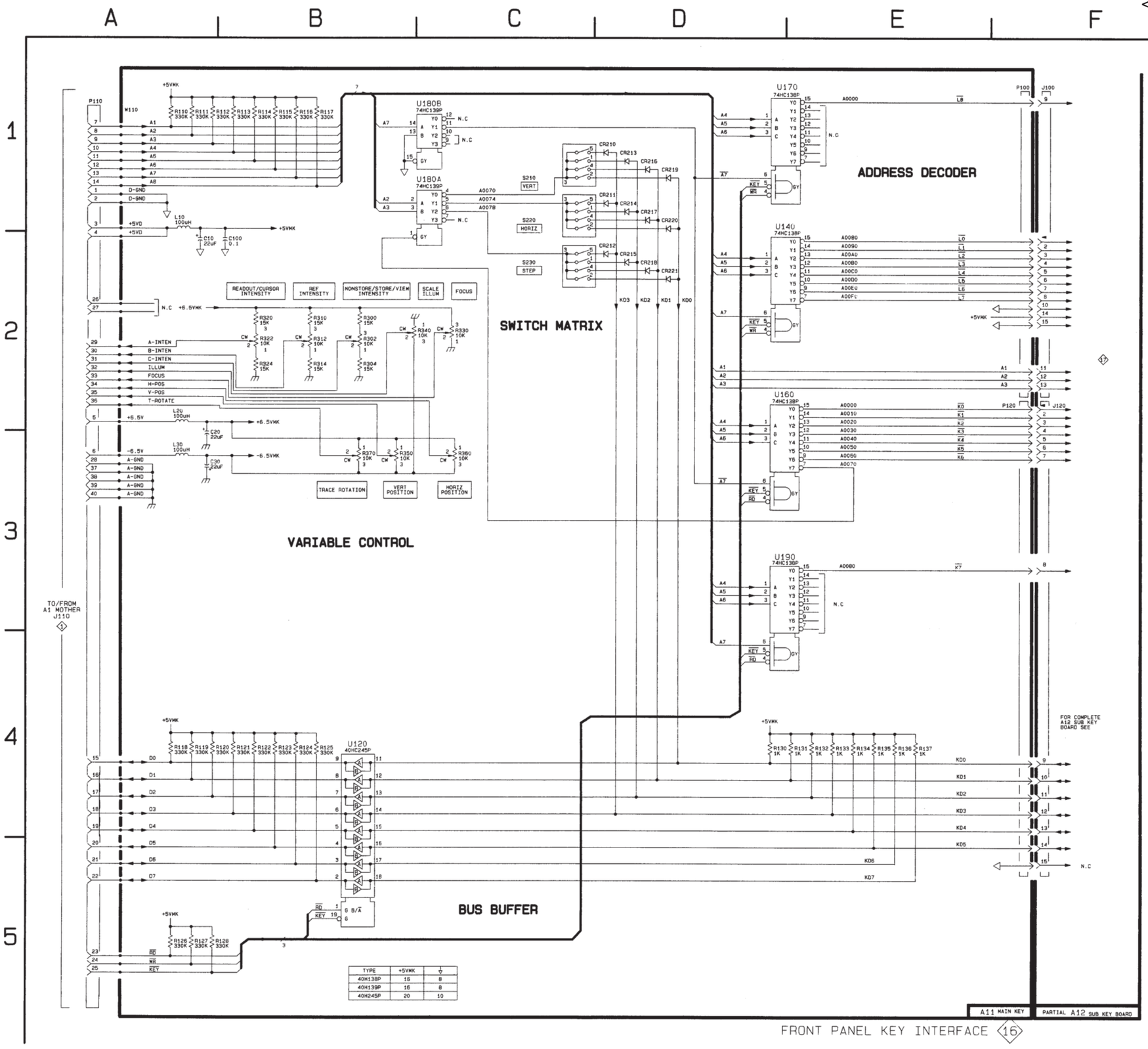
Please cut out the aria below the lines.

FRONT PANEL KEY INTERFACE 16

ASSEMBLY A11

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C10	A2	G6
C20	A3	D6
C30	A3	D7
C100	B2	G6
CR210	D1	C4
CR211	D1	E4
CR212	D2	I5
CR213	D1	C4
CR214	D1	E4
CR215	D2	H5
CR216	D1	C4
CR217	D1	E4
CR218	D2	I5
CR219	D1	C4
CR220	D1	E4
CR221	D2	I5
L10	A1	G6
L20	A2	D6
L30	A3	D7
P100	F1	D3
P120	F2	F3
R110	A1	F6
R111	A1	F6
R112	B1	F6
R113	B1	F6
R114	B1	F6
R115	B1	F6
R116	B1	F6
R117	B1	F6
R118	A4	E6
R119	A4	E6
R120	B4	E6
R121	B4	E6
R122	B4	E6
R123	B4	E6
R124	B4	E6
R125	B4	E6
R126	A5	E6
R127	A5	E6
R128	B5	D6
R130	D4	F5
R131	E4	E5
R132	E4	E5
R133	E4	E5
R134	E4	E5
R135	E4	E5
R136	E4	E5
R137	E4	E5
R300	B2	B2
R302	B2	B1
R304	B2	B2
R310	B2	B2
R312	B2	B2
R314	B2	B2
R320	B2	B3
R322	B2	B3
R324	B2	B3
R330	C2	B4
R340	C2	B4
R350	B3	B5
R360	C3	B6
R370	B3	B7
S210	C1	C3
S220	C1	E3
S230	C1	I5
U120	B4	E5
U140	D1	D5
U160	D2	F5
U170	D1	D5
U180A	C1	D6
U180B	C1	D6
U190	D3	F5
W110	A1	F6

Please cut out the aria below the lines.



TYPE	+5VMK	
40H138P	16	8
40H139P	16	8
40H245P	20	10

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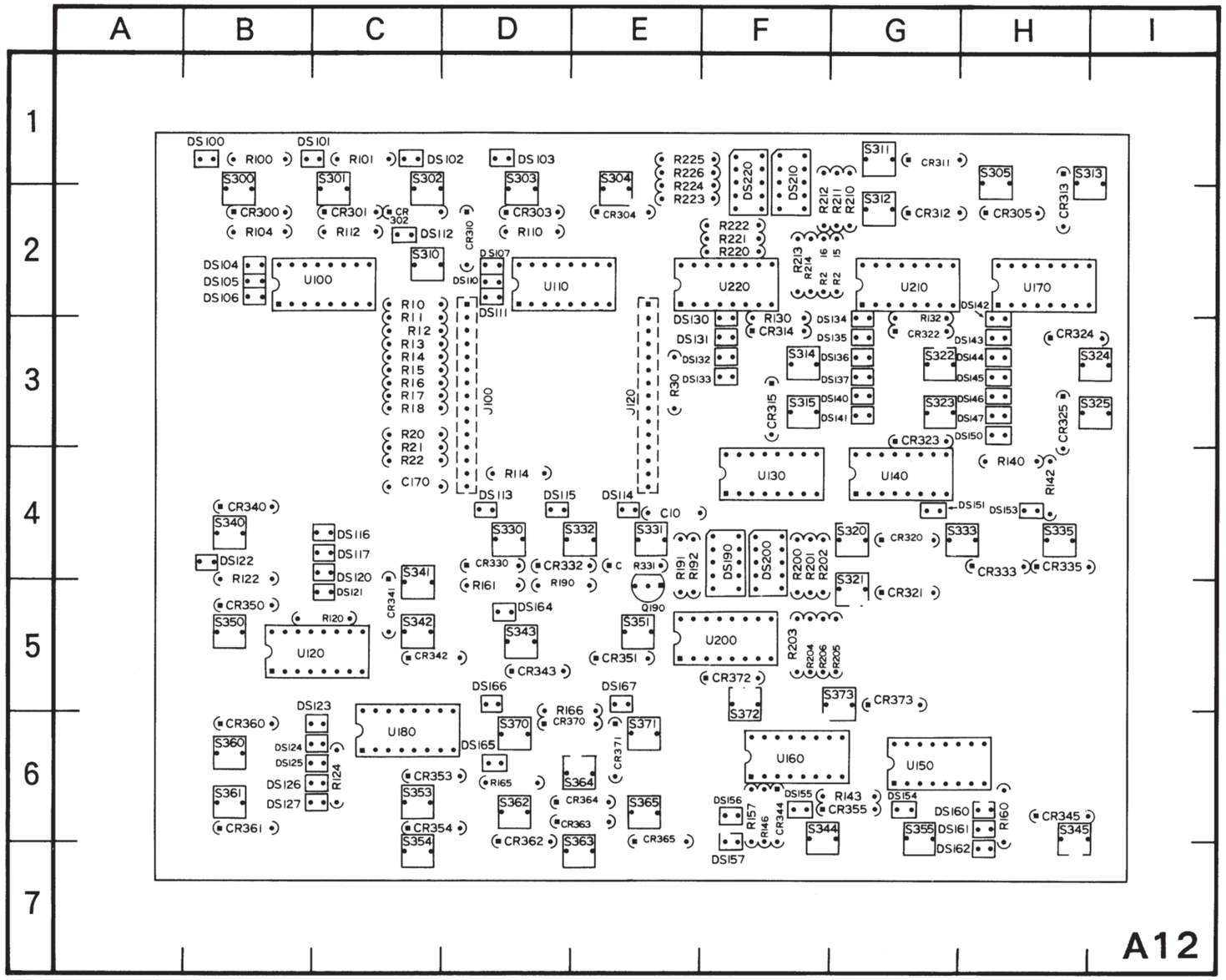


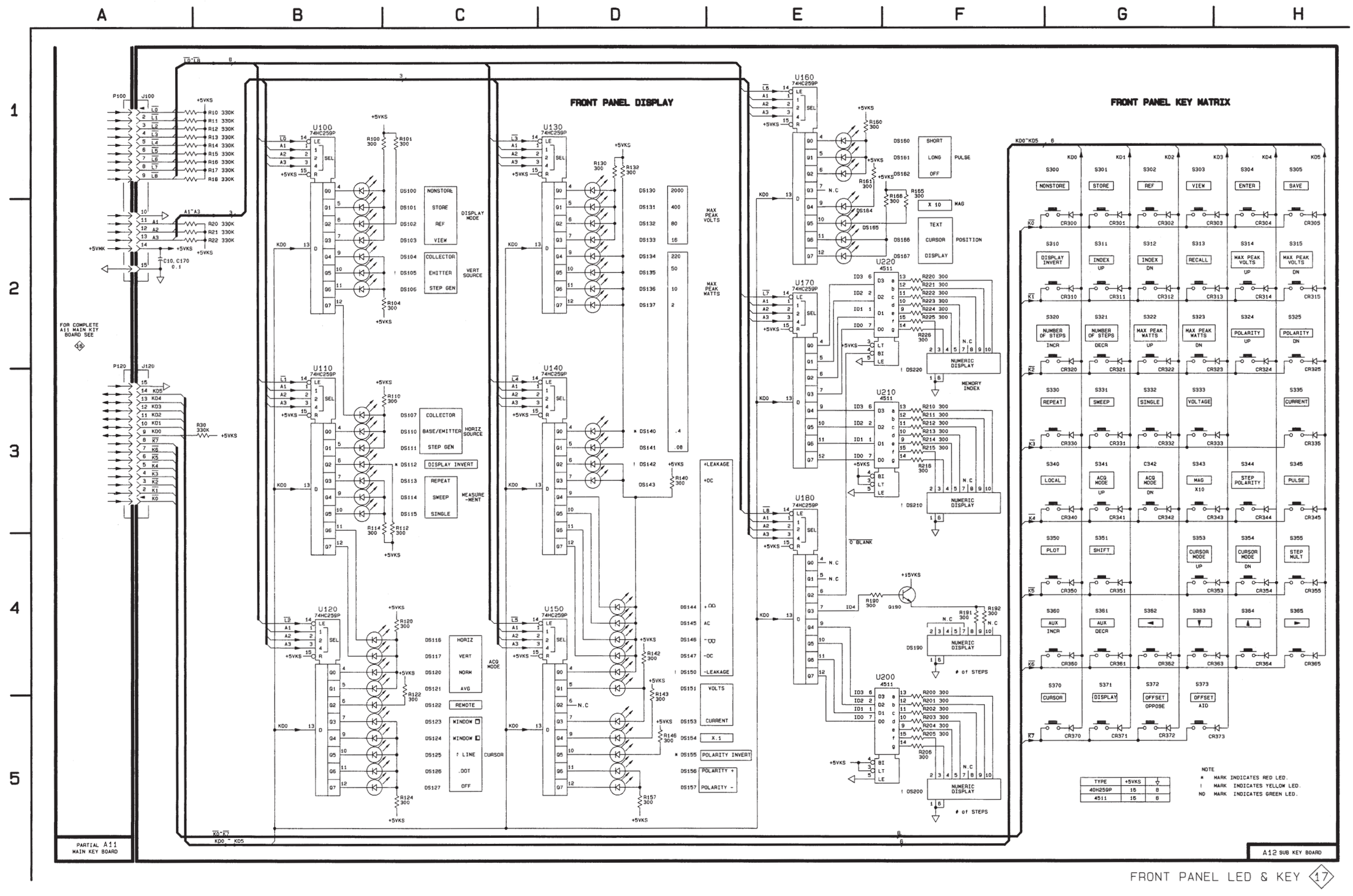
Figure 7-19. A12 — Sub Key circuit board assembly.

FRONT PANEL LED & KEY 17

ASSEMBLY A12

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C10	A2	E4
C170	A2	C4
CR300	G2	B2
CR301	G2	C2
CR302	G2	C2
CR303	H2	D2
CR304	H2	E2
CR305	H2	H2
CR310	G2	D2
CR311	G2	G1
CR312	G2	G2
CR313	H2	H2
CR314	H2	F3
CR315	H2	F3
CR320	G2	G4
CR321	G2	G5
CR322	G2	G3
CR323	H2	G3
CR324	H2	H3
CR325	H2	H3
CR330	G3	D4
CR331	G3	E4
CR332	G3	D4
CR333	H2	H4
CR335	H3	H4
CR340	G3	B4
CR341	G3	C5
CR342	G3	C5
CR343	H2	D5
CR344	H3	F6
CR345	H3	H6
CR350	G4	B5
CR351	G4	E5
CR353	H4	C6
CR354	H4	C6
CR355	H4	G6
CR360	G4	B6
CR361	G4	B6
CR362	G4	D6
CR363	H4	E6
CR364	H4	E6
CR365	H4	E6
CR370	G5	D6
CR371	G5	E6
CR372	G5	F5
CR373	H5	G5
DS100	B1	B1
DS101	B2	C1
DS102	B2	C1
DS103	B2	D1
DS104	B2	B2
DS105	B2	B2
DS106	B2	B2
DS107	B3	D2
DS110	B3	D2
DS111	B3	D2
DS112	B3	C2
DS113	B3	D4
DS114	B3	E4
DS115	B3	D4
DS116	B4	C4
DS117	B4	C4
DS120	B4	C4
DS121	B4	C5
DS122	B5	B4
DS123	B5	C5
DS124	B5	B6
DS125	B5	B6
DS126	B5	B6
DS127	B5	B6
DS130	D1	E3
DS131	D2	E3
DS132	D2	E3
DS133	D2	E3
DS134	D2	G3
DS135	D2	G3
DS136	D2	G3
DS137	D2	G3
DS140	D3	G3
DS141	D3	G3
DS142	D3	H2
DS143	D3	H3
DS144	D4	H3
DS145	D4	H3
DS146	D4	H3
DS147	D4	H3
DS150	D4	H3
DS151	D4	H4
DS153	D5	H4
DS154	D5	G6
DS155	D5	F6
DS156	D5	F6
DS157	D5	F7
DS160	E1	G6
DS161	E1	G6
DS162	E1	G7
DS164	E2	D5
DS165	E2	D6
DS166	E2	D5
DS167	E2	E5
DS190	F4	F4
DS200	F5	F4
DS210	F3	F1
DS220	F2	F1
J100	A1	D3
J120	A3	E3
Q190	F4	E5
R10	B1	C2
R11	B1	C2
R12	B1	C3
R13	B1	C3
R14	B1	C3
R15	B1	C3
R16	B1	C3
R17	B1	C3
R18	B1	C3
R20	B2	C3
R21	B2	C3
R22	B2	C4
R30	B3	E3
R100	B1	B1
R101	C1	C1
R104	C2	B2
R110	C3	D2
R112	C3	C2
R114	B3	D4
R120	C4	C5
R122	C4	B4
R124	C5	C6
R130	D1	F2
R132	D1	G2
R140	D3	H4
R142	D4	H4
R143	D4	G6
R146	D5	F6
R157	D5	F6
R160	E1	H6
R161	E1	D5
R165	F1	D6
R166	F1	D5
R190	E4	D5
R191	F4	E4
R192	F4	E4
R200	F4	F4
R201	F5	F4
R202	F5	F4
R203	F5	F5
R204	F5	F5
R205	F5	G5
R206	F5	F5
R210	F3	G2
R211	F3	G2
R212	F3	F2
R213	F3	F2
R214	F3	F2
R215	F3	G2
R216	F3	F2
R220	F2	F2
R221	F2	F2
R222	F2	F2
R223	F2	E2
R224	F2	E1
R225	F2	E1
R226	F2	E1
S300	G2	B1
S301	G2	C1
S302	G2	C1
S303	G2	D1
S304	H2	E1
S305	H2	H1
S310	G2	C2
S311	G2	G1
S312	G2	G2
S313	G2	I1
S314	H2	F3
S315	H2	F3
S320	G2	G4
S321	G2	G4
S322	G2	G3
S323	G2	G3
S324	H2	I3
S325	H2	I3
S330	G3	D4
S331	G3	E4
S332	G3	E4
S333	G3	H4
S335	H3	H4
S340	G3	B4
S341	G3	C5
S342	G3	C5
S343	G3	D5
S344	H3	F6
S345	H3	H6
S350	G4	B5
S351	G4	E5
S353	G4	C6
S354	H4	C6
S355	H4	G6
S360	G4	B6
S361	G4	B6
S362	G4	D6
S363	G4	E6
S364	H4	E6
S365	H4	E6
S370	G5	D6
S371	G5	E6
S372	G5	F6
S373	G5	G5
U100	B1	C2
U110	B3	D2
U120	B4	B5
U130	D1	F4
U140	D3	G4
U150	D4	G6
U160	E1	F6
U170	E2	H2
U180	E3	C6
U200	F4	F5
U210	F3	G2
U220	F2	F2

Please cut out the aria below the lines.



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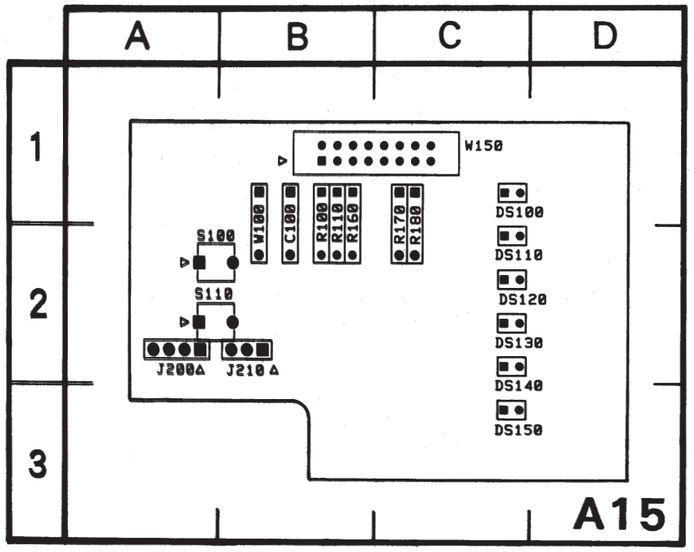


Figure 7-20. A15 — Configuration LED circuit board assembly.

CONFIGURATION LED 18

ASSEMBLY A15

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	B2	B1
DS100	C2	C1
DS110	C3	C2
DS120	C3	C2
DS130	D3	C2
DS140	D3	C2
DS150	D3	C3

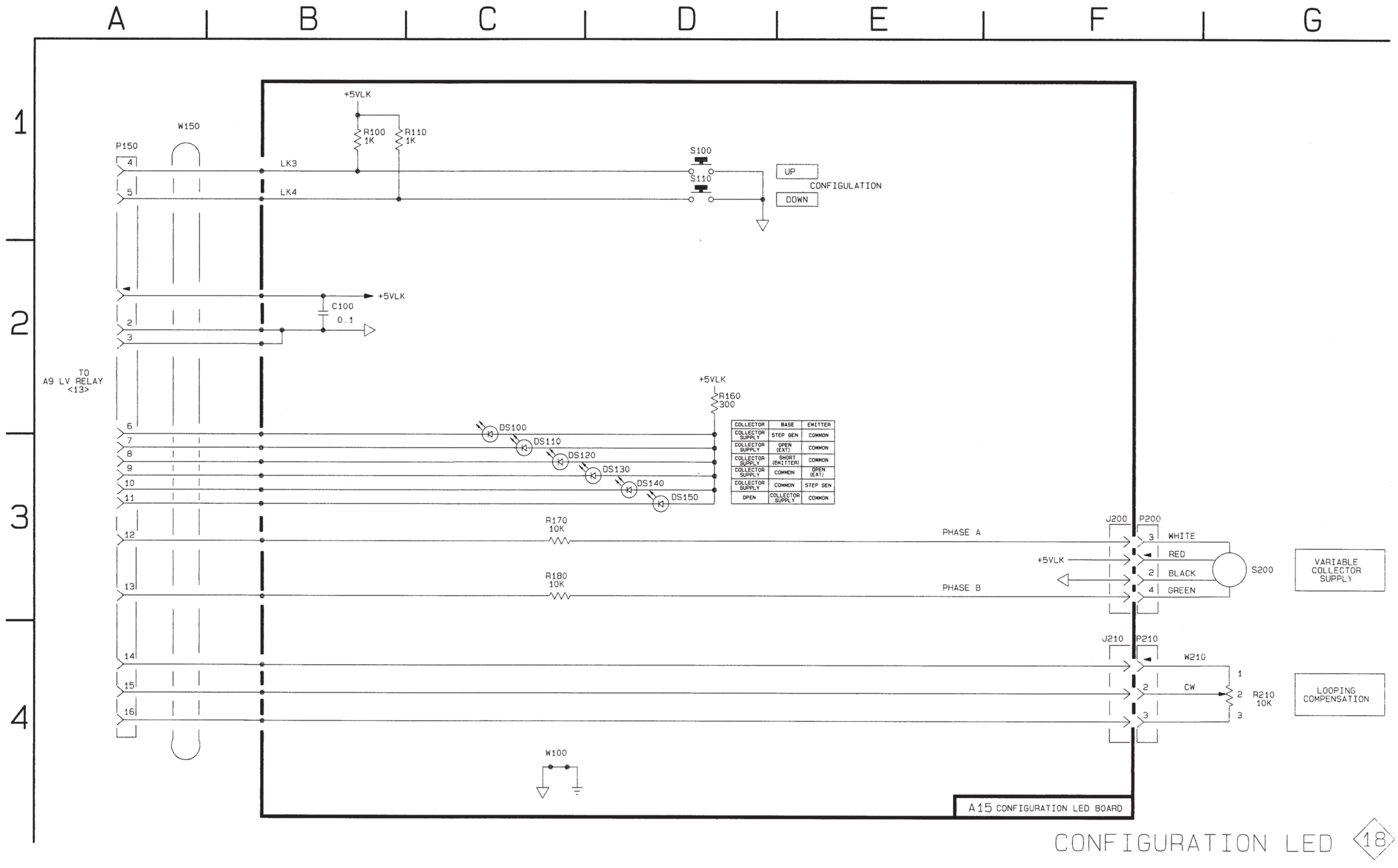
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
J200	F3	A2
J210	F4	B2
R100	B1	B1
R110	C1	B1
R150	D2	B1
R170	C3	C1
R180	C3	C1

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
S100	B1	A2
S110	B1	A2
W100	C4	B1
W150	A1	C1

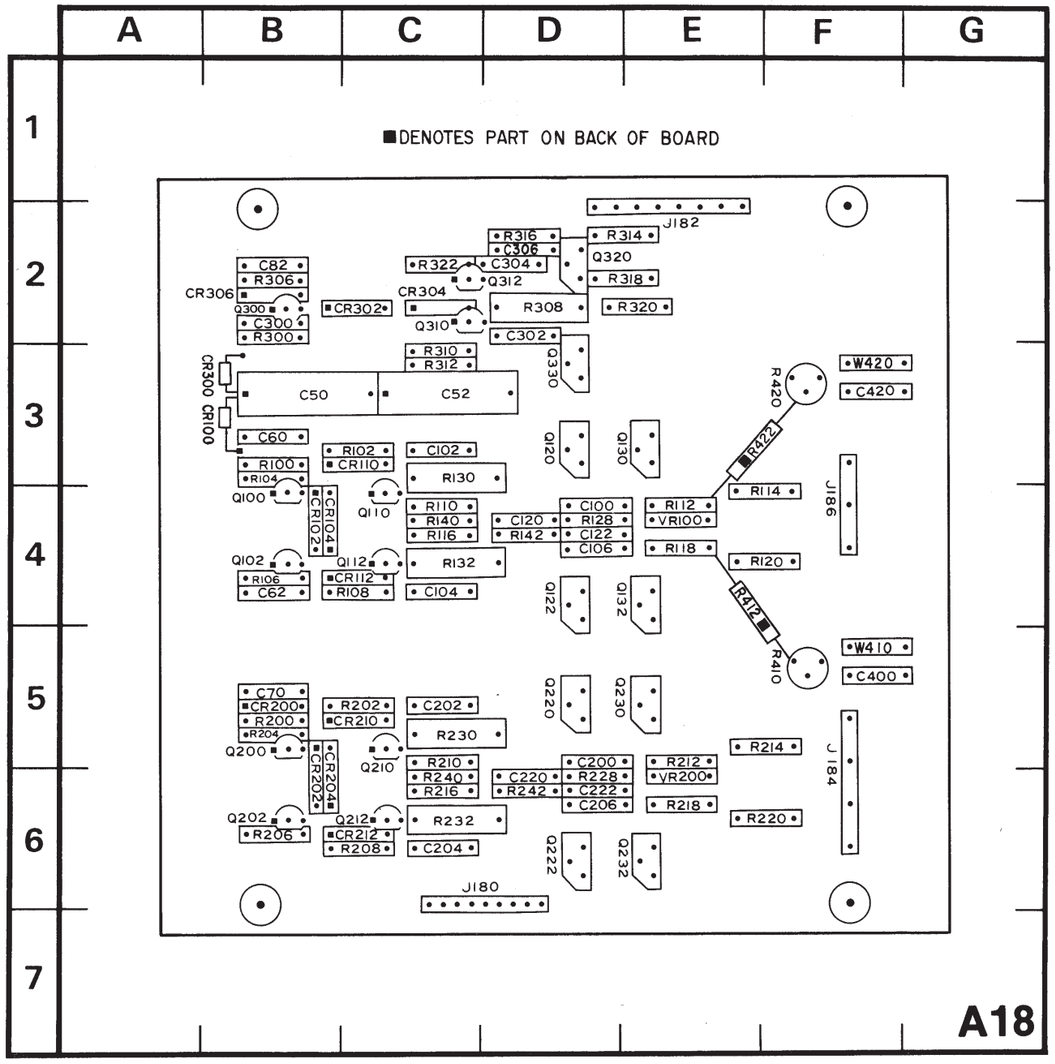
CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
R210	G4	CHASSIS
S200	G3	CHASSIS
W210	F4	CHASSIS

Please cut out the aria below the lines.



Please cut out the aria below the lines.



6065-738

Figure 7-21. A18 — CRT Output circuit board assembly.

CRT OUTPUT AMPLIFIER 19

ASSEMBLY A18

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C50	F4	B3
C52	F3	C3
C60	F4	B3
C62	F3	B4
C70	E4	B5
C82	A4	B2
C100	B1	D4
C102	B1	C3
C104	B3	C4
C106	B3	D4
C120	B2	D4
C122	C2	D4
C200	E1	D5
C202	E1	C5
C204	E3	C6
C206	E3	D6
C220	E2	D6
C222	E2	D6
C300	C4	B2
C302	D4	D2
C304	D3	D2
C306	D3	D2
C400	F2	F5
C420	C2	F3
CR100	A2	B3
CR102	B2	B4
CR104	B2	B4
CR110	B1	C3
CR112	B3	C4
CR200	D2	B5
CR202	E2	B6
CR204	D2	B6
CR210	D1	C5
CR212	D3	C6
CR300	C4	B3
CR302	C4	C2
CR304	D4	C2
CR306	C4	B2
J180	A1,D1	C6
J182	F3	E2
J184	F1	F6
J186	C1	F4
Q100	B1	B4
Q102	B3	B4
Q110	B1	C4
Q112	B3	C4
Q120	B1	D3
Q122	B3	D4
Q130	B1	E3
Q132	B3	E4
Q200	D1	B5
Q202	D3	B6
Q210	E1	C5
Q212	E3	C6
Q220	E1	D5
Q222	E3	D6
Q230	E1	E5
Q232	E3	E6
Q300	C4	B2
Q310	D4	C2
Q312	D3	D2
Q320	D3	D2
Q330	D4	D3
R100	A2	B3
R102	B2	C3
R104	B2	B3
R106	B2	B4
R108	B3	C4
R110	B1	C4
R112	B1	E4
R114	C1	E4
R116	B3	C4
R118	B3	E4
R120	C3	E4
R128	C2	D4
R130	B1	C3
R132	B3	C4
R140	B2	C4
R142	B2	D4
R200	D2	B5
R202	E2	C5
R204	E2	B5
R206	E2	B6
R208	E3	C6
R210	E1	C5
R212	E1	E5
R214	E1	E5
R216	E3	C6
R218	E3	E6
R220	E3	F6
R228	E2	D6
R230	E1	C5
R232	E3	C6
R240	E2	C6
R242	E2	D6
R300	C4	B2
R306	C4	B2
R308	D4	D2
R310	D4	C3
R312	D4	C3
R314	D3	D2
R316	D3	D2
R318	D3	D2
R320	D4	E2
R322	D3	C2
R410	E2	F5
R412	E1	E4
R420	C2	F3
R422	C1	E3
VR100	C2	E4
VR200	E2	E6

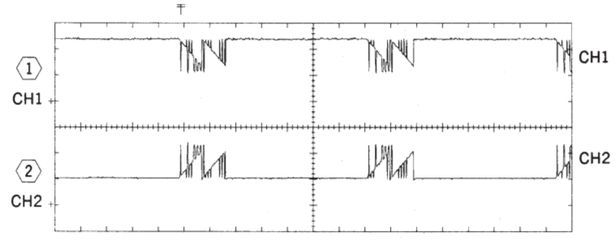
Please cut out the aria below the lines.

VOLTAGE AND WAVEFORM CONDITIONS

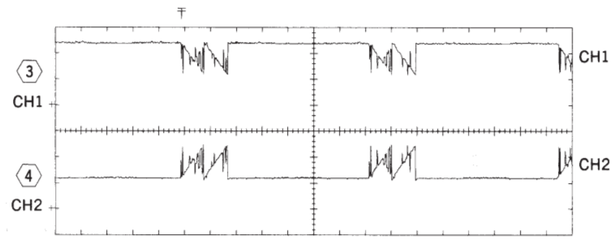
Voltage Conditions. The voltages shown on the diagram were obtained using a digital multimeter with a 10 MΩ input impedance. These voltages are not affected by the 370A setting.

Waveform Conditions. The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A set to the power-up default (initial) settings.

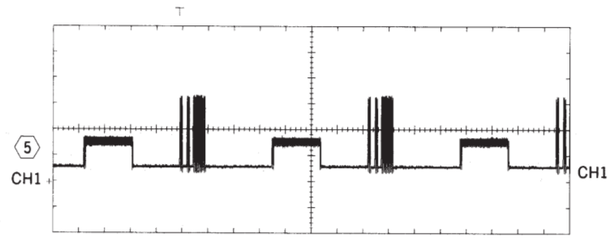
CH1 DC 50V/div NORMAL 2mSEC/div
CH2 DC 50V/div NORMAL 2mSEC/div



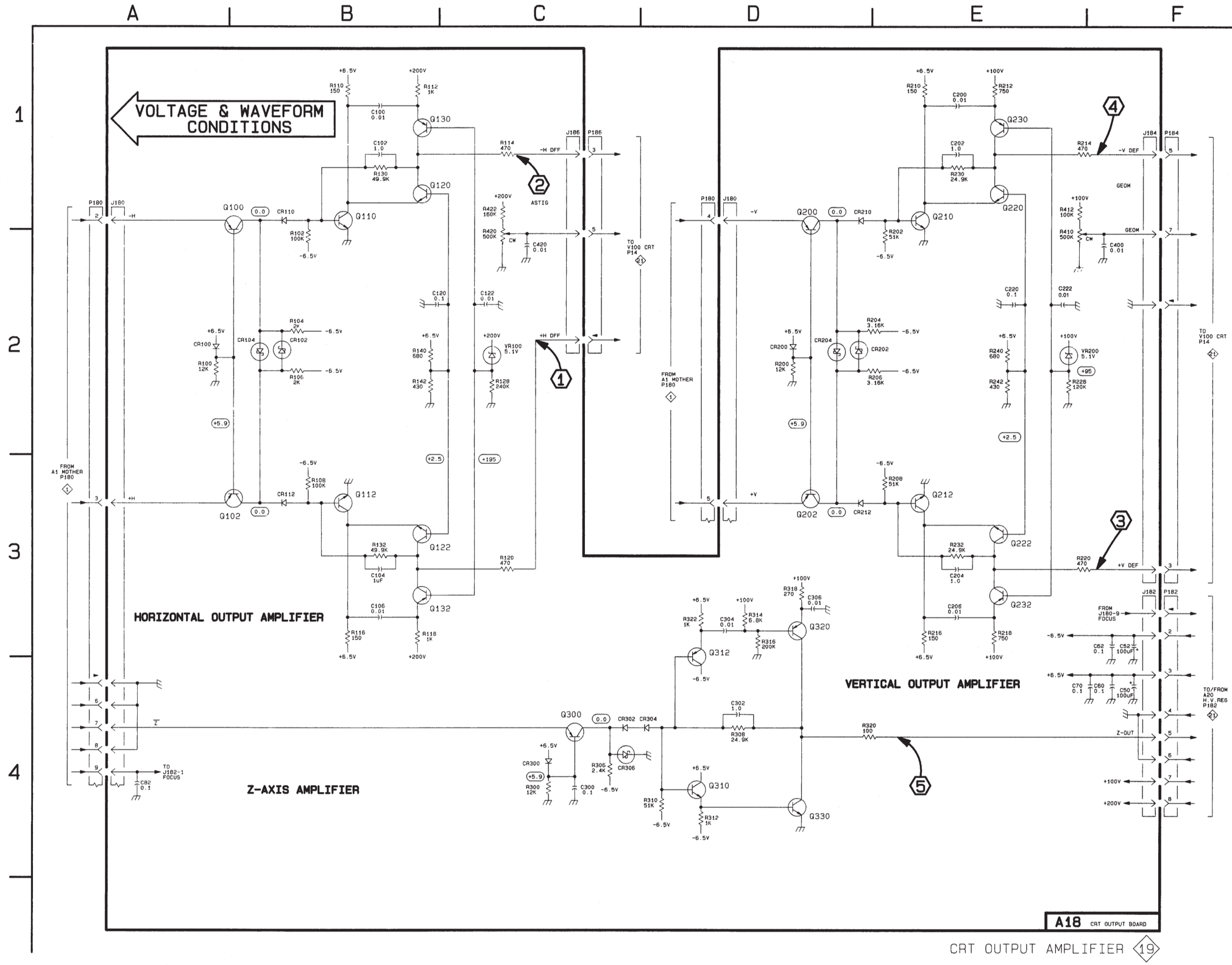
CH1 DC 20V/div NORMAL 2mSEC/div



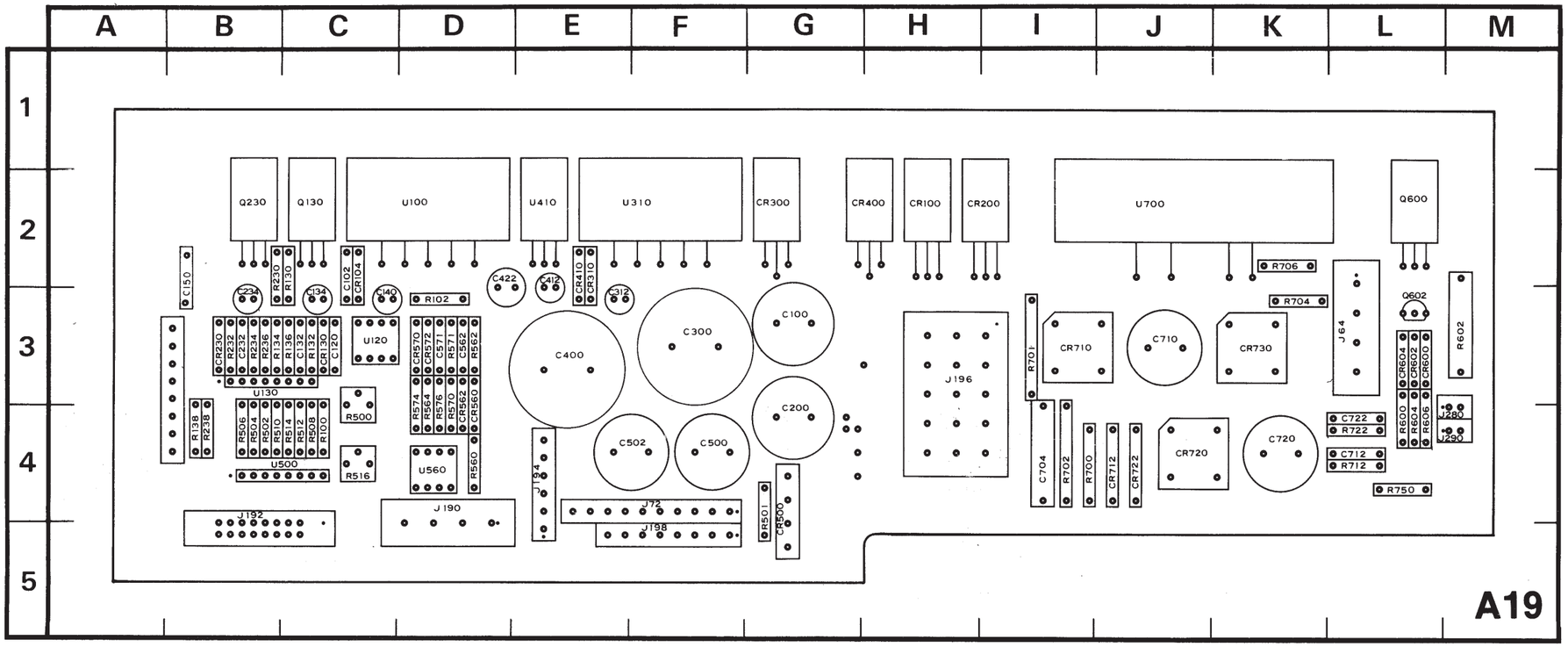
CH1 DC 10V/div ENV 2mSEC/div



Please cut out the aria below the lines.

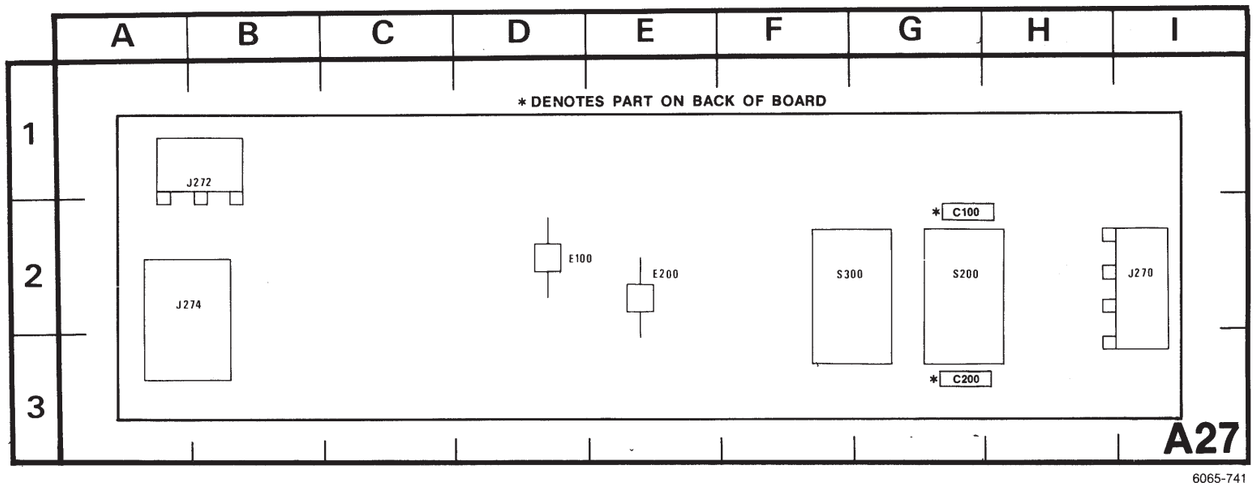


Please cut out the aria below the lines.



6065-740

Figure 7-22. A19 — Low Voltage Supply circuit board assembly.



6065-741

Figure 7-23. A27 — Primary circuit board assembly

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COLLECTOR SUPPLY AMPLIFIER 10

ASSEMBLY A19

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C704	B4	I4	CR722	C3	J4	R704	B3	K3
C710	C3	J3	CR730	C3	K3	R706	B3	K2
C712	C3	L4				R712	C3	L4
C720	C3	K4	J64	C3	L3	R722	C3	L4
C722	C3	L4	J196	A3	H3	R750	C3	L4
CR710	B3	I3	R700	B4	I4	U700	B3	J2
CR712	C3	J4	R701	B3	I3			
CR720	B4	J4	R702	B4	I4			

POWER SUPPLY 20

ASSEMBLY A19

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	D3	G3	J72	F1	F4	R516	B4	C4
C102	D3	C2	J190	F1	D4	R560	C5	D4
C120	B3	C3	J192	F2	B4	R562	D5	D3
C132	D4	C3	J194	F3	E4	R564	D4	D4
C134	D3	C3	J196	C1	H3	R570	C5	D4
C140	E3	C3	J198	F4	F5	R571	C5	D3
C150	E4	B2	J280	E4	M4	R574	D5	D4
C200	D4	G4	J290	E5	M4	R576	C5	D4
C232	D4	B3				R600	E4	L4
C234	D4	B3	Q130	D3	C2	R602	E4	M4
C300	D2	F3	Q230	D4	B2	R604	D5	L4
C312	E2	E3	Q600	D4	L2	R606	D5	L4
C400	D2	E3	Q602	D4	L3			
C412	E2	E2				TP100	E3	A3
C422	D2	D2	R100	E4	C4	TP130	D3	A3
C500	D1	F4	R102	E3	D3	TP230	D4	A3
C502	D1	F4	R130	D3	C2	TP310	E1	A3
C562	D5	D3	R132	D4	C3	TP410	E2	A3
C571	C5	D3	R134	D4	B3	TP500	C4	A4
			R136	D3	C3	TP510	C4	A4
CR100	C3	H2	R138	D3	B4	TP520	E4	A4
CR104	D3	C2	R230	D4	B2			
CR130	C4	C3	R232	D4	B3	U100	D3	D2
CR200	C4	I2	R234	D4	B3	U120	B3	C3
CR230	C4	B3	R236	D4	B3	U130A	D4	B3
CR300	D2	G2	R238	E4	B4	U130B	D4	B3
CR310	D1	E2	R500	B4	C4	U310	D2	F2
CR400	D2	H2	R501	D1	G4	U410	D2	E2
CR410	D2	E2	R502	B4	B4	U500A	B4	C4
CR500	C1	G4	R504	B4	B4	U500B	B4	C4
CR560	C5	D4	R506	B4	B4	U560A	C5	D4
CR562	C4	D4	R508	B4	C4	U560B	D5	D4
CR570	C5	D3	R510	B4	B4			
CR572	C5	D3	R512	B4	C4			
CR604	E4	L3	R514	B4	C4			

POWER SUPPLY 20

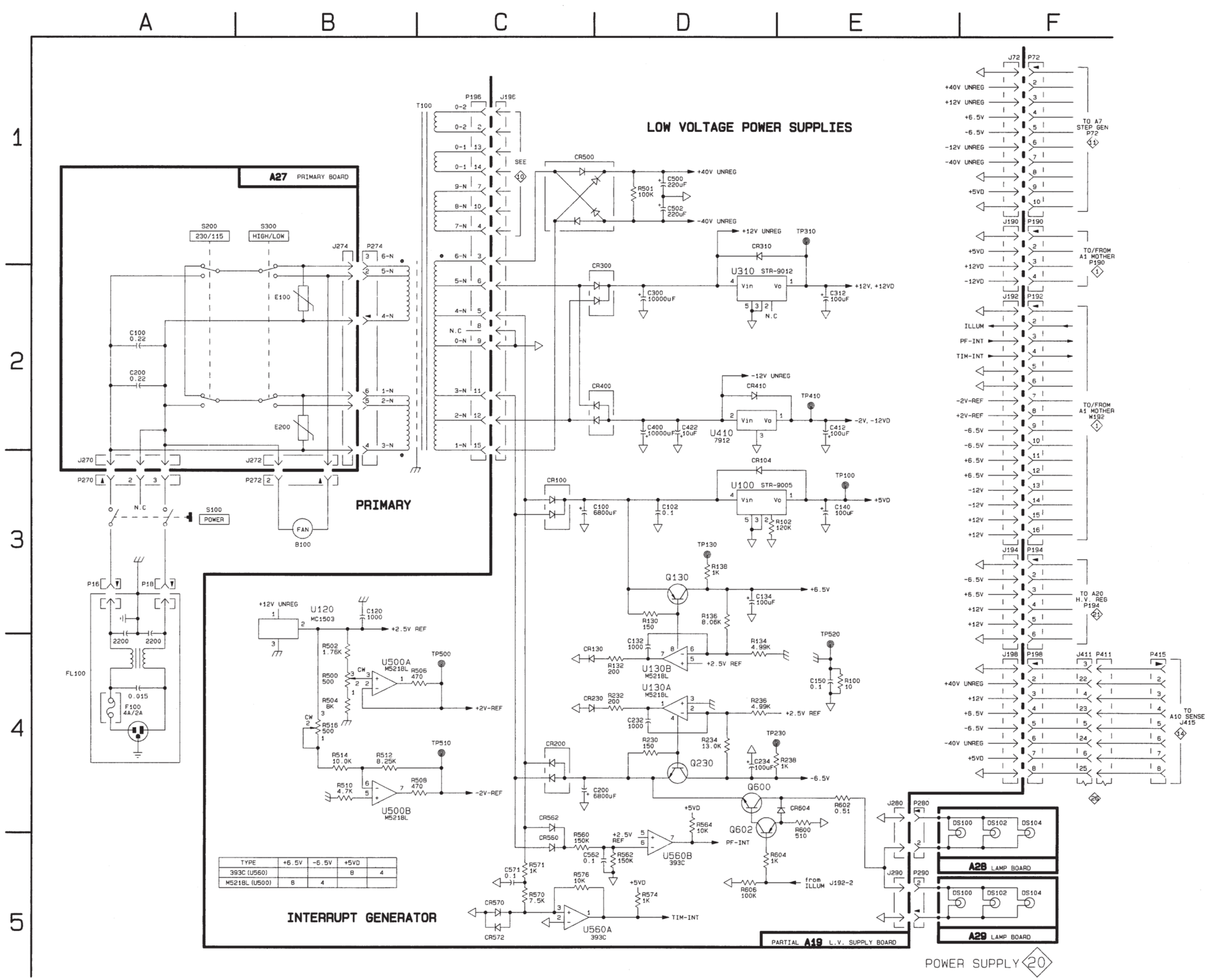
ASSEMBLY A27

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	A2	G1	J270	A3	I2	S200	A1	G2
C200	A2	G2	J272	B3	B1	S300	B1	F2
			J274	B1	B2			
E100	B2	D2						
E200	B2	E2						

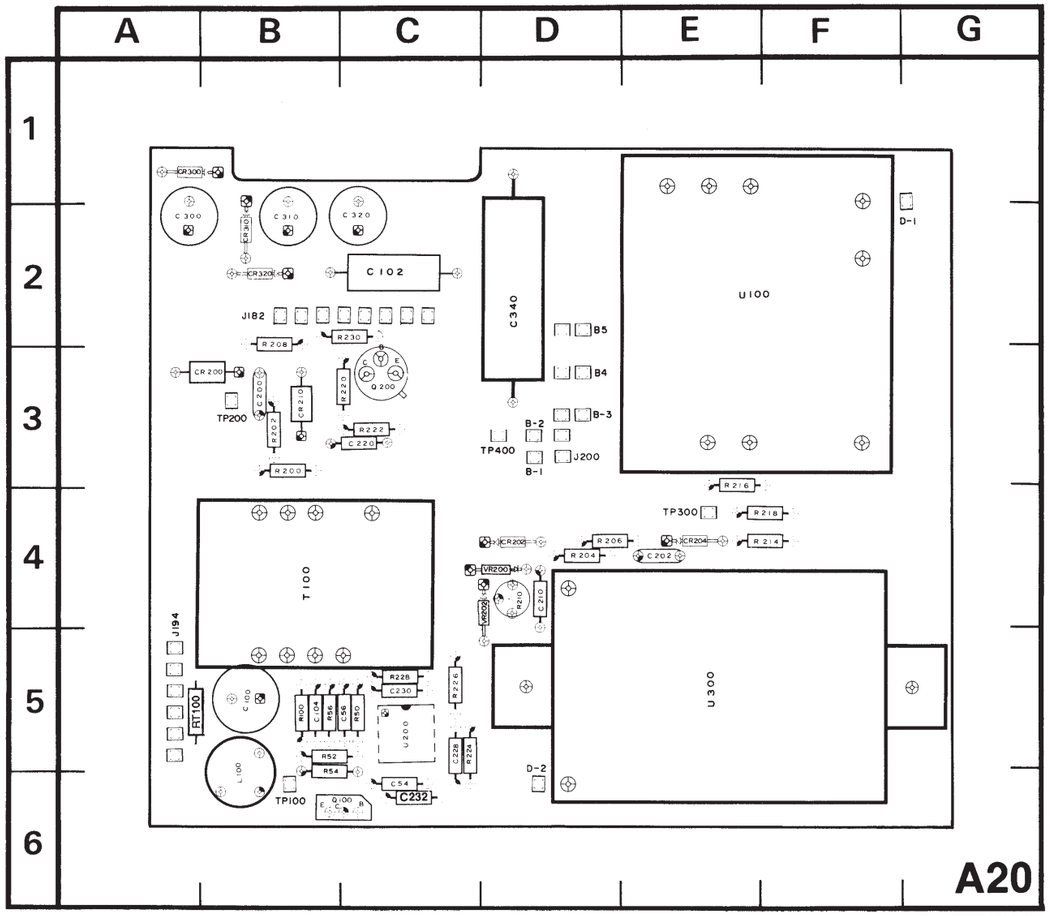
CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
B100	B3	CHASSIS	J411	F4	CHASSIS	S100	A3	CHASSIS
F100	A4	CHASSIS	P411	F4	CHASSIS	T100	C1	CHASSIS
FL100	A4	CHASSIS						

Please cut out the aria below the lines.



Please cut out the aria below the lines.



6065-743

Figure 7-24. A20 — High Voltage Regulator circuit board assembly.

HIGH VOLTAGE POWER SUPPLY 21

ASSEMBLY A20

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C54	C4	C6
C56	C4	C5
C100	A1	B5
C102	B3	C2
C104	B4	B5
C200	C2	B3
C202	C2	E4
C210	C3	D4
C220	C1	C3
C228	C1	C5
C230	C3	C5
C232	C2	C6
C300	D3	A2
C310	D3	B2
C320	D3	C2
C340	D2	D2
CR200	C2	B3
CR202	C2	D4
CR204	C2	E4
CR210	C2	B3
CR300	D3	A1
CR310	D3	B2
CR320	D3	B2
J182	E2	B2
J194	A3	A4
J200	E1	D3
L100	A1	B6
Q100	A2	C6
Q200	C2	C3
R50	C4	C5
R52	C3	B5
R54	C3	B6
R56	B4	B5
R100	A2	B5
R200	B2	B3
R202	C2	B3
R204	B2	D4
R206	C2	D4
R208	C2	B2
R210	C3	D4
R214	C2	F4
R216	C2	E4
R218	C2	F4
R220	C1	C3
R222	C1	C3
R224	B2	C5
R226	B2	C5
R228	C2	C5
R230	C2	C2
T100	B1	B4
TP100	A1	B6
TP200	C2	B3
TP300	C2	E4
TP400	E1	D3
U100	D1	E2
U200A	C4	C5
U200B	B2	C5
U300	D4	E5
VR200	C3	D4
VR202	C3	D4

CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
L100	F3	CHASSIS
L120	F2	CHASSIS
P14	F1	CHASSIS
V100	F4	CHASSIS
W10	F4	CHASSIS
W12	E3	CHASSIS

Please cut out the aria below the lines.

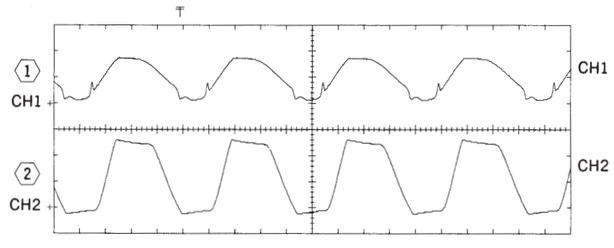
WAVEFORM CONDITIONS

The waveforms shown below were obtained using a test oscilloscope with 1 MΩ input impedance (Tektronix 2430A with plotter) with the 370A under the following conditions:

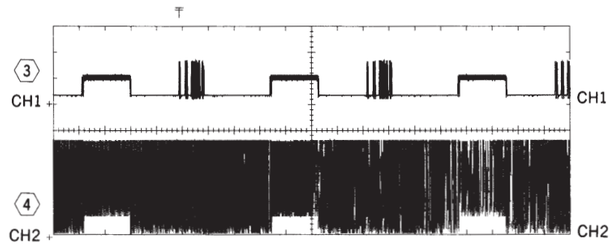
Waveform 1 and 2: These waveforms were obtained with the 370A set to the power-up default (initial) settings. (The waveform 2 was obtained with 1:100 probe.)

Waveform 3 and 4: These waveforms were obtained with the 370A set to the power-up default (initial) settings. The NON STORE/STORE/VIEW Intensity control and READOUT/CURSOR Intensity control are turned fully clockwise.

CH1	DC	10V/div	AVG	10μSEC/div
CH2	DC	200V/div	AVG	10μSEC/div



CH1	DC	20V/div	ENV	2mSEC/div
CH2	DC	20V/div	ENV	2mSEC/div



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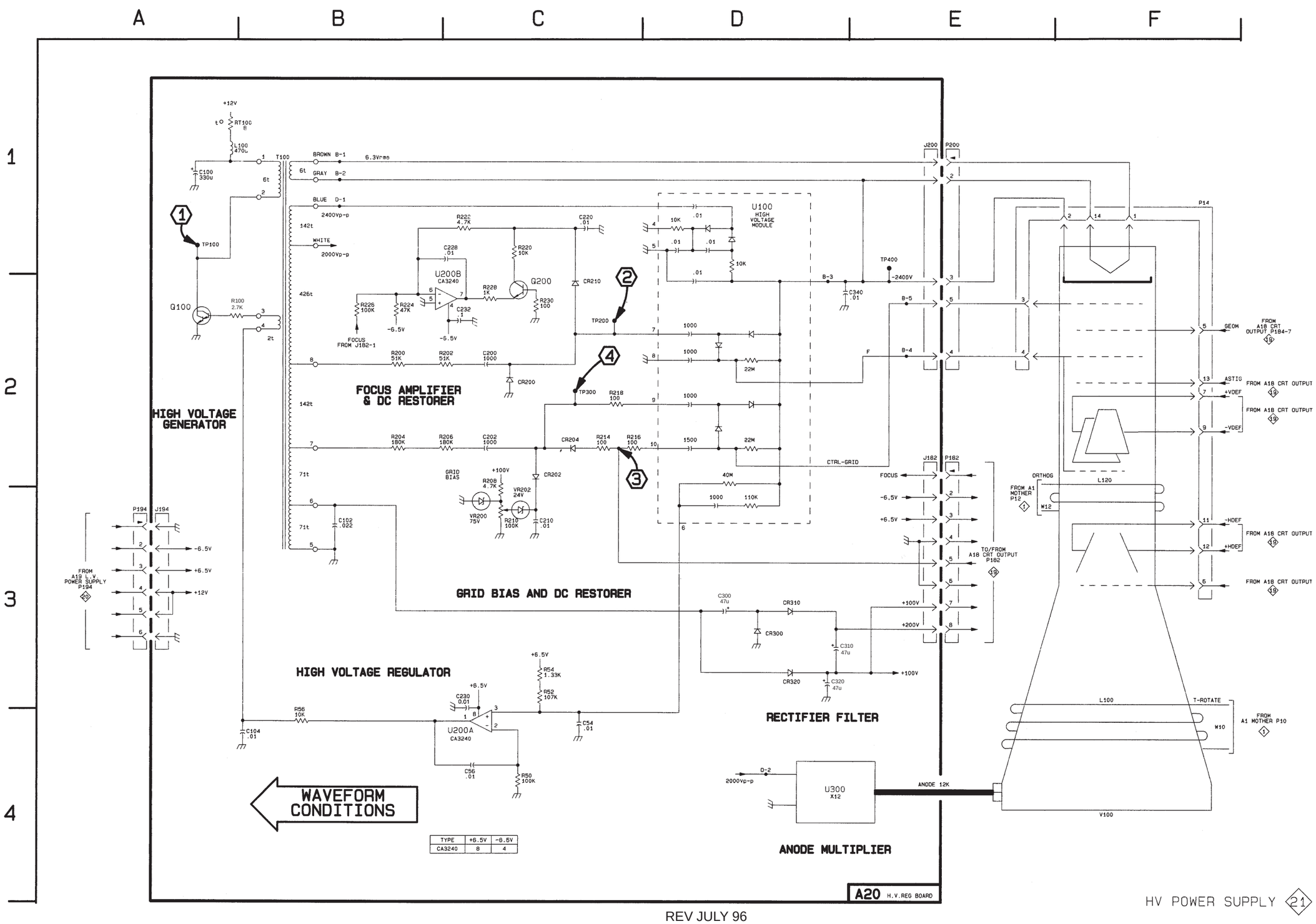

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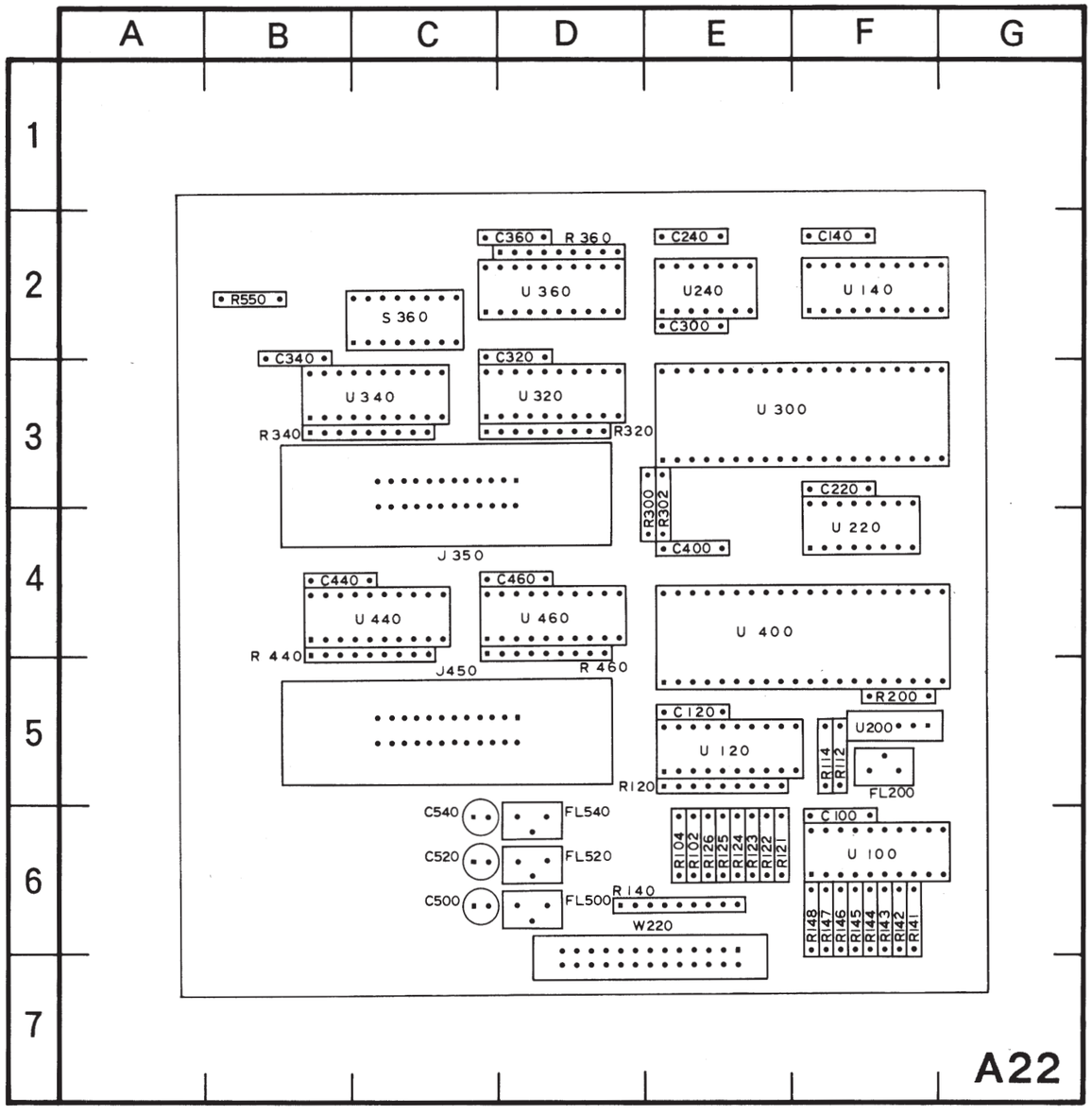

Figure 7-25. A22 — GPIB Interface circuit board assembly.

GPIB & PLOTTER INTERFACE 22

ASSEMBLY A22

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	C1	F6	R104	B2	E6	R440	F3	B4
C120	C1	E5	R112	C2	F5	R460	F4	D5
C140	C1	F2	R114	C2	F5	R550	A2	B2
C220	C1	F3	R120	A2	D5			
C240	C1	E2	R121	B3	E6	S360	D4	C2
C300	C1	E2	R122	B3	E6			
C320	C1	D2	R123	B3	E6	U100A	E4	F6
C340	C1	B2	R124	B3	E6	U100B	B2	F6
C360	C1	D2	R125	B3	E6	U120	B3	E5
C400	C1	E4	R126	B3	E6	U140	B4	F2
C440	C1	B4	R140	A4	D6	U200	D2	F5
C460	C1	D4	R141	B4	F6	U220A	C2	F4
C500	C1	C6	R142	B4	F6	U220B	C3	F4
C520	C1	C6	R143	B4	F6	U240A	C3	E2
C540	C1	C6	R144	B4	F6	U240B	C3	E2
			R145	B4	F6	U240C	D2	E2
FL200	D2	F5	R146	B4	F6	U240D	D3	E2
FL500	B1	D6	R147	B5	F6	U300	E1	E3
FL520	B1	D6	R148	B5	F6	U320	F2	D3
FL540	B1	D6	R200	D2	F5	U340	F1	C3
			R300	C2	E3	U360	C4	D2
J350	F2	C4	R302	C2	E3	U400	E3	E4
J450	F4	C5	R320	F2	D3	U440	F3	C4
			R340	F2	B3	U460	F4	D4
R102	B2	E6	R360	C4	D2			
						W220	A1	E6

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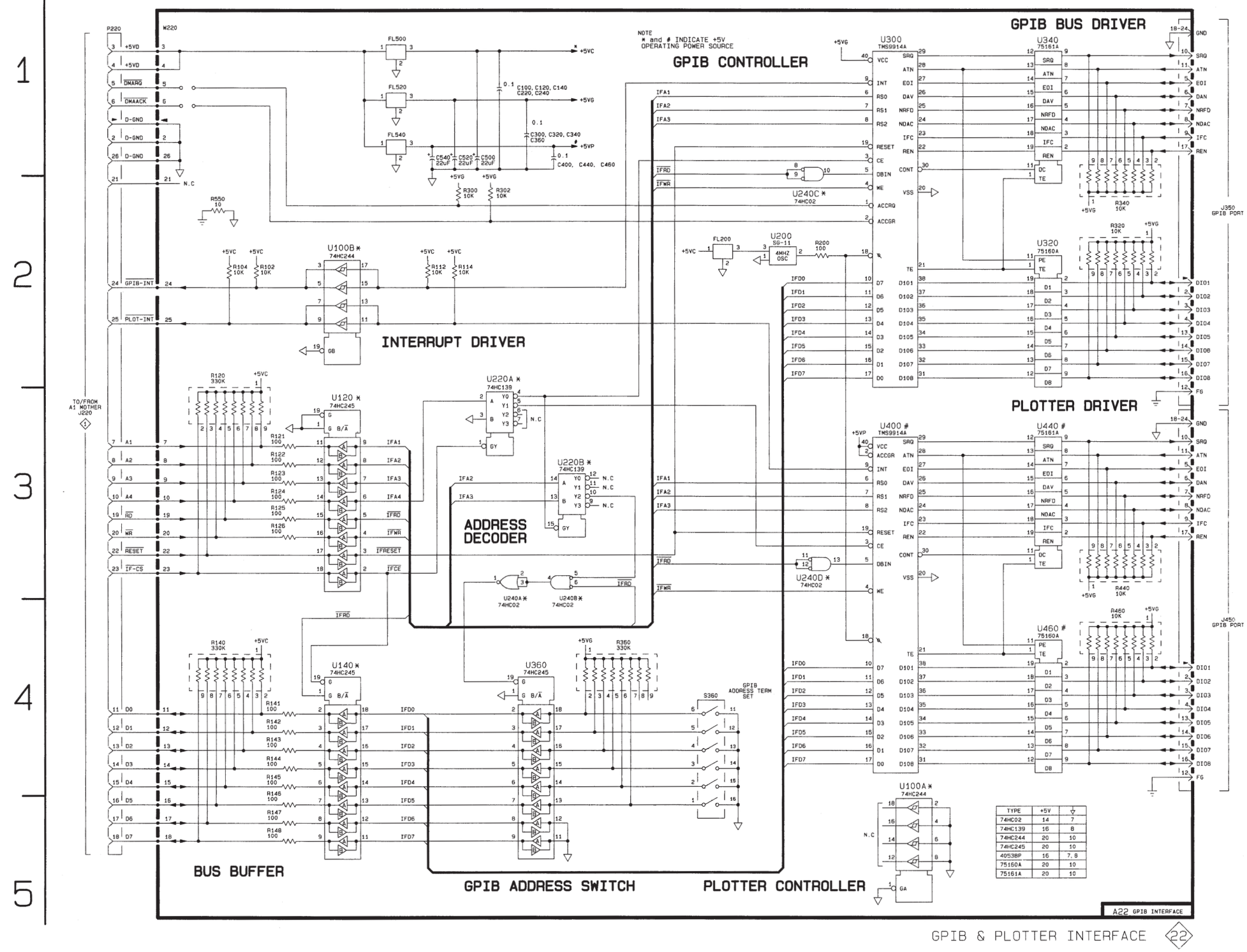


TYPE	+5V	⏚
74HC02	14	7
74HC139	16	8
74HC244	20	10
74HC245	20	10
4053BP	16	7, 8
75160A	20	10
75161A	20	10

Please cut out the aria below the lines.

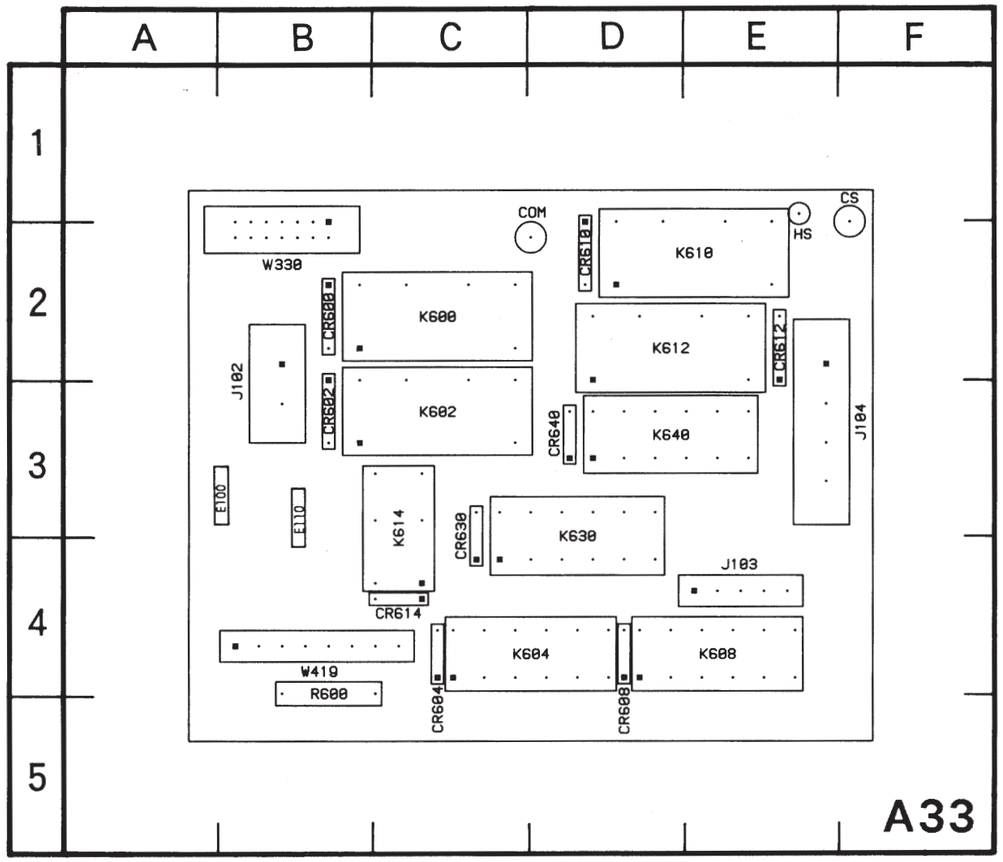


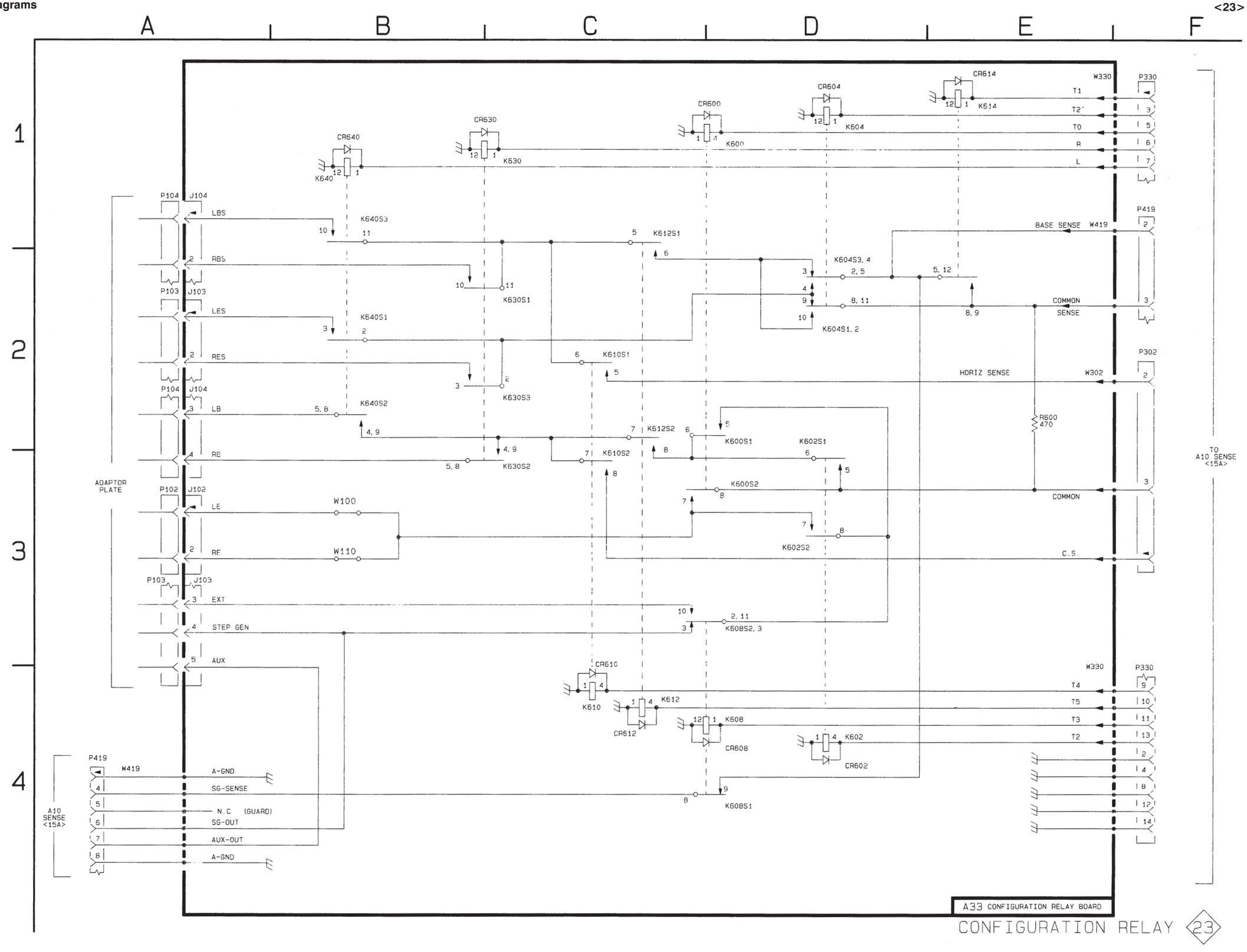
Figure 7-26. A33 — Configuration Relay circuit board assembly.

CONFIGURATION RELAY 23

ASSEMBLY A33

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
CR600	D1	B2	J102	A2	B3	K614	E1	C3
CR602	D4	B3	J103	A2,A3	E4	K630	C1	D3
CR604	D1	C4	J104	A1,A2	F3	K640	B1	D3
CR608	D4	D4						
CR610	C3	D2	K600	D1	C2	R600	E2	B4
CR612	C4	E2	K602	D4	C3			
CR614	E1	C4	K604	D1	C4	W100	B3	B3
CR630	B1	C4	K608	D4	E4	W110	B3	B3
CR640	B1	D3	K610	C4	E2	W330	E1,E4	B2
			K612	C4	D2	W419	A4,E1	B4

Please cut out the aria below the lines.



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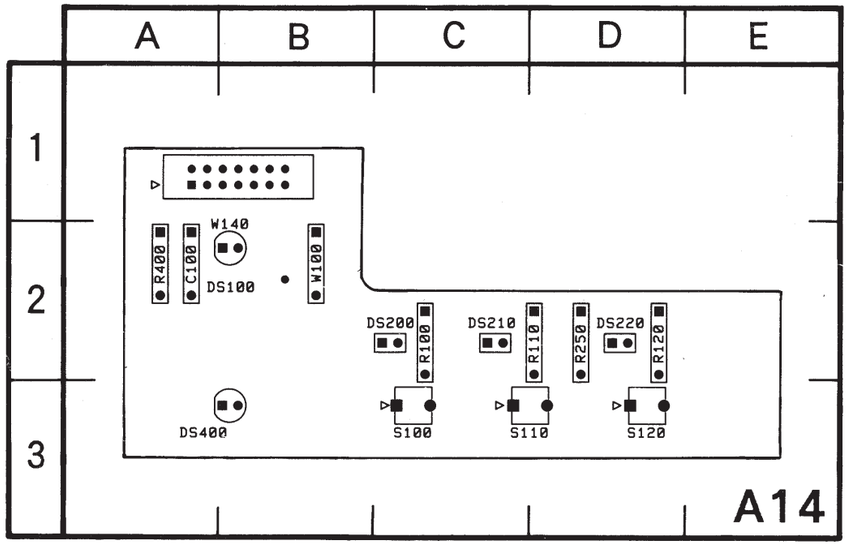


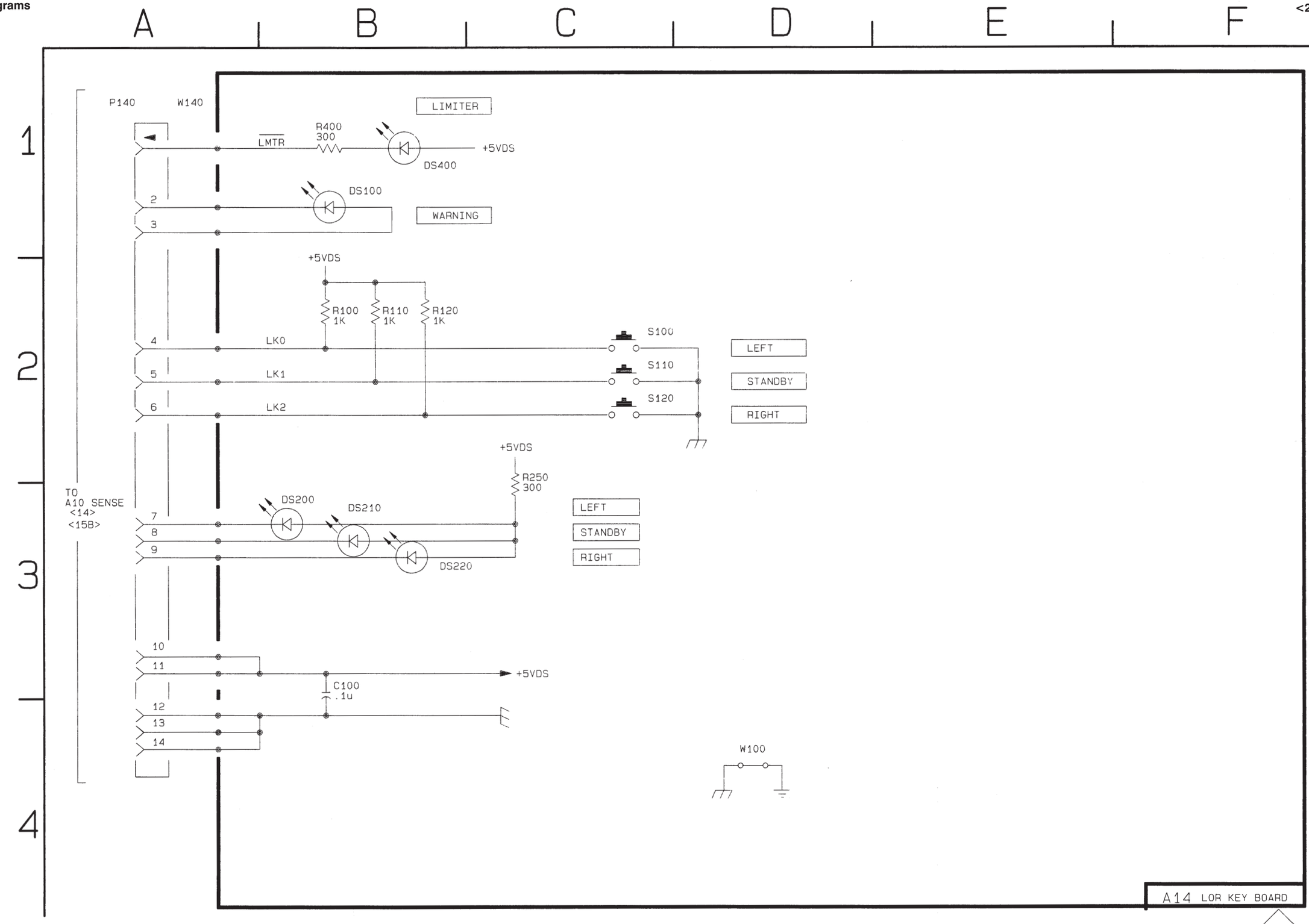
Figure 7-27. A14 — LOR Key circuit board assembly.

LOR KEY 24

ASSEMBLY A14

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	B3	A2	R100	B2	C2	S100	C2	C3
			R110	B2	D2	S110	C2	D3
DS100	B1	B2	R120	B2	D2	S120	C2	D3
DS200	B3	C2	R250	C2	D2			
DS210	B3	C2	R400	B1	A2	W100	D4	B2
DS220	B3	D2				W140	A1	B1
DS400	B1	B3						

Please cut out the aria below the lines.



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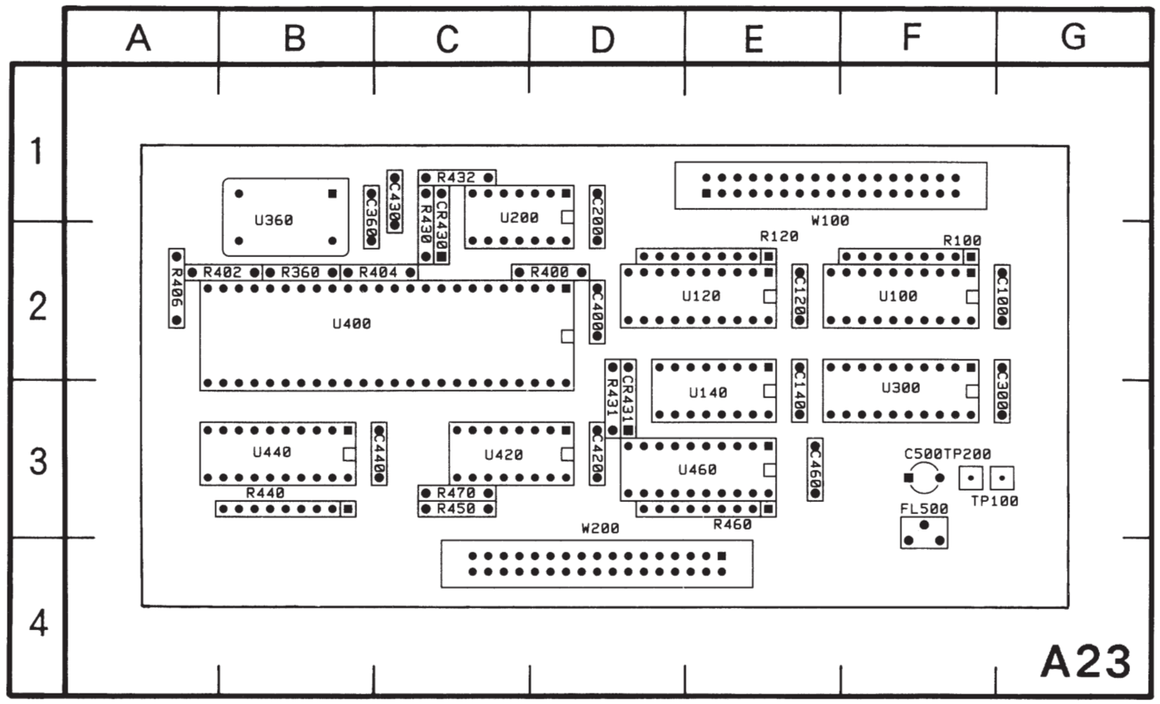

Figure 7-28. A33 — Floppy Disk Drive Interface circuit board assembly.

FDD INTERFACE 25

ASSEMBLY A23

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C100	B5	G2
C120	C5	E2
C140	B5	E3
C200	B5	D1
C300	C5	G3
C360	C5	B1
C400	B5	D2
C420	C5	D3
C430	D4	C1
C440	B5	C3
C460	C5	E3
C500	B5	F3
CR430	D4	C2
CR431	C4	D3
FL500	B5	F3
R100	B1	F2
R120	B3	E2
R360	D3	B2
R400	D1	D2
R402	D4	B2
R404	D3	C2
R406	D4	A2
R430	D4	C2
R431	C4	D3
R432	D4	C1
R440	F1	B3
R450	F2	C3
R460	F3	E3
R470	F2	C3
TP100	A5	F3
TP200	B5	F3
U100	B1	F2
U120	B3	E2
U140A	F5	E3
U140B	C3	E3
U200A	D3	C1
U200B	D4	C1
U200C	E5	C1
U200D	E5	C1
U200E	E5	C1
U200F	E5	C1
U300	D1	F3
U360	D3	B1
U400	E1	B2
U420	E2	C3
U440	F1	B3
U460	F3	E3
W100	A1	E1
W200	G1	D3

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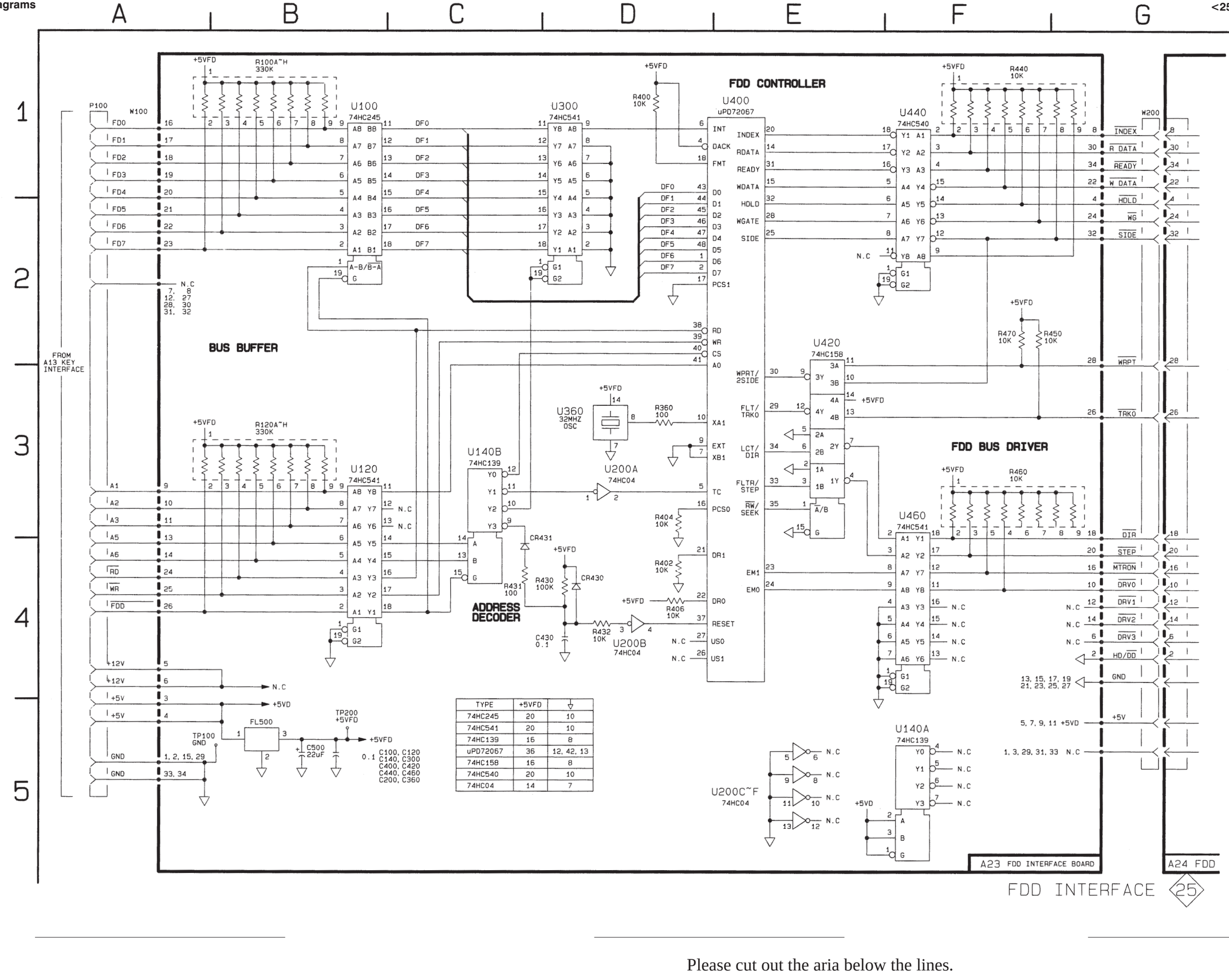

TYPE	+5VFD	⏚
74HC245	20	10
74HC541	20	10
74HC139	16	8
uPD72067	36	12, 42, 13
74HC158	16	8
74HC540	20	10
74HC04	14	7

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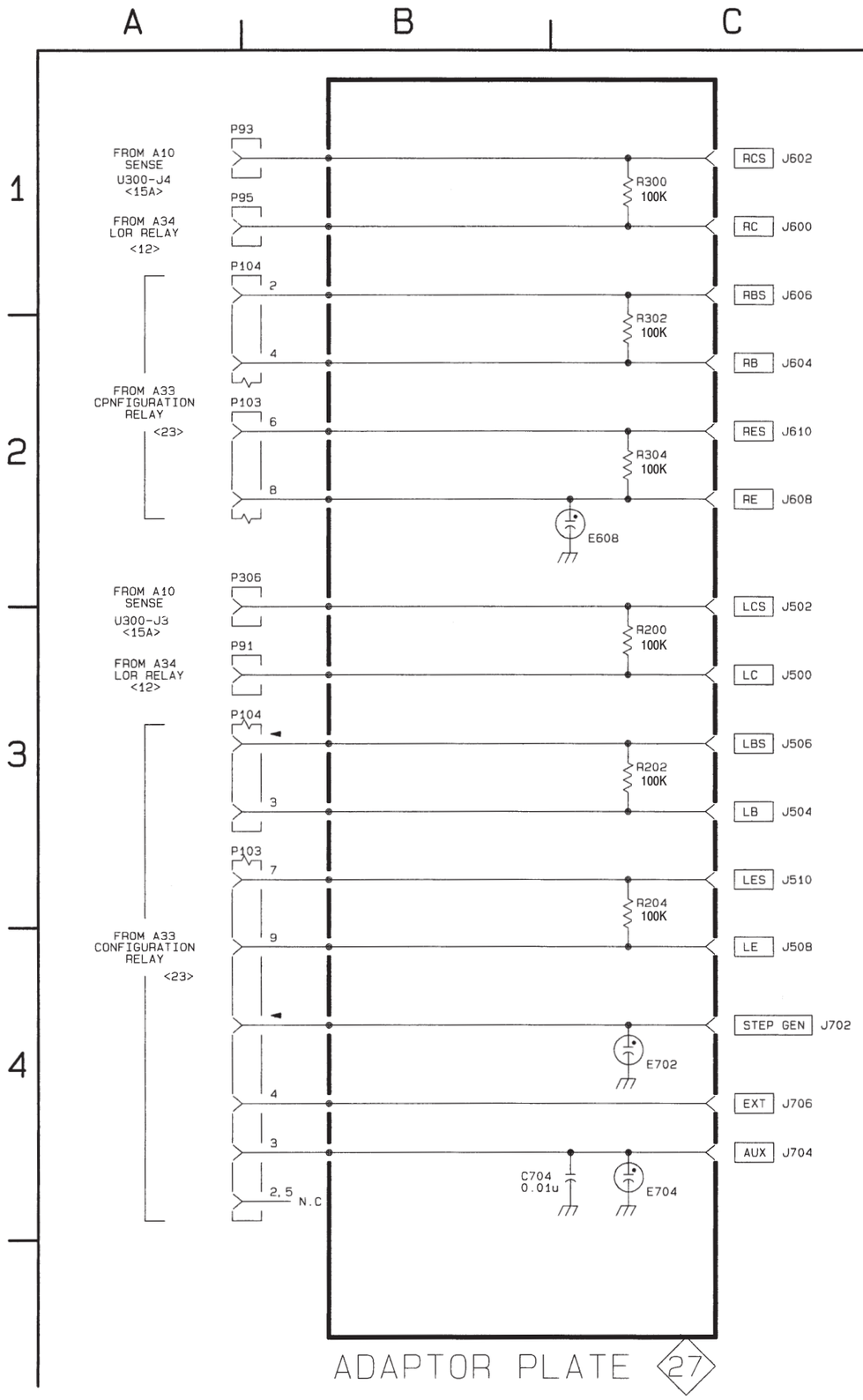
ADAPTOR PLATE 27

CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C704	C4	CHASSIS	J508	C4	CHASSIS	J706	C4	CHASSIS
			J510	C3	CHASSIS			
E608	C2	CHASSIS	J600	C1	CHASSIS	R200	C3	CHASSIS
E702	C4	CHASSIS	J602	C1	CHASSIS	R202	C3	CHASSIS
E704	C4	CHASSIS	J604	C2	CHASSIS	R204	C3	CHASSIS
			J606	C1	CHASSIS	R300	C1	CHASSIS
J500	C3	CHASSIS	J608	C2	CHASSIS	R302	C2	CHASSIS
J502	C2	CHASSIS	J610	C2	CHASSIS	R304	C2	CHASSIS
J504	C3	CHASSIS	J702	C4	CHASSIS			
J506	C3	CHASSIS	J704	C4	CHASSIS			



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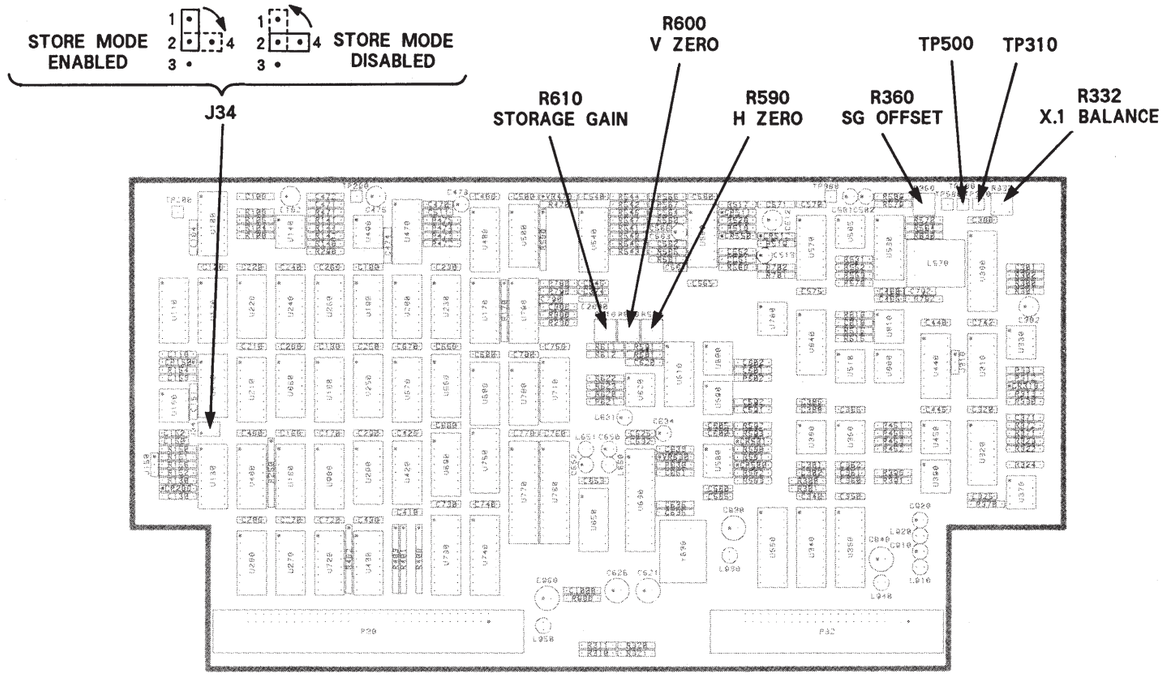
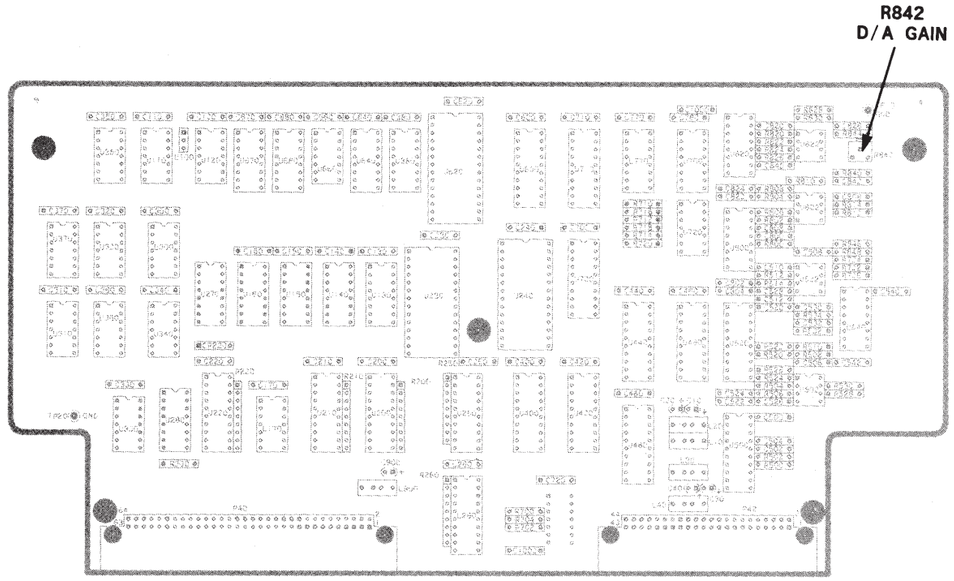
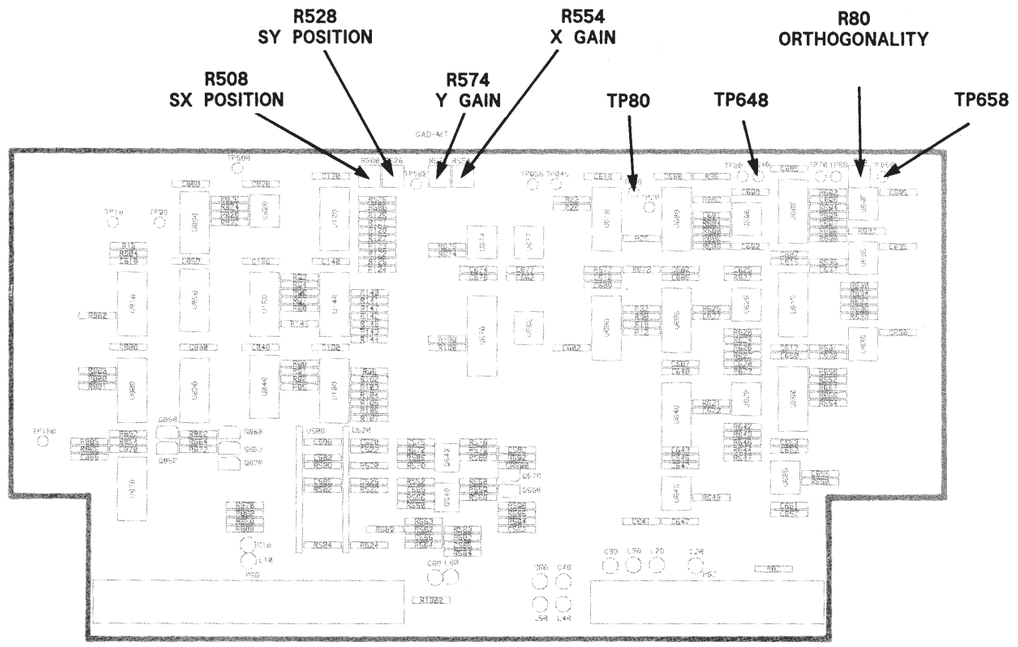


A3 A/D

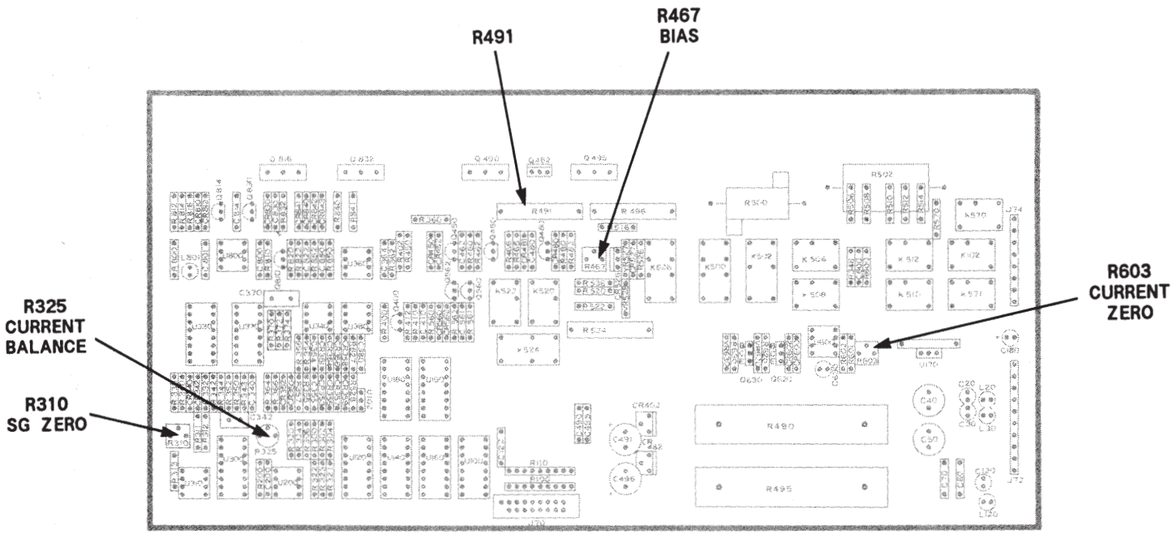


A4 DIGITAL DISPLAY

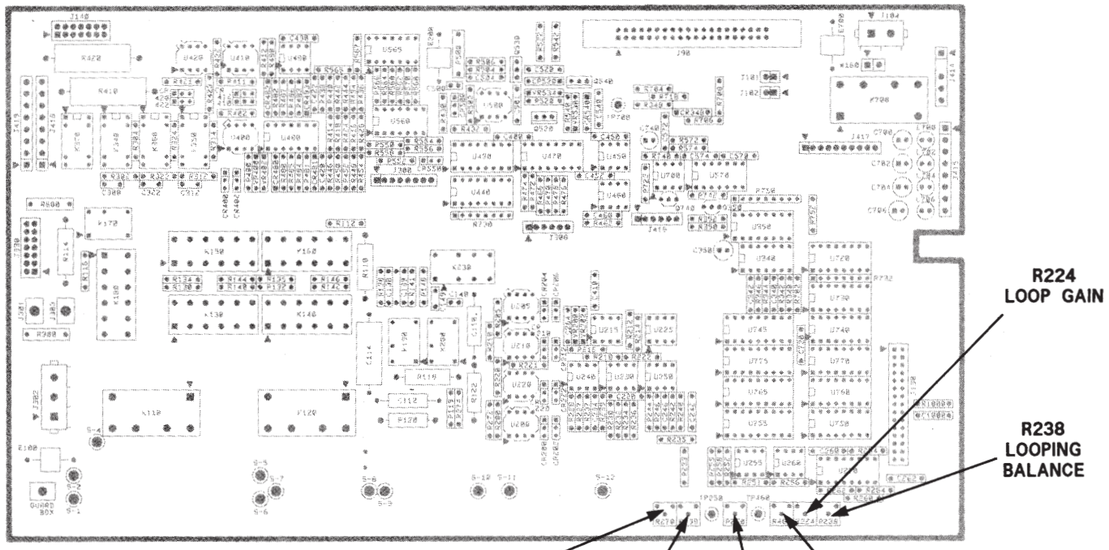


A5 DISPLAY CONTROL

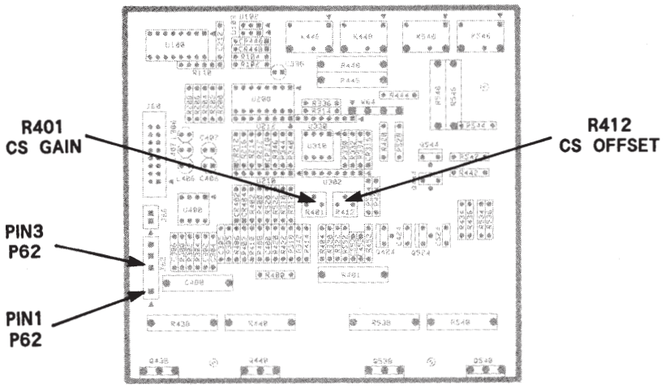
Please cut out the aria below the lines.



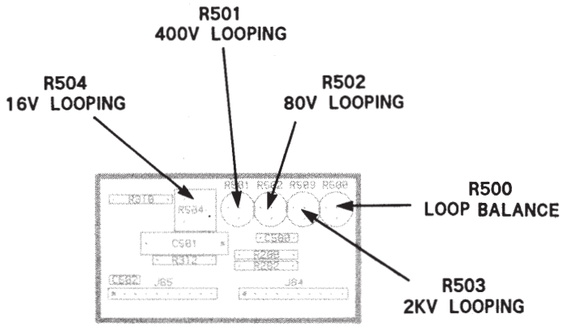
A7 STEP GENERATOR



A10 SENSE



A6 COLLECTOR SUPPLY



A35 LOOPING

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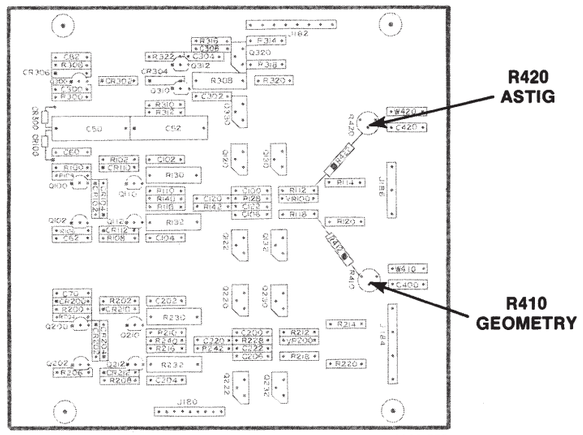
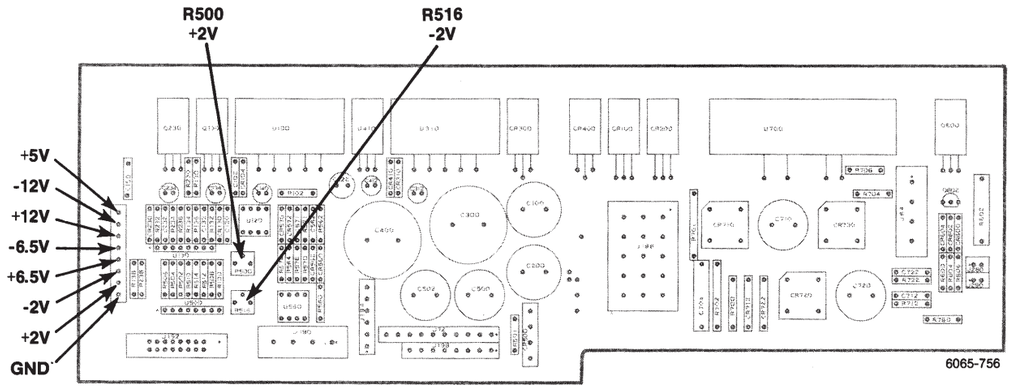


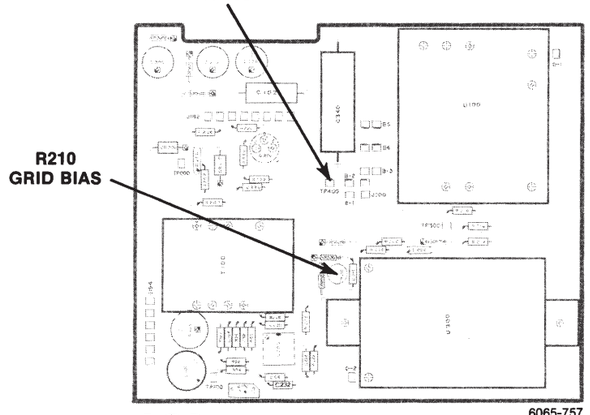
6065-755

A18 CRT OUTPUT



6065-756

A19 L.V. SUPPLY



6065-757

A20 H.V. REGULATOR

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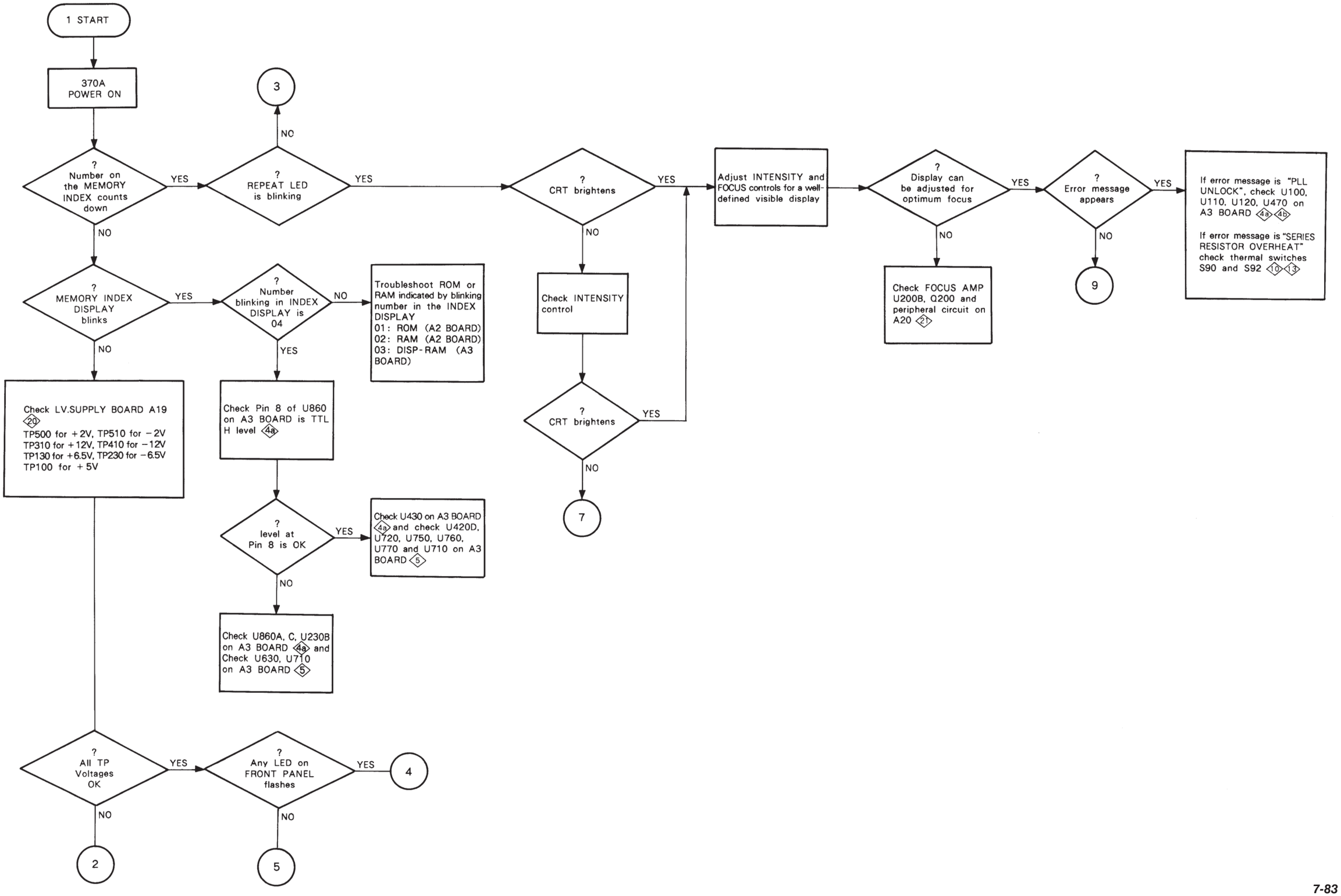

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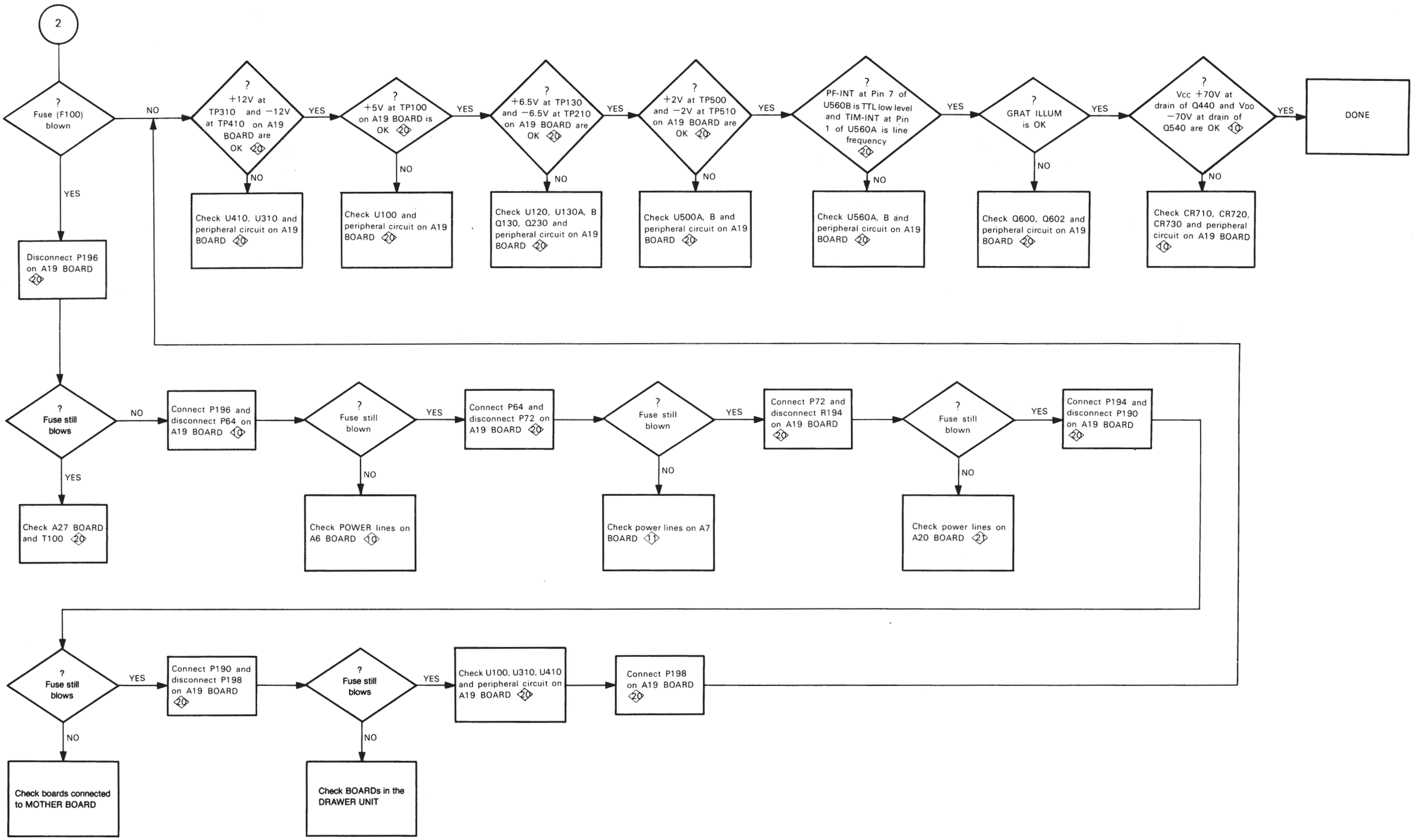

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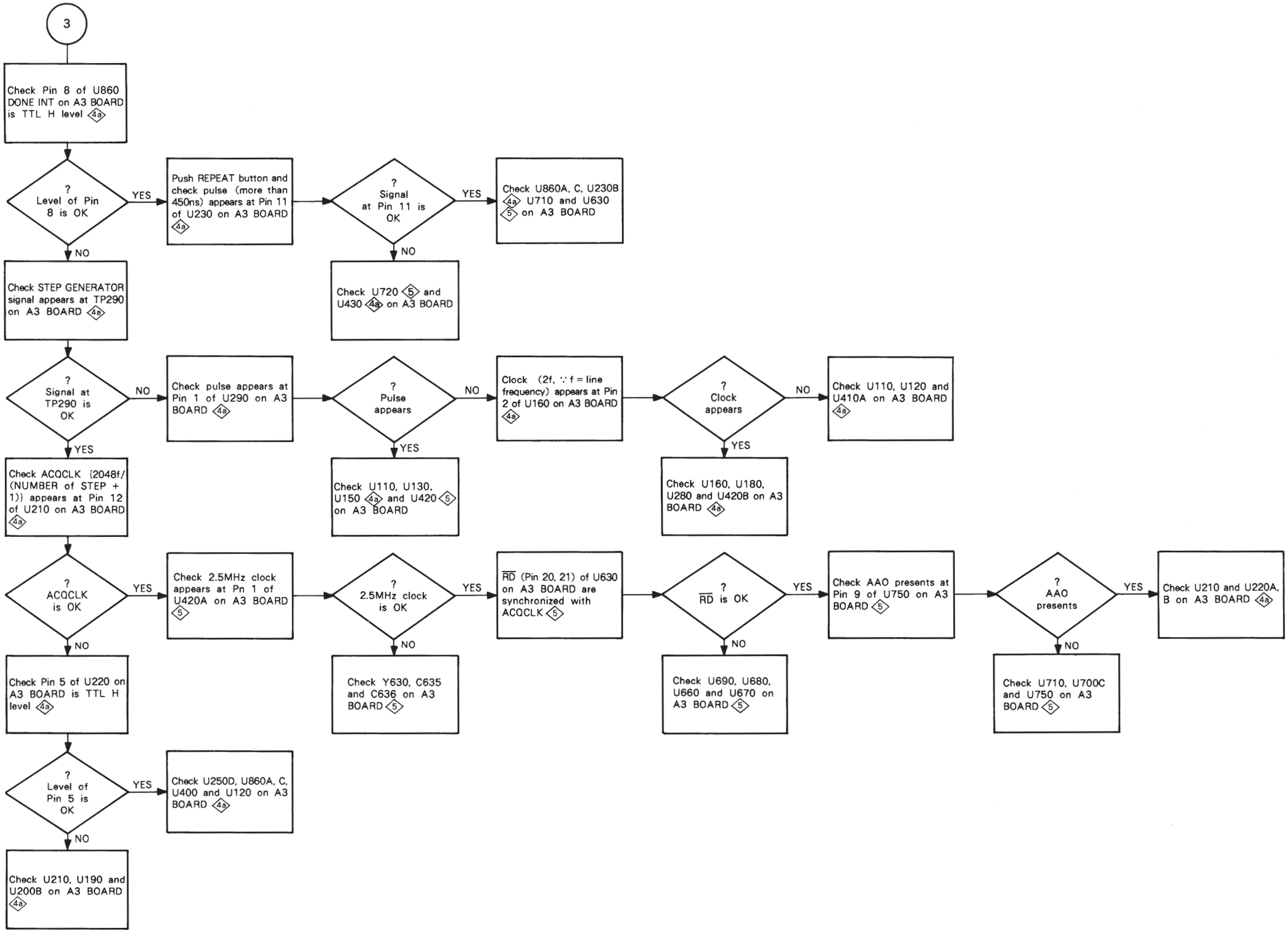

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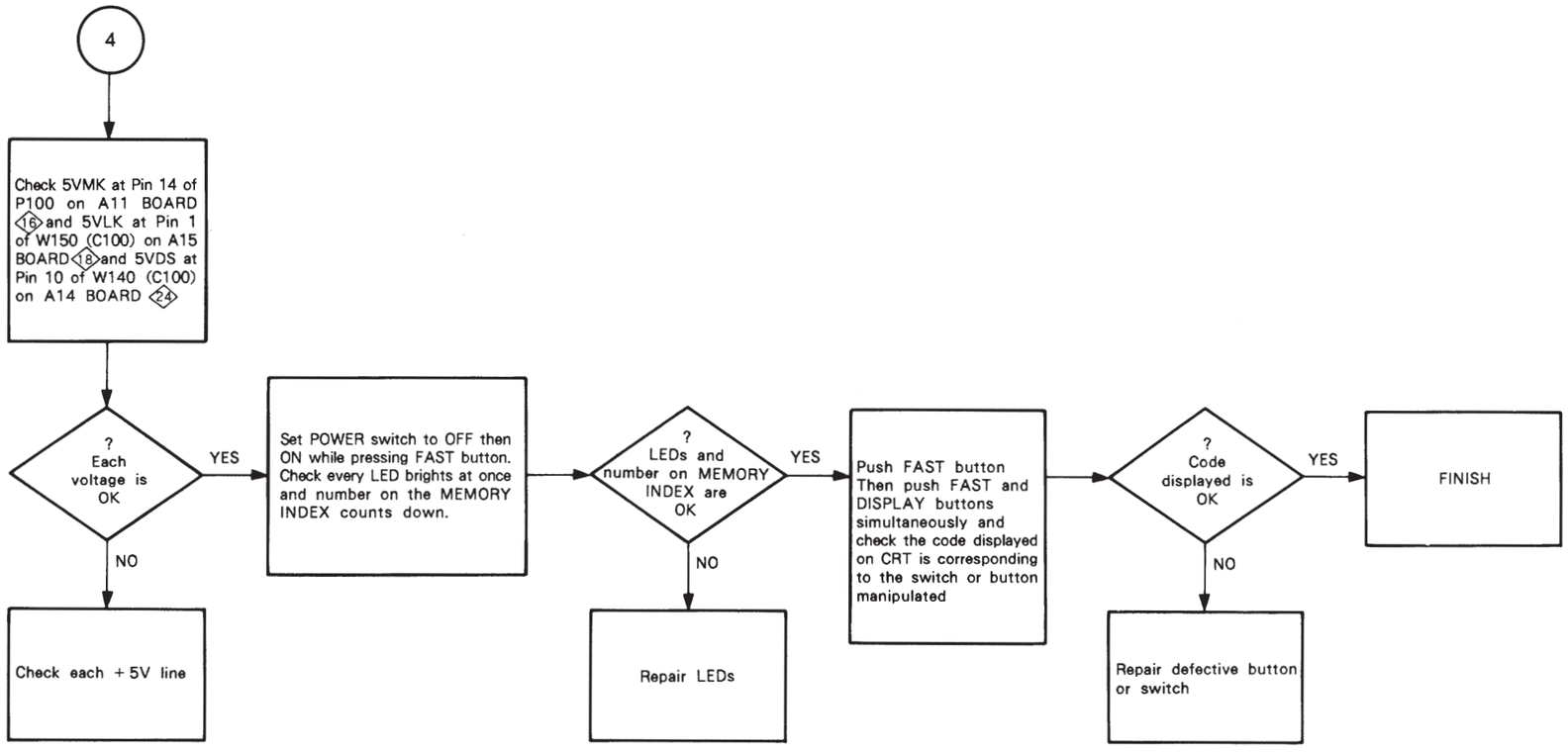

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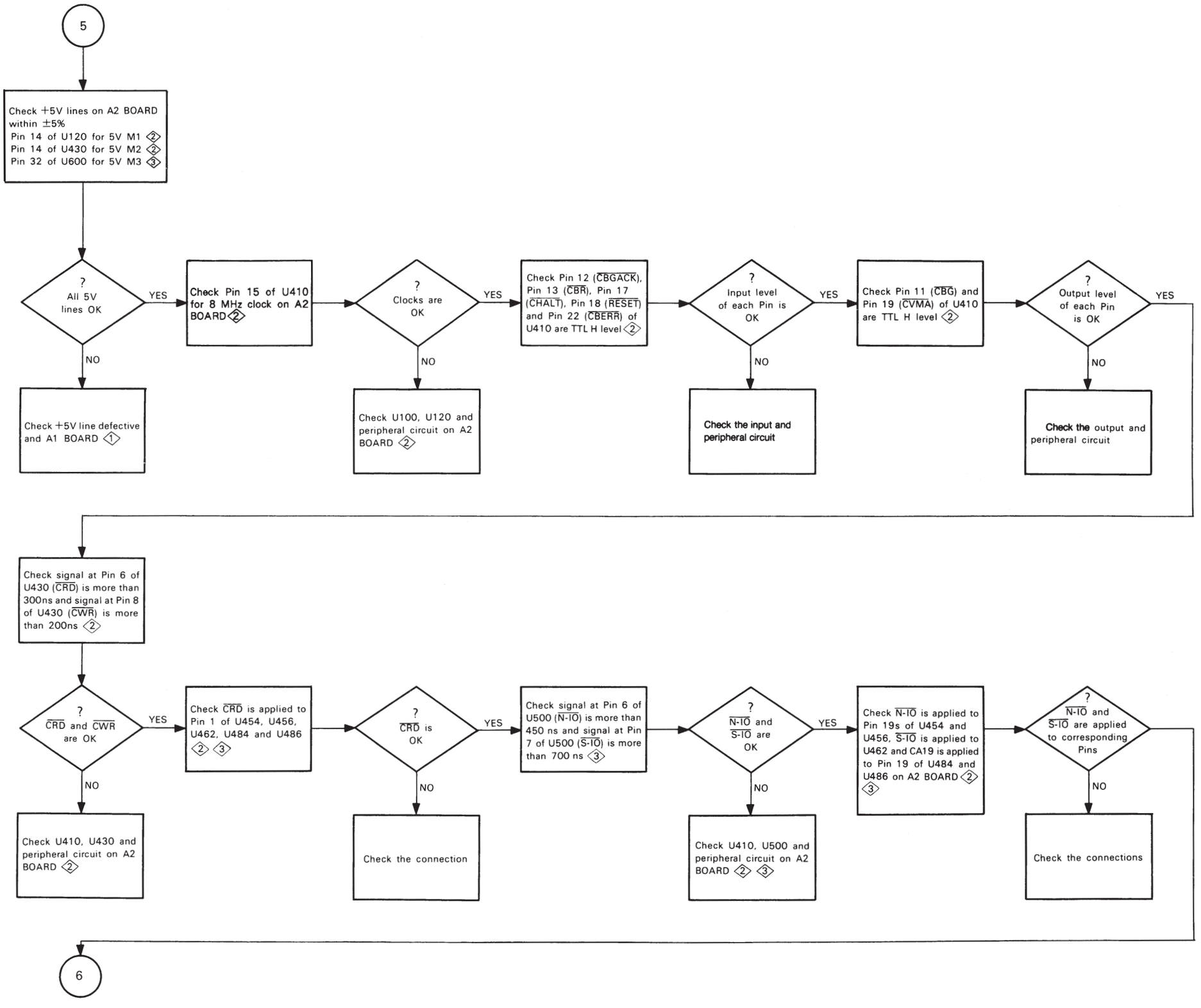

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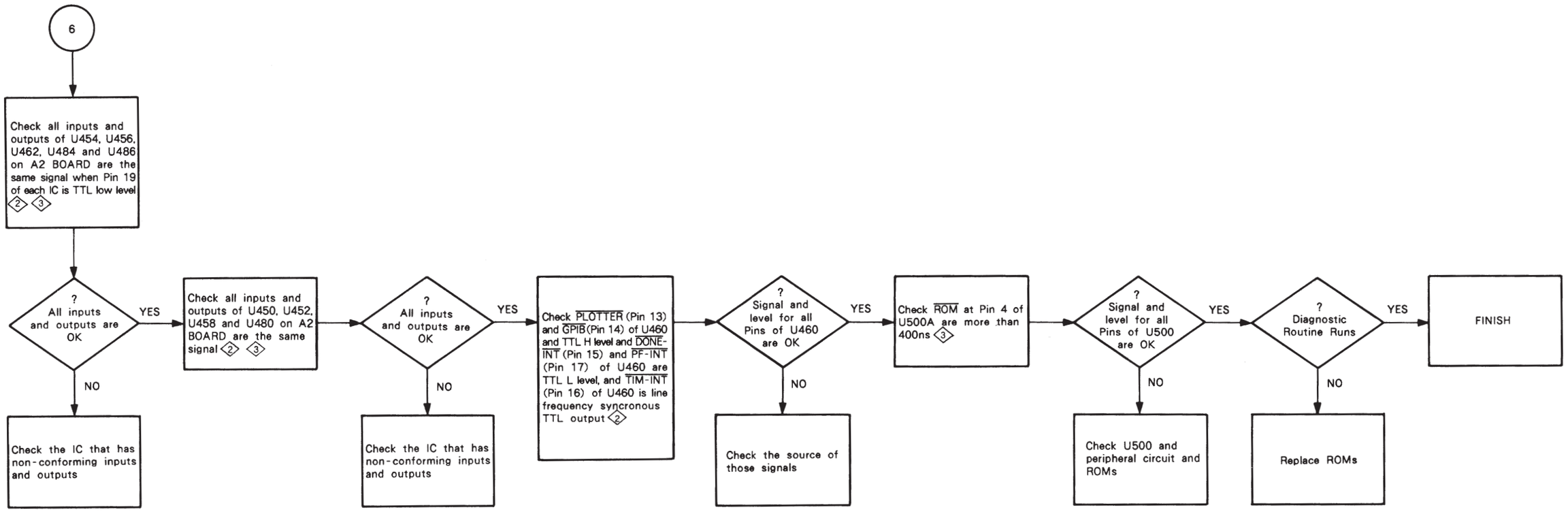

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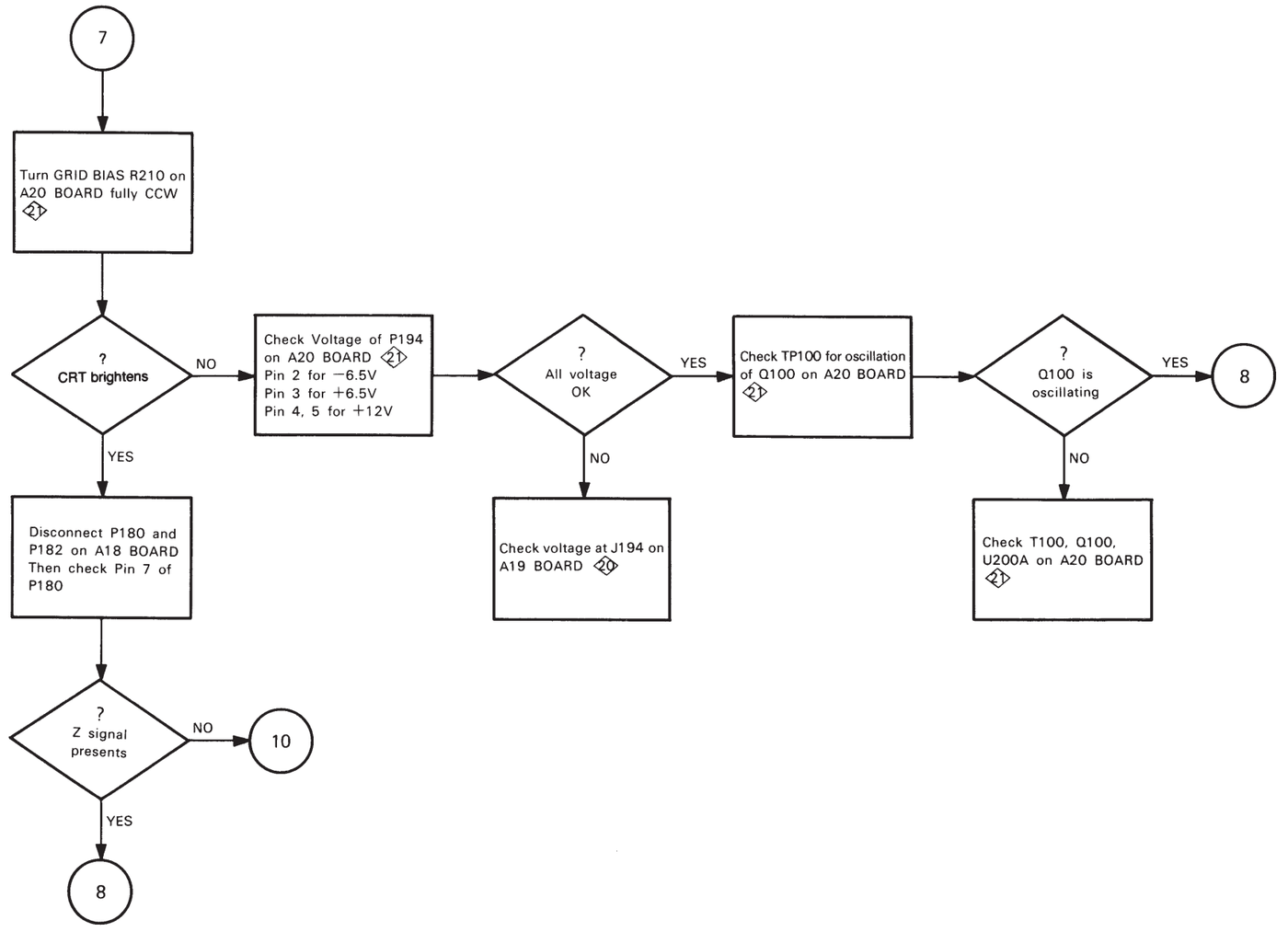

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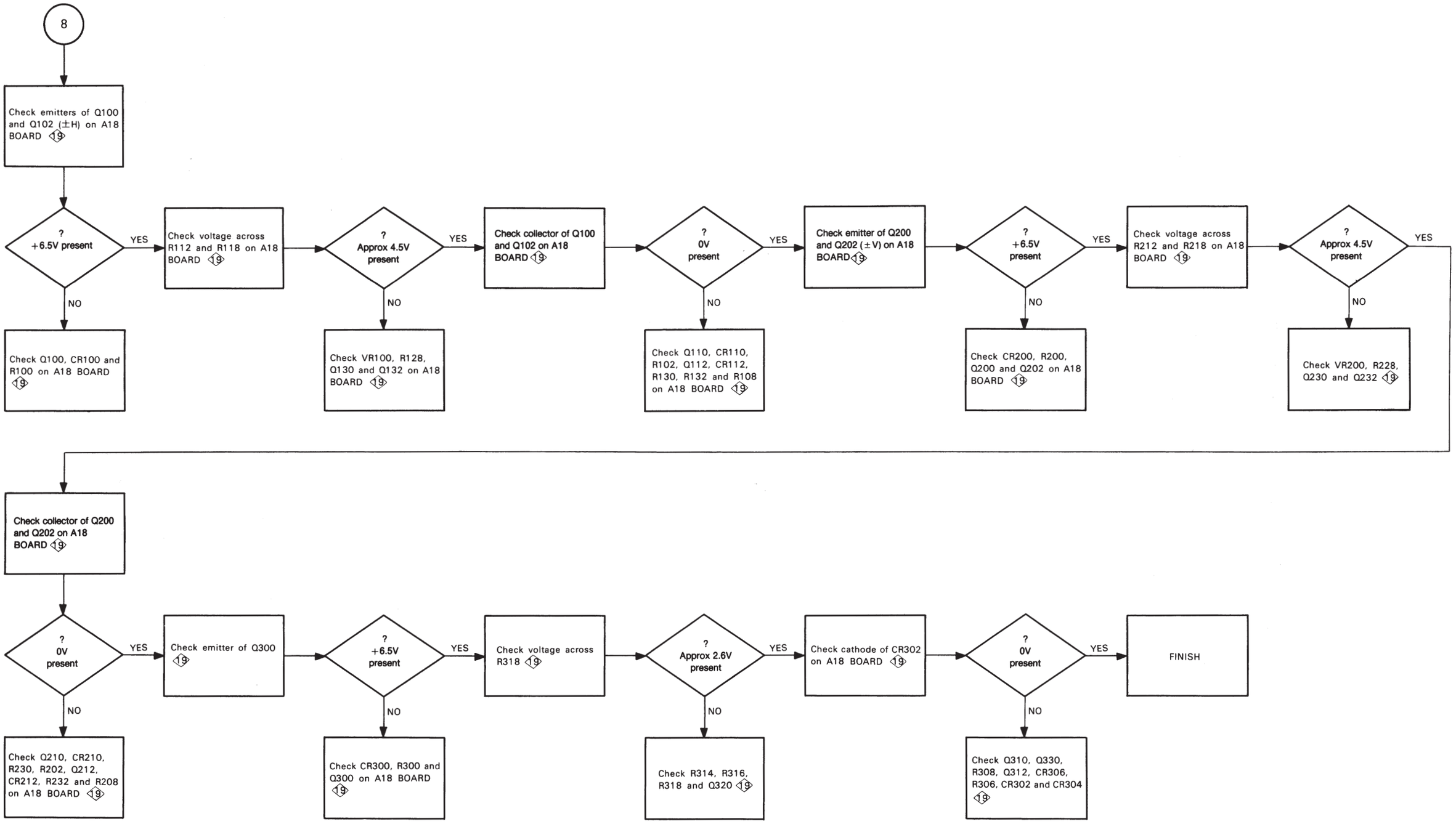

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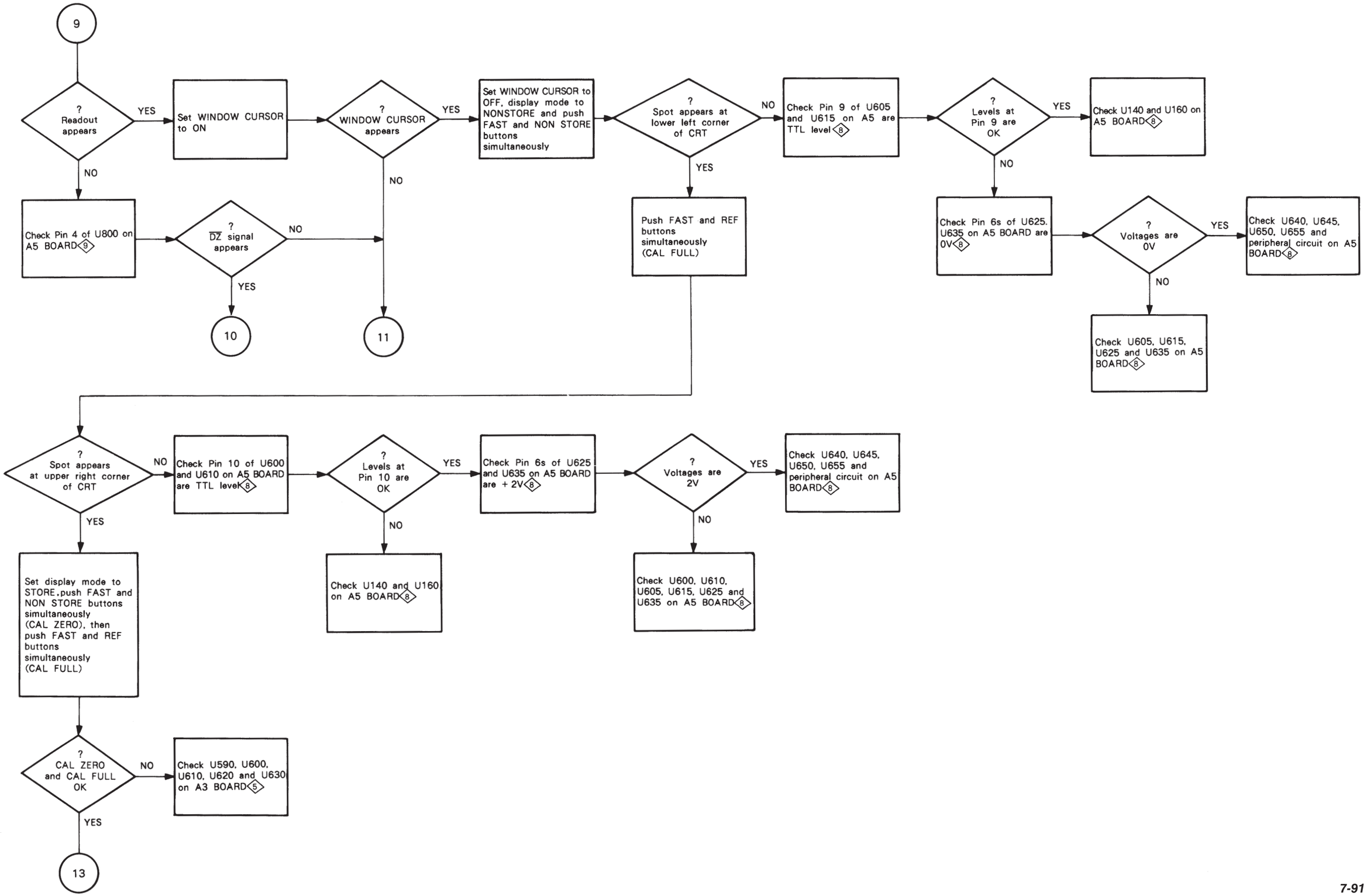

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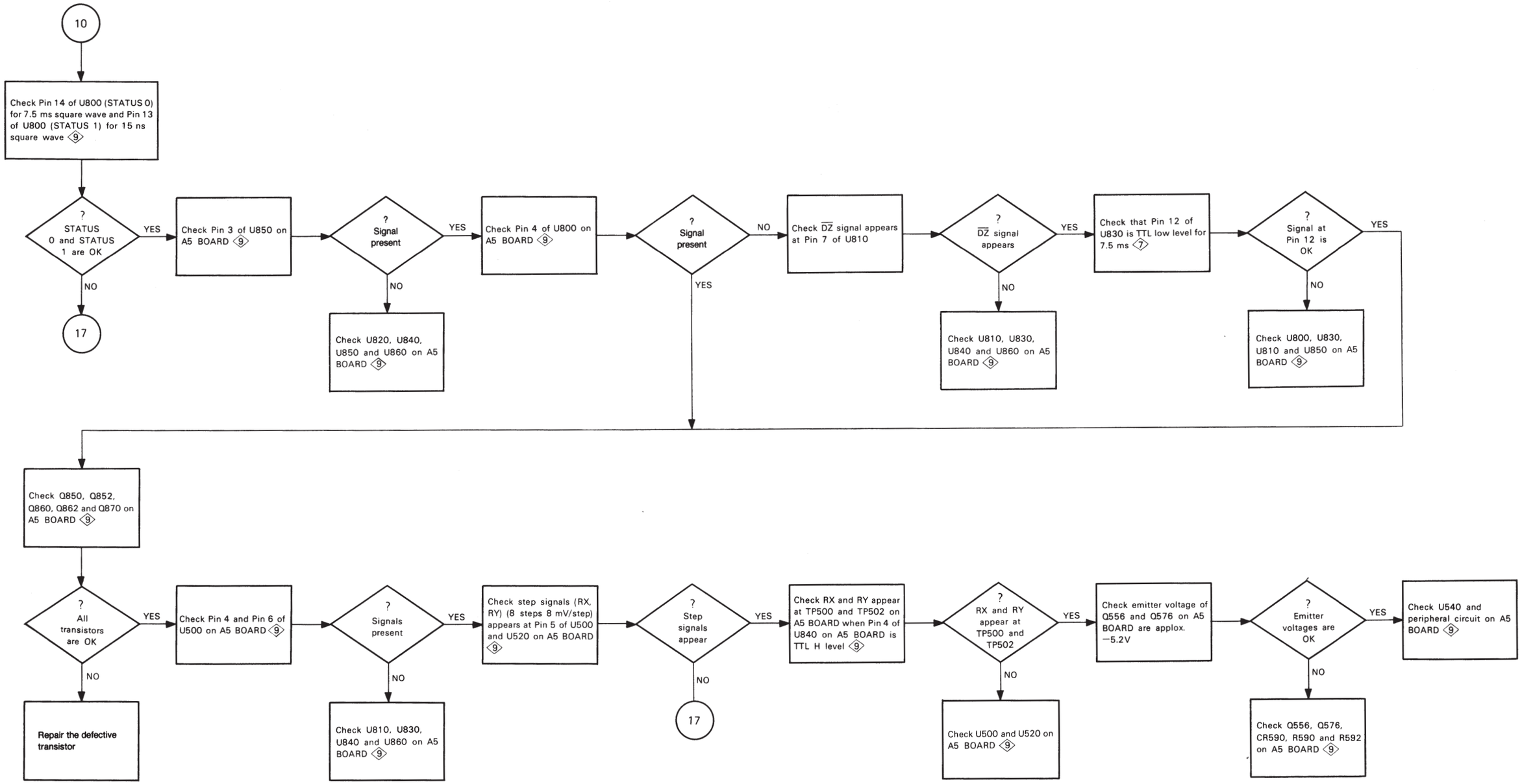

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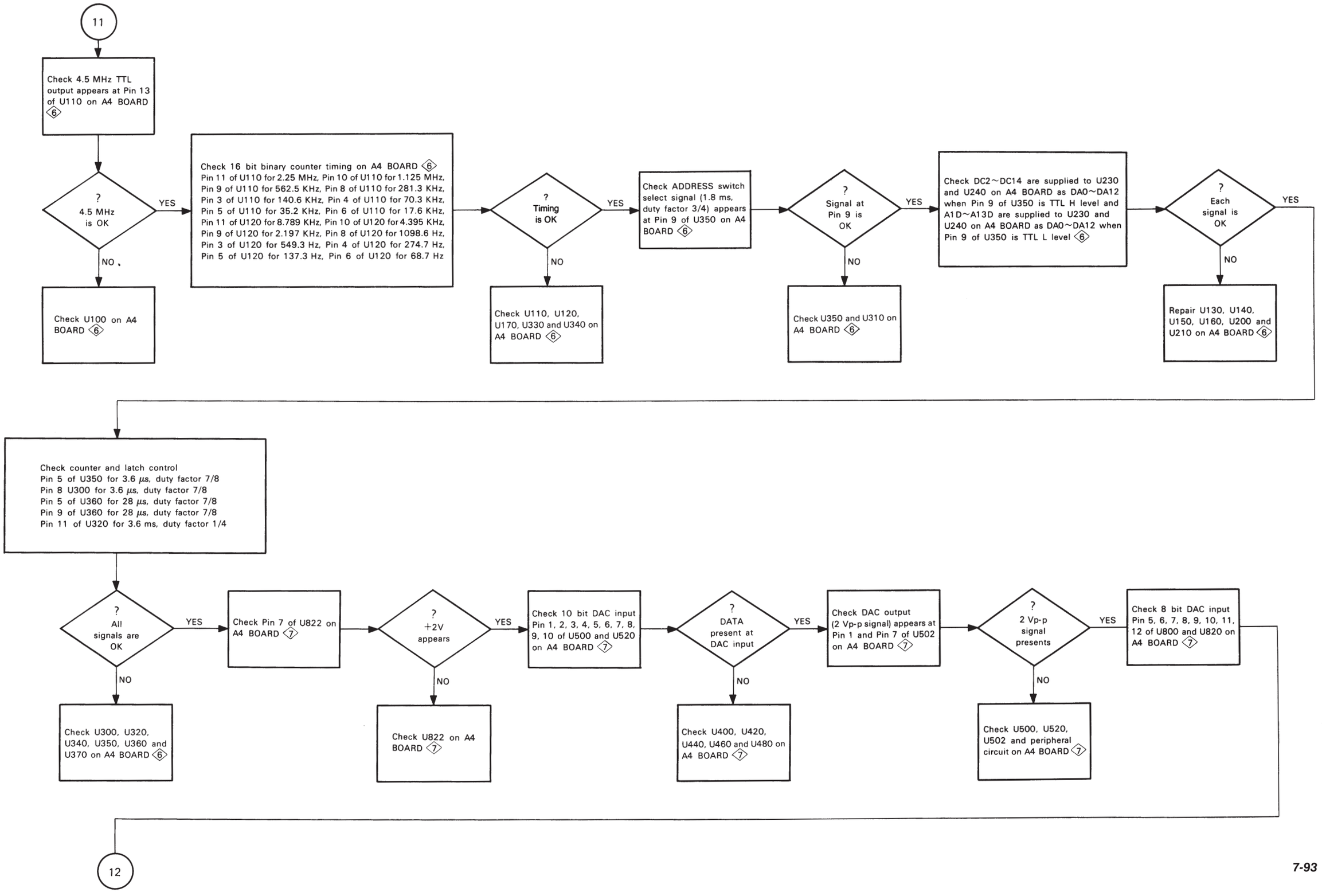

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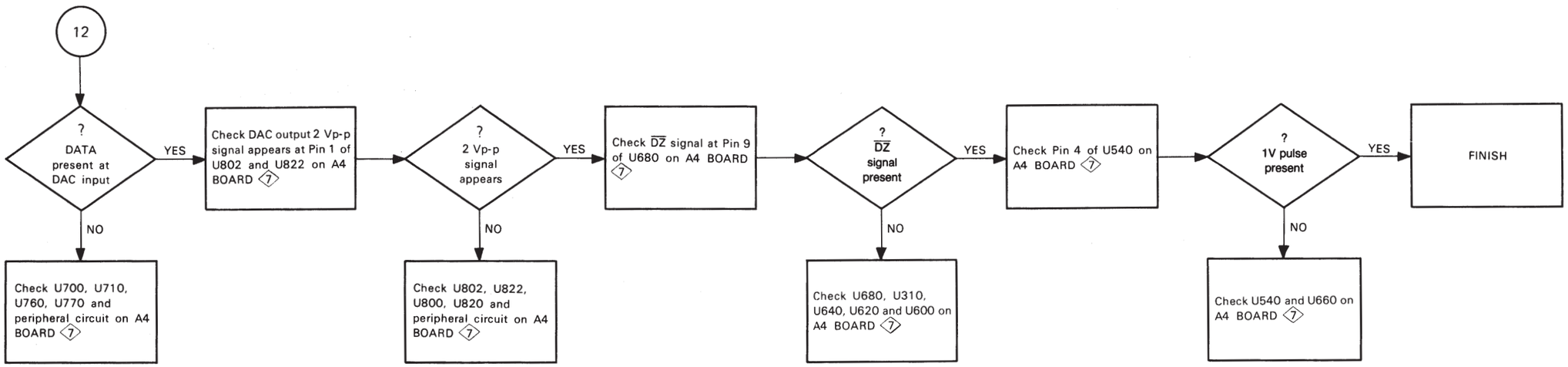
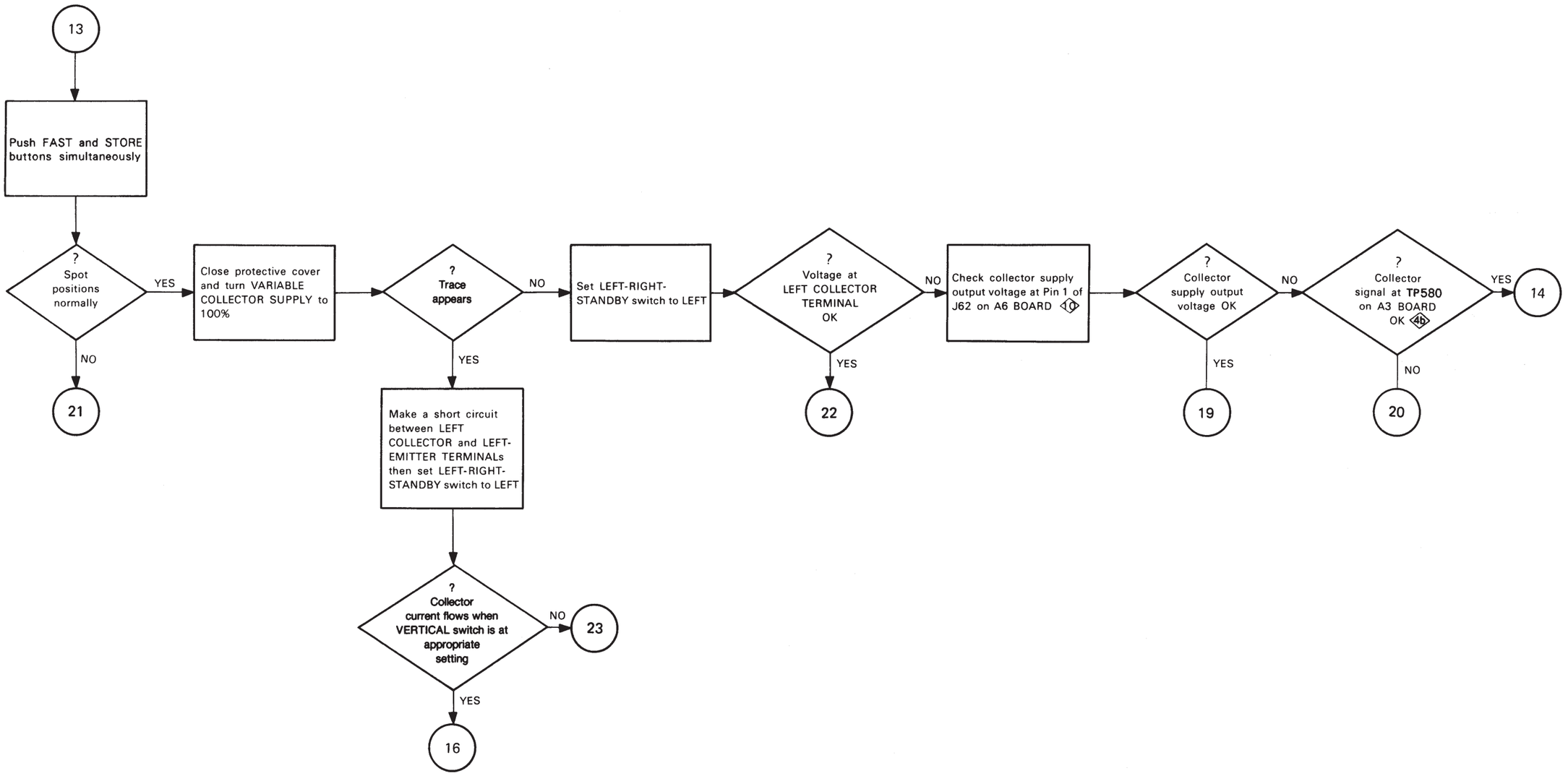
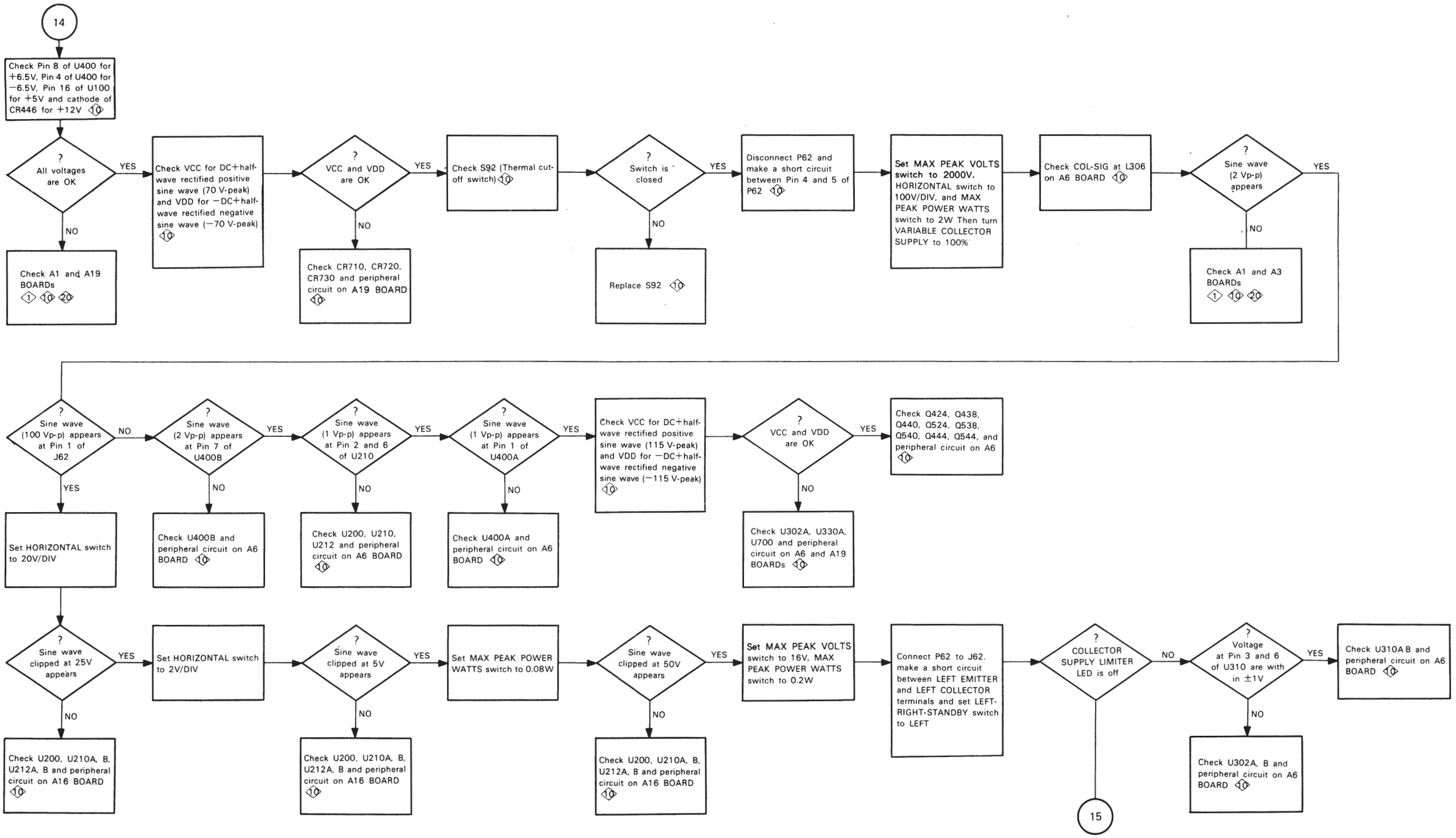


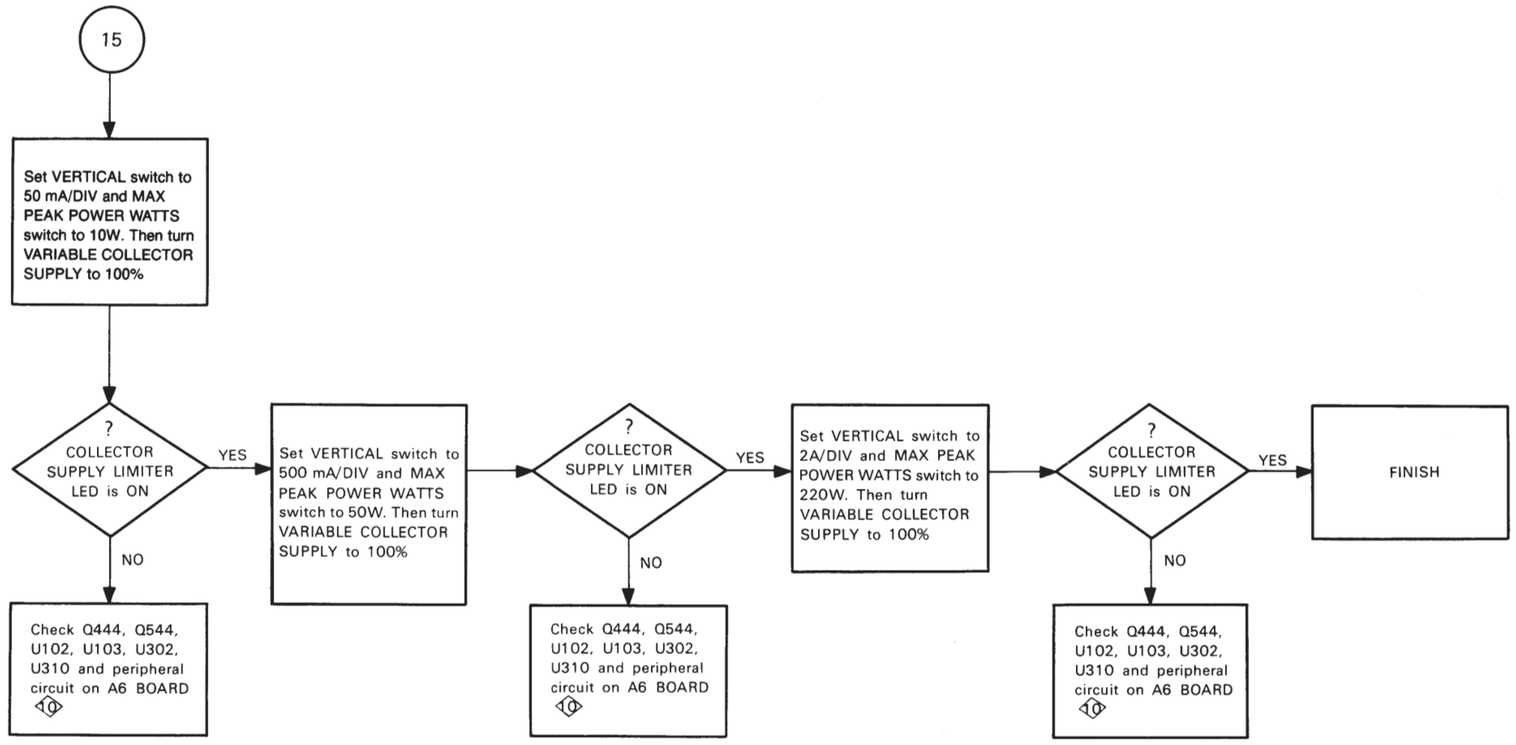
Please cut out the aria below the lines.



Please cut out the aria below the lines.



Please cut out the aria below the lines.



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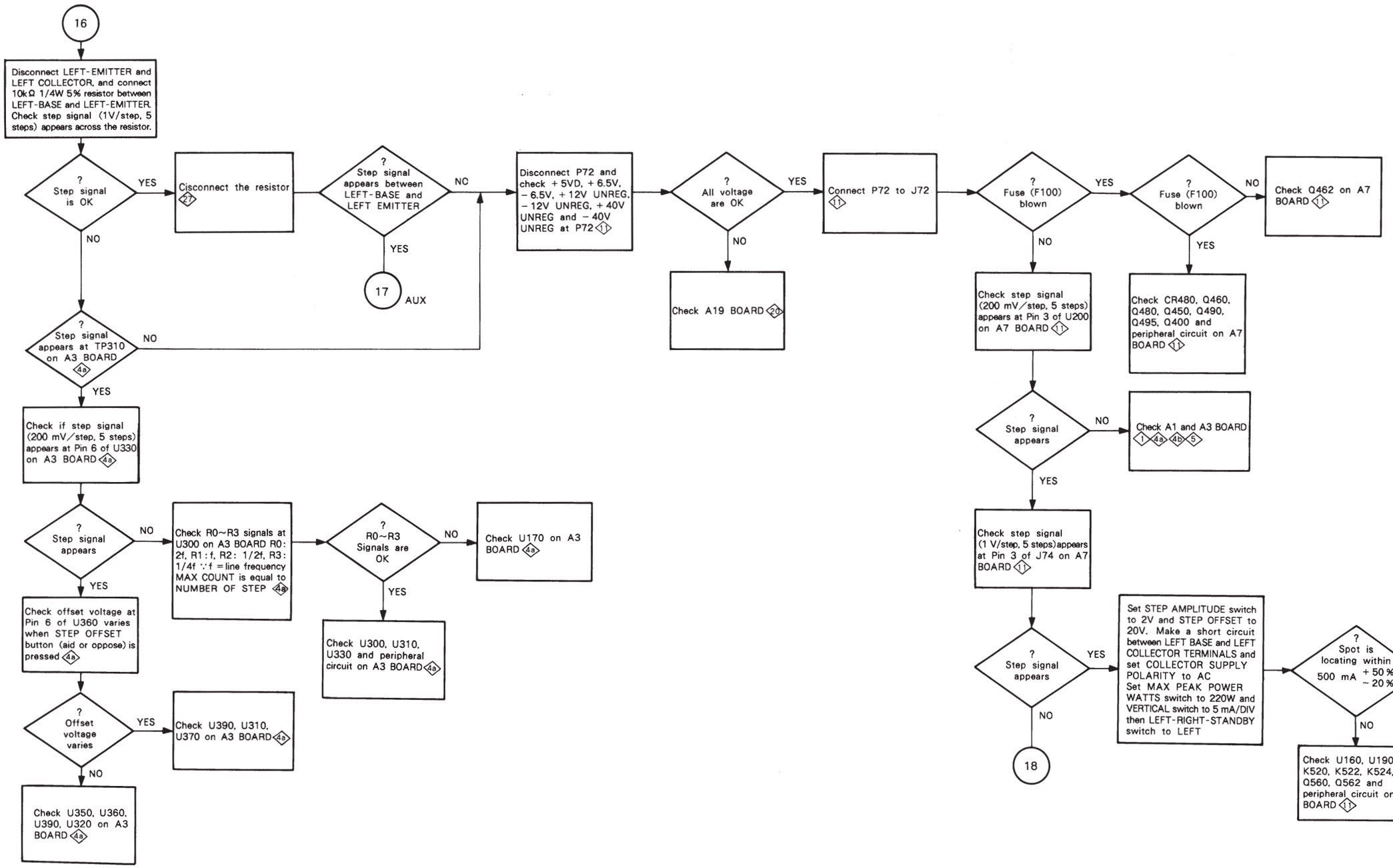
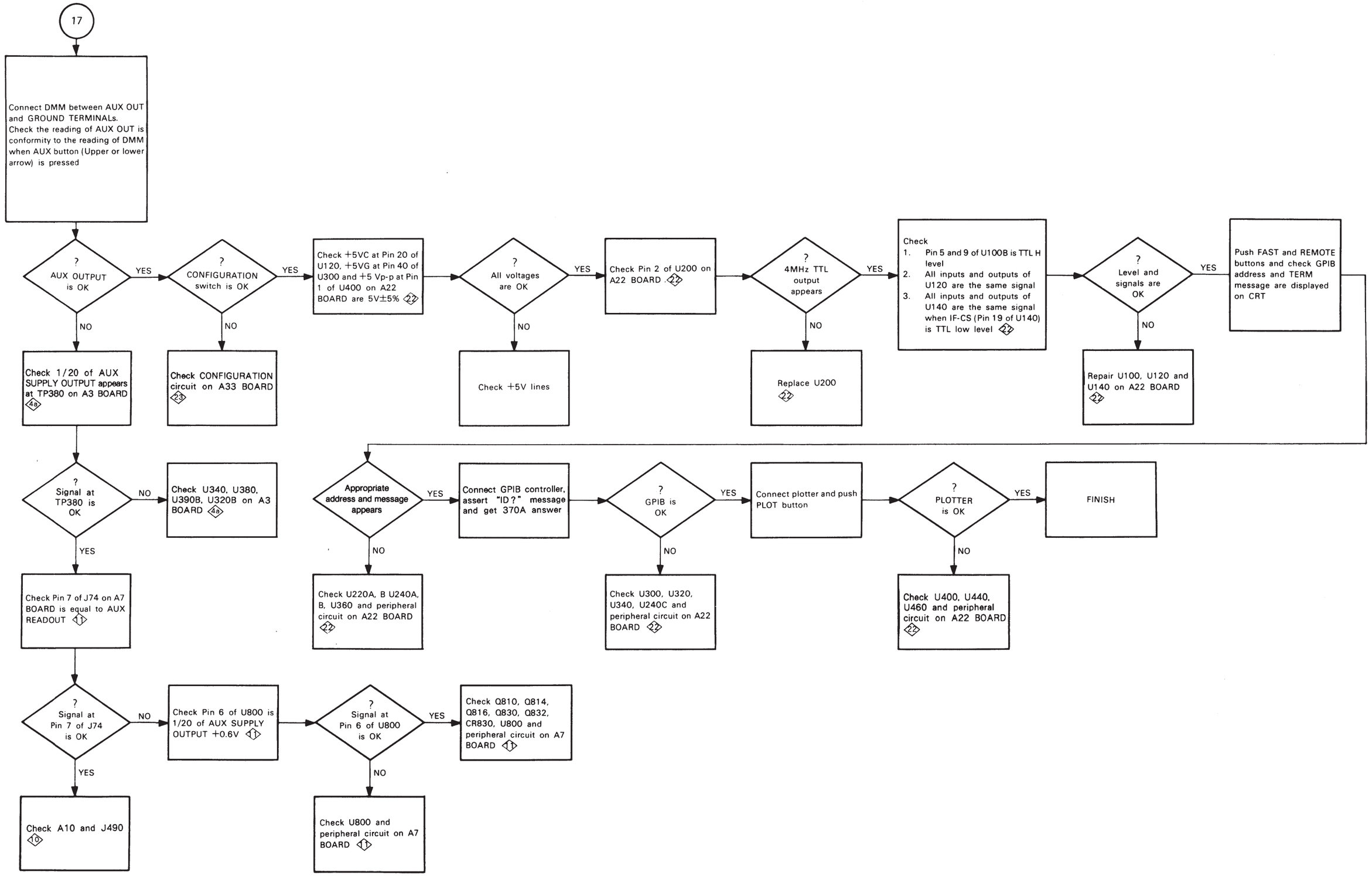


Please cut out the aria below the lines.



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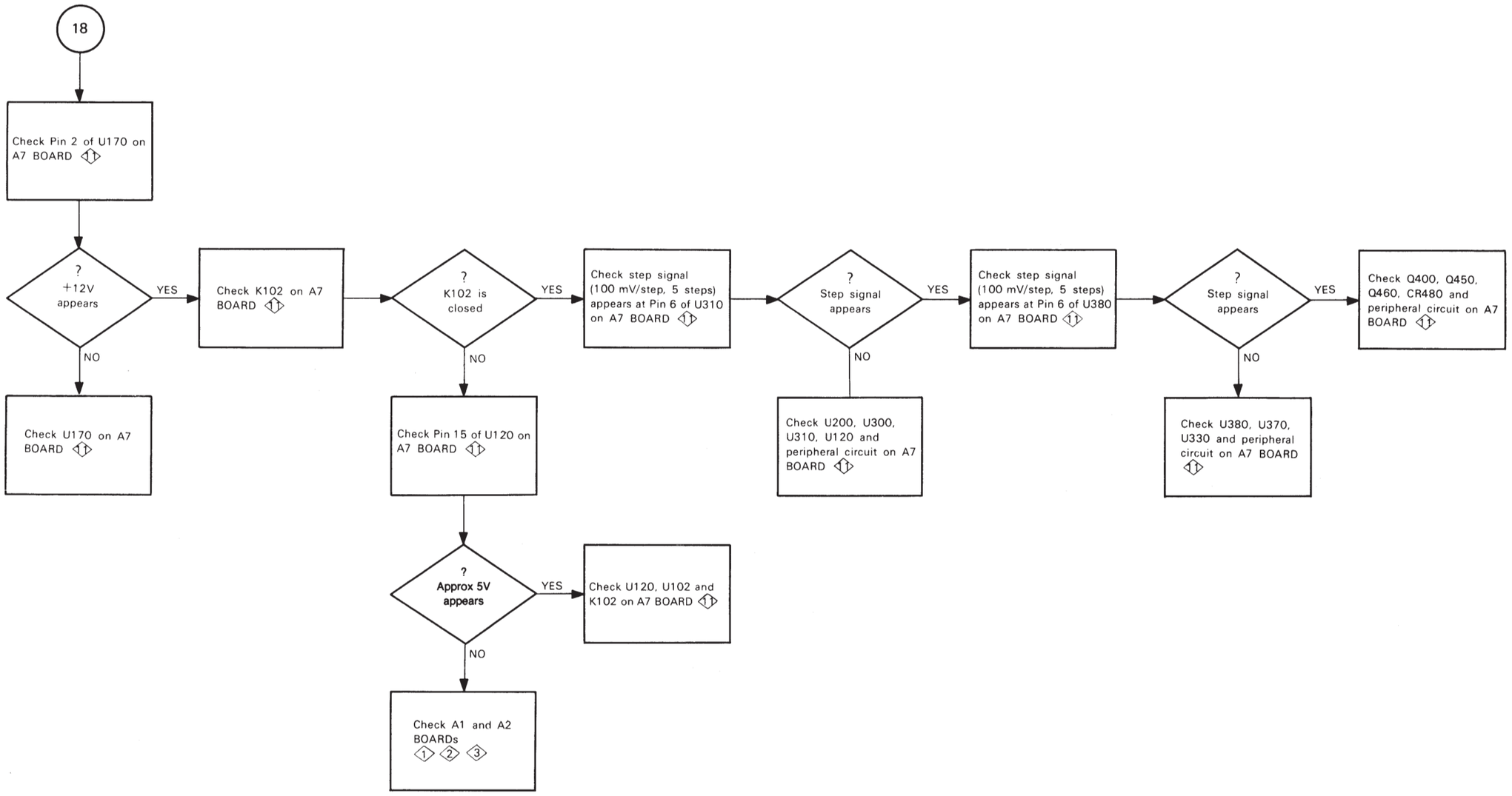

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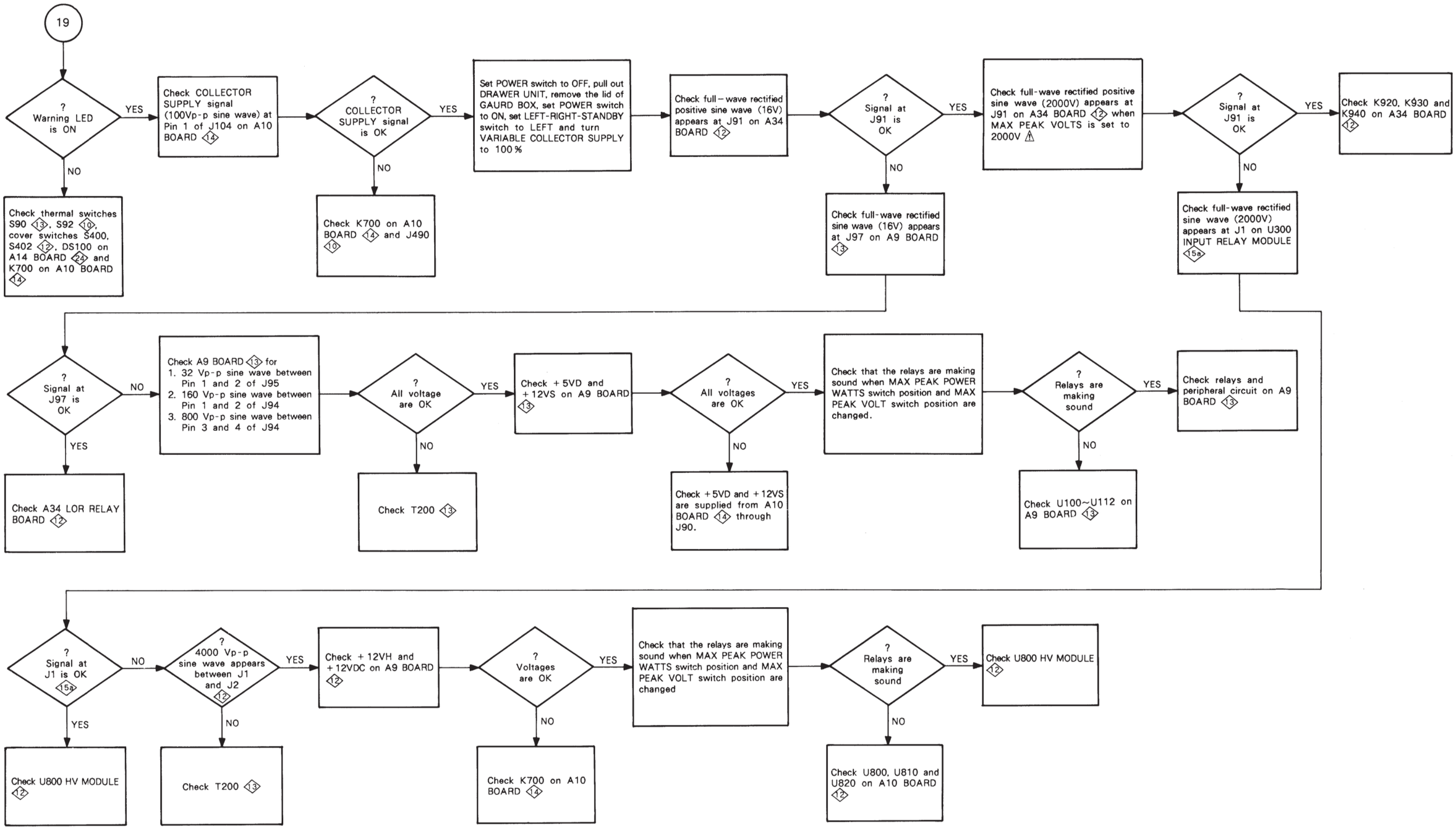

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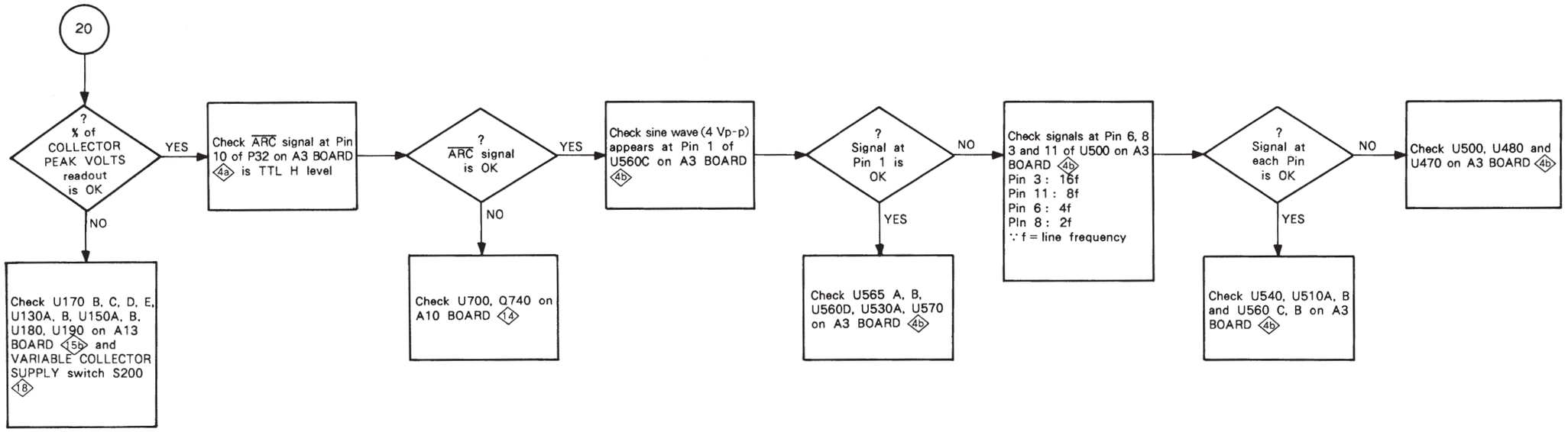

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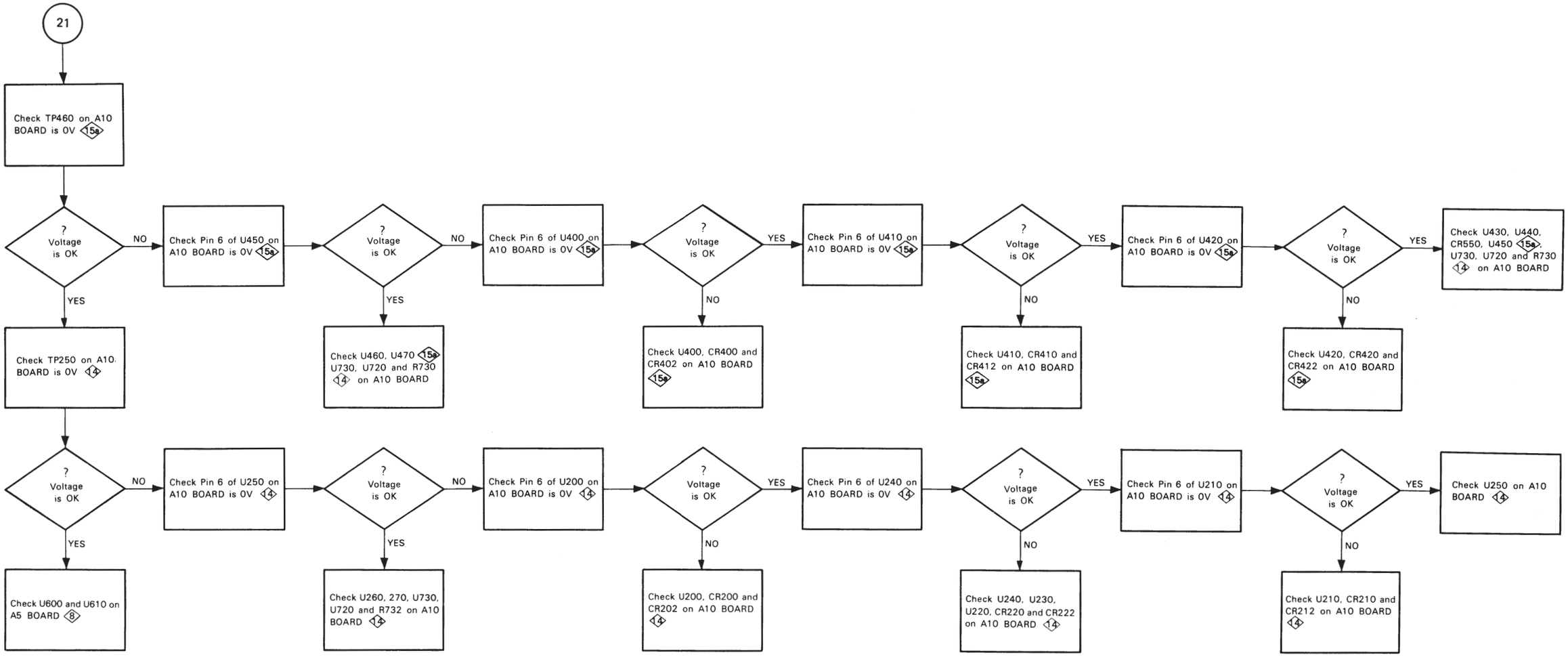

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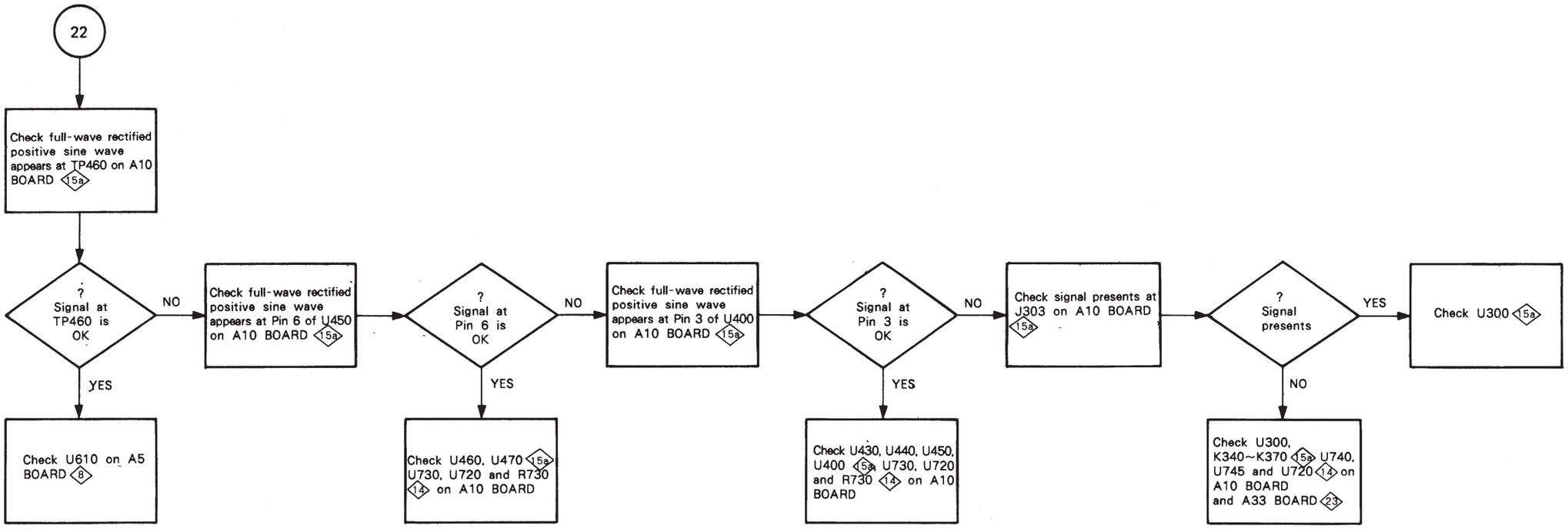

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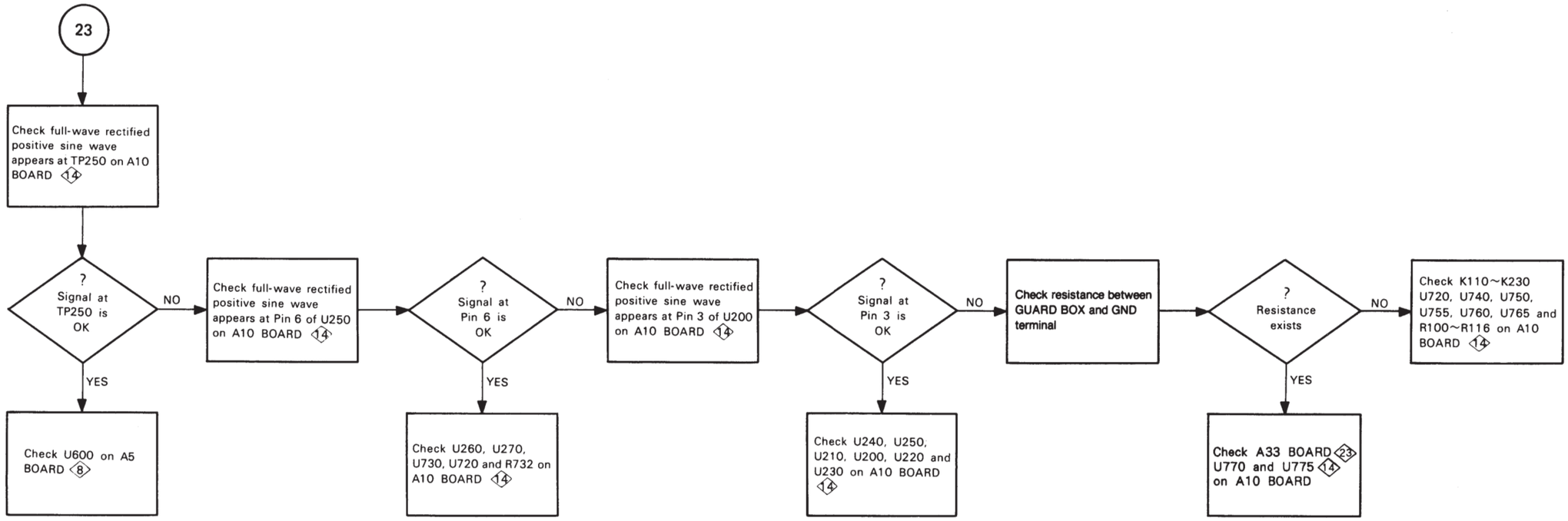

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Please cut out the aria below the lines.

Replaceable Mechanical Parts

Replaceable Mechanical Parts

This section contains a list of the replaceable mechanical components for the 370A. Use this list to identify and order replacement parts.

Parts Ordering Information

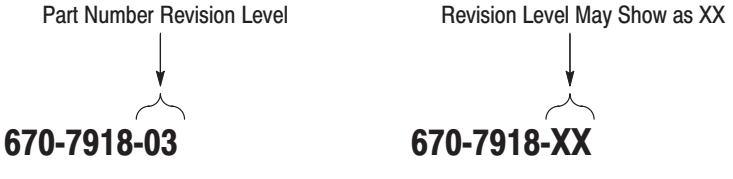
Replacement parts are available through your local Tektronix field office or representative.
Changes to Tektronix products are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest improvements. Therefore, when ordering parts, it is important to include the following information in your order.

- Part number (see Part Number Revision Level below)
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

If you order a part that has been replaced with a different or improved part, your local Tektronix 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.

Part Number Revision Level

Tektronix part numbers contain two digits that show the revision level of the part. For most parts in this manual, you will find the letters XX in place of the revision level number.



When you order parts, Tektronix will provide you with the most current part for your product type, serial number, and modification (if applicable). At the time of your order, Tektronix will determine the part number revision level needed for your product, based on the information you provide.

Using the Replaceable Mechanical Parts List

The tabular information in the Replaceable Mechanical Parts List is arranged for quick retrieval. Understanding the structure and features of the list will help you find all of the information you need for ordering replacement parts. The following table describes the content of each column in the parts list.

Parts List Column Descriptions

Column	Column Name	Description
1	Figure & Index Number	Items in this section are referenced by figure and index numbers to the exploded view illustrations that follow.
2	Tektronix Part Number	Use this part number when ordering replacement parts from Tektronix.
3 and 4	Serial Number	Column three indicates the serial number at which the part was first effective. Column four indicates the serial number at which the part was discontinued. No entries indicates the part is good for all serial numbers.
5	Qty	This indicates the quantity of parts used.
6	Name & Description	An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.
7	Mfr. Code	This indicates the code of the actual manufacturer of the part.
8	Mfr. Part Number	This indicates the actual manufacturer's or vendor's part number.

Abbreviations

Abbreviations conform to American National Standard ANSI Y1.1–1972.

Chassis Parts

Chassis-mounted parts and cable assemblies are located at the end of the Replaceable Electrical Parts List.

Mfr. Code to Manufacturer Cross Index

The table titled Manufacturers Cross Index shows codes, names, and addresses of manufacturers or vendors of components listed in the parts list.

CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
S3109	FELLER	72 VERONICA AVE UNIT 4	SUMMERSET NJ 08873
TK0AR	KITAGAWA IND CO LTD	2–4–26 MUROMACHI NIHONBASHI CHUO–KU	TOKYO JAPAN
TK0AU	CHIYODA DENSHI CO LTD	2–5–12 MITA MEGURO–KU	TOKYO JAPAN
TK0BI	ACOUS IND CO LTD	2–6 TA–CO KANDA CHIYODA–KU	TOKYO JAPAN
TK0BK	SHOWA KOSAN CO LTD	2–947 IKEBUKURO TOSHIMA–KU	TOKYO JAPAN
TK0BV	KYODO LIGHT METAL CO LTD	2–5–3 NIHONBASHI CHUO–KU	TOKYO JAPAN
TK0CB	T K Y MFG CO LTD	2–18–8 MASUGATA TAMA–KU KAWASAKI–CITY	KANAGAWA JAPAN
TK0CF	YASUDA MFG CO LTD	81–1 OKESHITA NISHIMAKADO NUMAZU–CITY	SHIZUOKA JAPAN
TK0FB	NIHON BURNDY	3–26–33 TAKANASA MINATO–KU	TOKYO JAPAN
TK00Z	H Y ASSOCIATES CO LTD	1–2–2 MOMOI SIGINAMI–KU	TOKYO JAPAN
TK0413	ADAMS SUPPLY COMPANY	1850 W 205TH ST P O BOX 2938	TORRANCE CA 90509
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609–3320
TK0588	UNIVERSAL PRECISION PRODUCTS	1775 NW 216TH	HILLSBORO OR 97123
TK1181	SEA–TAC INDUSTRIES INC	1217 FOURTH AVE N	KENT WA 98031
TK1267	BALCK ELECTRIC CORP	P O BOX 50934	PALO ALTO CA 94303
TK1499	AMLAN INC	97 THORNWOOD RD	STAMFORD CT 06903–2617
TK1665	PORTLAND DIE AND STAMPING INC	4805 SE 26TH	PORTLAND OR 97202
TK1741	COLMAN FASTENERS CO LTD	HATTONS ROAD OFF WESTINGHOUSE RD TRAFFORD PARK	MANCHESTER M17 1DF ENGLAND
TK1943	NEILSEN MANUFACTURING INC	3501 PORTLAND ROAD NE	SALEM OR 97303
TK2541	AMERICOR ELECTRONICS LTD	2682 W COYLE AVENUE	ELK GROVE VILLAGE IL 60007
TK2548	XEROX BUSINESS SERVICES DIV OF XEROX CORPORATION	14181 SW MILLIKAN WAY	BEAVERTON OR 97077
0JR05	TRIQUEST CORP	3000 LEWIS AND CLARK HWY	VANCOUVER WA 98661–2999
0KB01	STAUFFER SUPPLY	810 SE SHERMAN	PORTLAND OR 97214
07416	NELSON NAME PLATE CO	3191 CASITAS	LOS ANGELES CA 90039–2410
11897	PLASTIGLIDE MFG CORP	2701 W EL SEGUNDO BLVD	HAWTHORNE CA 90250–3318
12136	P H C INDUSTRIES INC	1643 HADDON AVE PO BOX 1448	CAMDEN NJ 08103–3109
12327	FREEWAY CORP	9301 ALLEN DR	CLEVELAND OH 44125–4632
12697	CLAROSTAT MFG CO INC	12055 ROJAS DRIVE SUITE K	EL PASO, TX 79936
13103	THERMALLOY CO INC	2021 W VALLEY VIEW LN PO BOX 810839	DALLAS TX 75381

CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

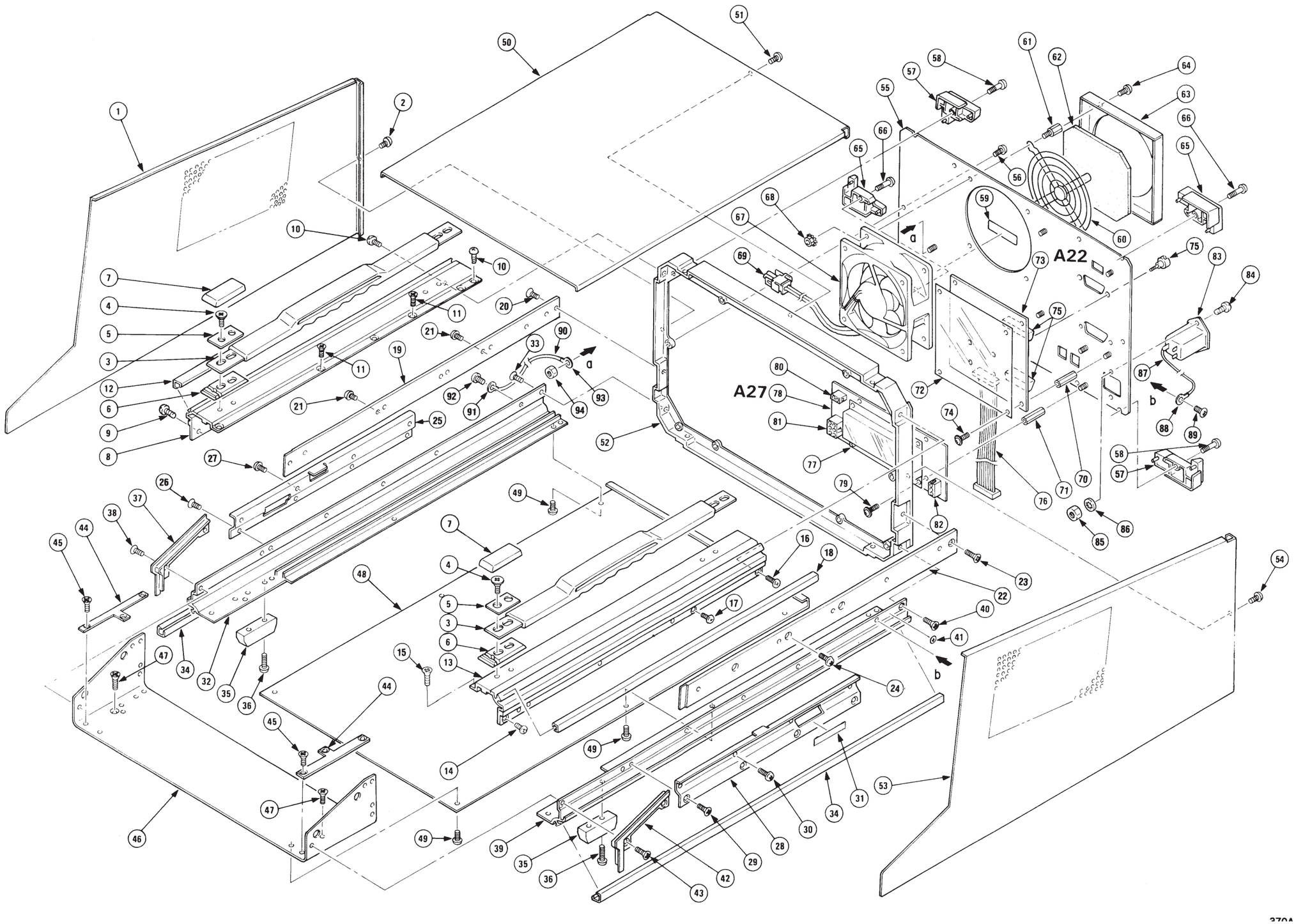
Mfr. Code	Manufacturer	Address	City, State, Zip Code
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076–9749
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIV	ST CHARLES ROAD	ELGIN IL 60120
8X345	NORTHWEST SPRING & MFG CO	5858 SW WILLOW LANE	LAKE OSWEGO OR 97035
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077–0001
83486	ELCO INDUSTRIES INC	1101 SAMUELSON RD	ROCKFORD IL 61101
86928	SEASTROM MFG CO INC	701 SONORA AVE	GLENDALE CA 91201–2431
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61108–5181
99742	PERMACEL TAPE DIV AN AVERY CO	U S HIGHWAY 1 P O BOX 671	NEW BRUNSWICK NJ 08903

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1–1	390–0984–XX			1	CABINET SIDE:LEFT (ATTACHING PARTS)	80009	3900984XX
–2	211–0504–XX			1	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–3	367–0116–XX			2	HANDLE,CARRYING:16.54 L,BLUE VINYL (ATTACHING PARTS)	12136	ORDER BY DESC
–4	212–0628–XX			8	SCREW,SHOULDER:10–32 X 0.4 L,RDH,STL (END ATTACHING PARTS)	93907	ORDER BY DESC
–5	386–1624–XX			4	PLATE,HDL RTNG:STAINLESS STEEL	TK1943	ORDER BY DESC
–6	386–1283–XX			4	PLATE,HDL MTG:FRONT	0JR05	ORDER BY DESC
–7	200–0728–XX			4	COVER,HDL END:1.91 X 0.91 X 0.36 BLUEACETAL	0JR05	200–0728–XX
–8	426–2371–XX			1	FRAME,SECTION:TOP LEFT,TEK TAN,AL (ATTACHING PARTS)	80009	4262371XX
–9	211–0507–XX			1	SCREW,MACHINE:6–32 X 0.312,PNH,STL	TK0435	ORDER BY DESC
–10	211–0510–XX			2	SCREW,MACHINE:6–32 X 0.375,PNH,STL	TK0435	ORDER BY DESC
–11	211–0538–XX			5	SCREW,MACHINE:6–32 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–12	124–0446–XX			1	STRIP,TRIM:TOP RIGHT	80009	1240446XX
–13	426–2372–XX			1	FRAME,SECTION:TOP RIGHT,TEK TAN,AL (ATTACHING PARTS)	80009	4262372XX
–14	211–0507–XX			1	SCREW,MACHINE:6–32 X 0.312,PNH,STL	TK0435	ORDER BY DESC
–15	211–0538–XX			1	SCREW,MACHINE:6–32 X 0.312,FLH,STL	TK0435	ORDER BY DESC
–16	211–0510–XX			2	SCREW,MACHINE:6–32 X 0.375,PNH,STL	TK0435	ORDER BY DESC
–17	211–0504–XX			5	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–18	124–0447–XX			1	STRIP,TRIM:TOP RIGHT	80009	1240447XX
–19	426–2141–XX			1	FRAME SECT,CAB.:LEFT (ATTACHING PARTS)	80009	4262141XX
–20	211–0559–XX			1	SCREW,MACHINE:6–32 X 0.375,FLH,STL	TK0435	1593–300
–21	211–0504–XX			4	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–22	426–2142–XX			1	FRAME SECT,CAB.:RIGHT (ATTACHING PARTS)	80009	4262142XX
–23	211–0559–XX			1	SCREW,MACHINE:6–32 X 0.375,FLH,STL	TK0435	1593–300
–24	211–0504–XX			3	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–25	407–3890–XX			1	BRACKET,SUPPORT:ALUMINUM (ATTACHING PARTS)	80009	4073890XX
–26	212–0002–XX			4	SCREW,MACHINE:8–32 X 0.25,FLH,100 DEG,STL	0KB01	ORDER BY DESC
–27	212–0004–XX			4	SCREW,MACHINE:8–32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–28	407–3890–XX			1	BRACKET,SUPPORT:ALUMINUM (ATTACHING PARTS)	80009	4073890XX
–29	212–0002–XX			4	SCREW,MACHINE:8–32 X 0.25,FLH,100 DEG,STL	0KB01	ORDER BY DESC
–30	212–0004–XX			4	SCREW,MACHINE:8–32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–31	334–7747–XX			1	MARKER,IDENT:	80009	3347747XX

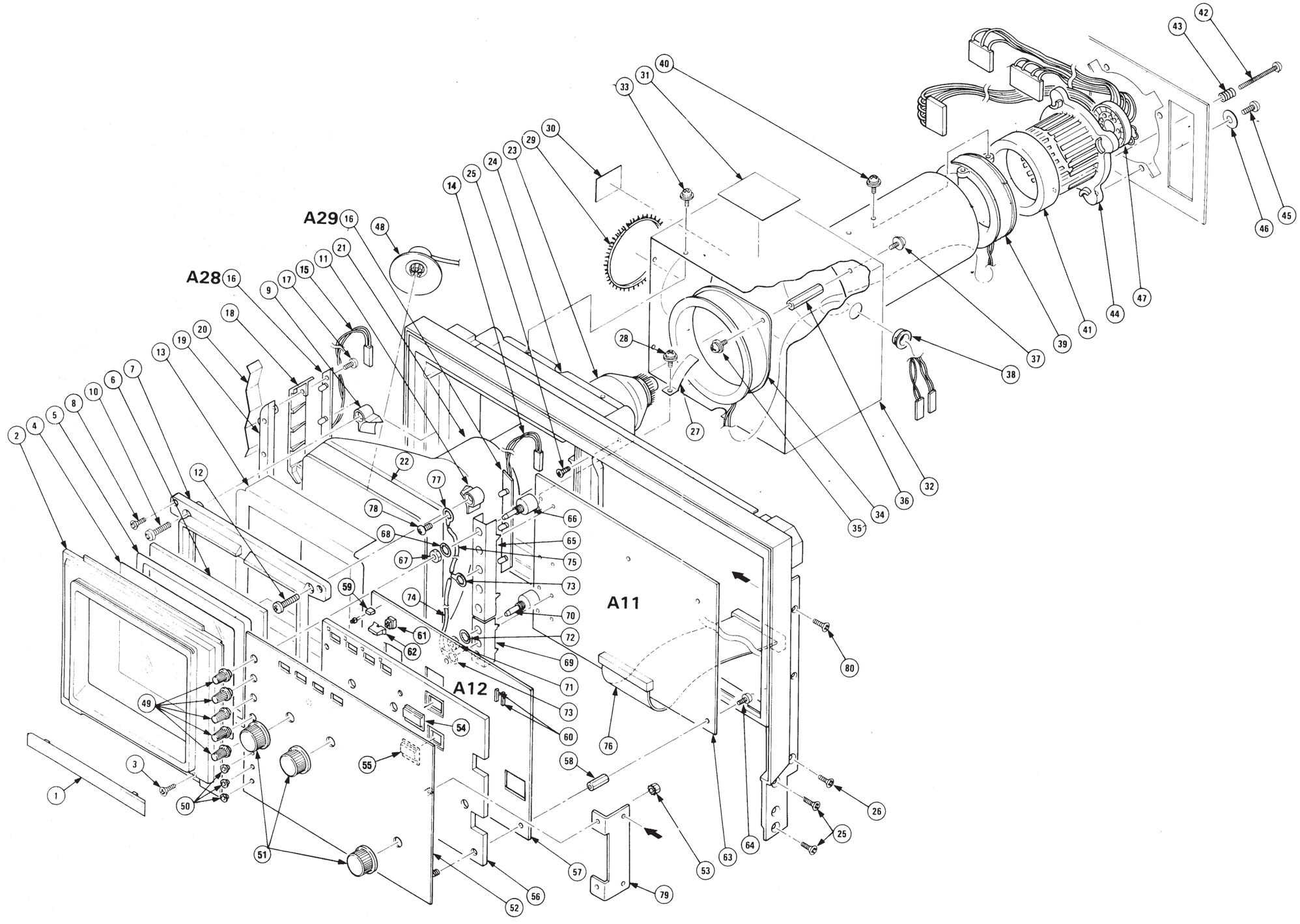
Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1–32	426–2211–XX			1	FRAME SECTION:BOTTOM,LEFT (ATTACHING PARTS)	TK0BV	ORDER BY DESC
–33	211–0559–XX			2	SCREW,MACHINE:6–32 X 0.375,FLH,STL (END ATTACHING PARTS)	TK0435	1593–300
–34	124–0448–XX			2	STRIP,TRIM:BOTTOM	80009	1240448XX
–35	348–0128–XX			4	FOOT,CABINET:BLACK POLYURETHANE (ATTACHING PARTS)	80009	3480128XX
–36	211–0513–XX			8	SCREW,MACHINE:6–32 X 0.625,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–37	426–2134–XX			1	FRAME SECTION:FRONT,LEFT (ATTACHING PARTS)	TK0CB	ORDER BY DESC
–38	211–0538–XX			2	SCREW,MACHINE:6–32 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–39	426–2138–XX			1	FRAME SECTION:BOTTOM,RIGHT (ATTACHING PARTS)	TK0BV	ORDER BY DESC
–40	211–0559–XX			2	SCREW,MACHINE:6–32 X 0.375,FLH,STL (END ATTACHING PARTS)	TK0435	1593–300
–41	334–3379–XX			1	MARKER,IDENT:MARKED GROUND SYMBOL	07416	ORDER BY DESC
–42	426–2135–XX			1	FRAME SECTION:FRONT,RIGHT (ATTACHING PARTS)	TK0CB	ORDER BY DESC
–43	211–0538–XX			2	SCREW,MACHINE:6–32 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–44	351–0770–XX			2	GUIDE,TEST FXTR:BOTTOM (ATTACHING PARTS)	80009	3510770XX
–45	211–0038–XX			6	SCREW,MACHINE:4–40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–46	441–1739–XX			1	CHAS,CRV TRACER:BOTTOM (ATTACHING PARTS)	80009	4411739XX
–47	211–0541–XX			2	SCREW,MACHINE:6–32 X 0.25,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–48	390–0987–XX			1	CABINET BOTTOM: (ATTACHING PARTS)	80009	3900987XX
–49	211–0007–XX			6	SCREW,MACHINE:4–40 X 0.188,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–50	390–1088–XX			1	CABINET,TOP:ALUMINUM (ATTACHING PARTS)	80009	3901088XX
–51	211–0504–XX			1	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–52	426–2136–XX			1	FRAME SECT,CAB.:REAR,AL	80009	4262136XX
–53	390–0985–XX			1	CABINET SIDE:RIGHT (ATTACHING PARTS)	80009	3900985XX
–54	211–0504–XX			1	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–55	333–3717–XX			1	PANEL,REAR:370A,ALUMINUM (ATTACHING PARTS)	80009	3333717XX
–56	211–0507–XX			6	SCREW,MACHINE:6–32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–57	343–1272–XX			2	RTNR,CAB.COVER:BLUE,PLASTIC (ATTACHING PARTS)	80009	3431272XX

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1–58	213–0782–XX			2	SCREW,TPG,TF:8–32 X 0.625,FILH,STL (END ATTACHING PARTS)	83486	ORDER BY DESC
–59	––––––––			1	MARKER,IDENT:MKD SERIAL NO		
–60	200–3300–XX			1	GUARD,FAN: (ATTACHING PARTS)	80009	2003300XX
–61	129–1126–XX			4	SPACER,POST:21.5MM L,4–40,6–32 THD,BRS (END ATTACHING PARTS)	80009	129112600
–62	378–0278–XX			1	FILTER,AIR:125MM X 5MM THK	TK0BI	ORDER BY DESC
–63	200–3277–XX			1	COVER,FAN:ALUMINUM (ATTACHING PARTS)	80009	2003277XX
–64	211–0008–XX			4	SCREW,MACHINE:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–65	343–1271–XX			2	RTNR,CAB.COVER:BLUE,PLASTIC (ATTACHING PARTS)	80009	3431271XX
–66	213–0782–XX			2	SCREW,TPG,TF:8–32 X 0.625,FILH,STL (END ATTACHING PARTS)	83486	ORDER BY DESC
–67	––––––––			1	FAN,TUBEAXIAL:(SEE B100 REPL) (ATTACHING PARTS)		
–68	210–0457–XX			4	NUT,PL,ASSEM WA:6–32 X 0.312,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–69	––––––––			1	CABLE ASSY,PWR:(SEE W272 REPL)		
–70	129–0992–XX			4	SPACER,POST:0.41 L,4–40 INT,BRS,0.19 HEX	80009	1290992XX
–71	361–0704–XX			4	SPACER,CKT BD:0.504 L X 0.188 HEX,BRS	80009	3610704XX
–72	342–0894–XX			1	INSULATOR,PLATE:CIRCUIT BOARD,PC	80009	3420894XX
–73	––––––––			1	CKT BOARD ASSY:INTERFACE(SEE A22 REPL) (ATTACHING PARTS)		
–74	211–0661–XX			4	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–75	––––––––			2	CONN,RCPT,ELEC:(SEE A22J350 & J450 REPL)		
–76	––––––––			1	CA ASSY,SP,ELEC:(SEE A22W220 REPL)		
–77	342–0782–XX			1	INSULATOR,FILM:PRIMARY BOARD	80009	3420782XX
–78	––––––––			1	CKT BOARD ASSY:PRIMARY(SEE A27 REPL) (ATTACHING PARTS)		
–79	211–0661–XX			4	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–80	––––––––			1	CONN,RCPT,ELEC:(SEE A27J272 REPL)		
–81	––––––––			1	CONN,RCPT,ELEC:(SEE A27J274 REPL)		
–82	––––––––			1	CONN,RCPT,ELEC:(SEE A27J270 REPL)		
–83	––––––––			1	FILTER:(SEE FL100 REPL) (ATTACHING PARTS)		
–84	211–0537–XX			2	SCREW,MACHINE:6–32 X 0.375,TRH,STL	TK0435	ORDER BY DESC
–85	210–0407–XX			2	NUT,PLAIN,HEX:6–32 X 0.25,BRS	73743	3038–402
–86	210–0006–XX			2	WASHER,LOCK:#6 INTL,0.018 THK,STL (END ATTACHING PARTS)	78189	1206–00–00–0541
–87	––––––––			1	LEAD,ELECTRICAL:(SEE W17 REPL)		

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1−88	210−0202−XX			1	TERMINAL,LUG:0.146 ID,LOCKING,BRZ (ATTACHING PARTS)	TK1181	ORDER BY DESC
−89	211−0565−XX			1	SCREW,MACHINE:6−32 X 0.250,TRH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−90	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE W19 REPL)		
−91	210−0202−XX			1	TERMINAL,LUG:0.146 ID,LOCKING,BRZ (ATTACHING PARTS)	TK1181	ORDER BY DESC
−92	211−0565−XX			1	SCREW,MACHINE:6−32 X 0.250,TRH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−93	210−0202−XX			1	TERMINAL,LUG:0.146 ID,LOCKING,BRZ (ATTACHING PARTS)	TK1181	ORDER BY DESC
−94	210−0407−XX			1	NUT,PLAIN,HEX:6−32 X 0.25,BRS (END ATTACHING PARTS)	73743	3038−402



Please cut out the aria below the lines.



Please cut out the aria below the lines.

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2−1	200−3281−XX			1	COVER,BEZEL:POLYCARBONATE,TEK TAN	80009	2003281XX
−2	200−3276−XX			1	BEZEL,CRT:PC,TEK TAN (ATTACHING PARTS)	80009	2003276XX
−3	211−0538−XX			2	SCREW,MACHINE:6−32 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−4	378−0276−XX			1	FILTER,LT,CRT:BLUE,108.4MM X 134.4MM X 1MM	80009	3780276XX
−5	361−1381−XX			1	SPACER,RING:CRT,0.4MM	80009	3611381XX
−6	337−3328−XX			1	SHIELD,CRT:CLEAR	80009	3373328XX
−7	426−2133−XX			1	FRAME,CRT: (ATTACHING PARTS)	80009	4262133XX
−8	211−0512−XX			4	SCREW,MACHINE:6−32 X 0.5,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−9	343−1269−XX			2	RETAINER,CRT:FRONT,(A) (ATTACHING PARTS)	80009	3431269XX
−10	212−0022−XX			2	SCREW,MACHINE:8−32 X 1.5,PNH,STL (END ATTACHING PARTS)	TK0435	2011−300
−11	343−1270−XX			2	RETAINER,CRT:FRONT,(B) (ATTACHING PARTS)	80009	3431270XX
−12	212−0022−XX			2	SCREW,MACHINE:8−32 X 1.5,PNH,STL (END ATTACHING PARTS)	TK0435	2011−300
−13	331−0491−XX			1	MASK,CRT:	80009	3310491XX
−14	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE W280 REPL)		
−15	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE W290 REPL)		
−16	−−−−−−−−			2	CKT BOARD ASSY:LAMP(SEE A28 & A29 REPL) (ATTACHING PARTS)		
−17	211−0062−XX			4	SCREW,MACHINE:2−56 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−18	343−1268−XX			2	RETAINER,LIGHT:REFLECTOR	80009	3431268XX
−19	378−0614−XX			2	REFLECTOR,LIGHT:INT SCALE ILLUMINATION	0JR05	ORDER BY DESC
−20	214−3886−XX			2	SPRING,RTNR:SCALE LAMP	80009	2143886XX
−21				1	ELECTRON TUBE:(SEE V100 REPL)		
−22	253−0267−XX			1	TAPE,PRESS SENS:0.08 X 20 X 20000MM,AL FOIL	80009	2530267XX
−23	253−0137−XX			1	TAPE,SILICONE:RED RBR,1.25 X 0.02	99742	2650
−24	426−2333−XX			1	FRAME,FRONT: (ATTACHING PARTS)	80009	4262333XX
−25	211−0538−XX			8	SCREW,MACHINE:6−32 X 0.312,FLH,STL	TK0435	ORDER BY DESC
−26	211−0541−XX			2	SCREW,MACHINE:6−32 X 0.25,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−27	214−3880−XX			1	CONTACT,SPRING:GROUNDING CRT (ATTACHING PARTS)	80009	2143880XX
−28	211−0661−XX			1	SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−29	255−1106−XX			1	PLASTIC CHANNEL:250 X 3.3 X 4.0MM,NYLON	80009	2551106XX
−30	334−6691−XX			1	MARKER,IDENT:MKD DANGER	80009	3346691XX
−31	334−6805−XX			1	MARKER,IDENT:MKD WARNING	80009	3346805XX
−32	337−3325−XX			1	SHIELD,CRT: (ATTACHING PARTS)	80009	3373325XX

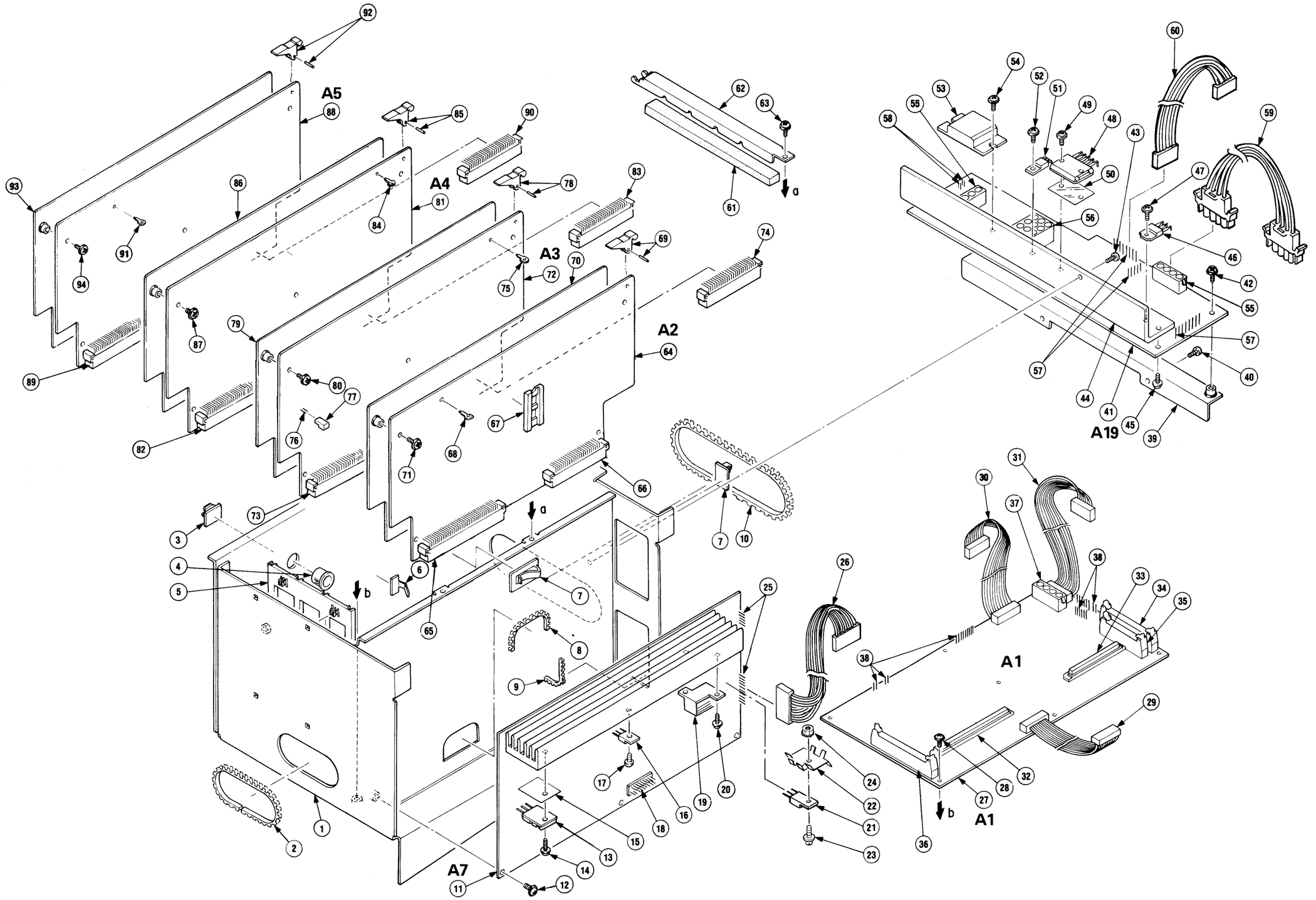
Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2–33	211–0661–XX			4	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–34	––––––––			1	COIL,TUBE DEFL:(SEE L100 REPL) (ATTACHING PARTS)		
–35	211–0661–XX			2	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–36	129–1123–XX			2	SPACER,POST:33MM L,4–40 THD,BRASS (ATTACHING PARTS)	80009	1291123XX
–37	211–0661–XX			2	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–38	348–0948–XX			1	GROMMET,PLASTIC:BLACK,RING,9.5MM ID	80009	3480948XX
–39	––––––––			1	COIL,TUBE DEFL:(SEE L120 REPL) (ATTACHING PARTS)		
–40	211–0661–XX			2	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–41	354–0347–XX			1	RING,CRT CLAMP:2.127 ID X 2.595 OD X 0.563 (ATTACHING PARTS)	0JR05	ORDER BY DESC
–42	211–0170–XX			2	SCREW,MACHINE:4–40 X 2.25,PNH,SST	TK0435	ORDER BY DESC
–43	214–1333–XX			2	SPRING,HLCPS:0.213 OD X 0.375,CLE,CU–BE (END ATTACHING PARTS)	8X345	ORDER BY DESC
–44	343–0205–XX			1	RTNR,ELCTRN TU:3.0 DIA X 1.5 L,DELRIN (ATTACHING PARTS)	80009	3430205XX
–45	211–0578–XX			4	SCREW,MACHINE:6–32 X 0.438,PNH,STL	TK0435	ORDER BY DESC
–46	210–0949–XX			4	WASHER,FLAT:0.141 ID X 0.5 OD X 0.062,BRS (END ATTACHING PARTS)	12327	ORDER BY DESC
–47	––––––––			1	LEAD,ELEC:(SEE W14 REPL)		
–48	––––––––			1	ANODE CAP:(PART OF A20U300)		
–49	366–0625–XX			5	KNOB:SILVER GRAY,9.5MM OD	80009	3660625XX
–50	358–0378–XX			3	BUSHING,SLEEVE:0.131 ID X 0.18 OD X 0.125L	80009	3580378XX
–51	366–0620–XX			3	KNOB:SILVER GRAY,25MM OD	80009	3660620XX
–52	333–3715–XX			1	PANEL,FRONT:370A (ATTACHING PARTS)	80009	3333715XX
–53	210–0586–XX			2	NUT,PL,ASSEM WA:4–40 X 0.25,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–54	378–0349–XX			1	FILTER,LED DSPL:GRAY,10.8 & 18.3M,PC	80009	3780349XX
–55	378–0277–XX			1	FILTER,LT,CRT:SMOKE GRAY	80009	3780277XX
–56	351–0853–XX			1	GUIDE,PB:370A MAIN KEY BD,PC	80009	3510853XX
–57	––––––––			1	CKT BOARD ASSY:SUB KEY(SEE A12 REPL) (ATTACHING PARTS)		
–58	129–1131–XX			6	SPACER,POST:12.7MM L,4–40 THD,BRASS (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	80009	1291131XX
–59	129–1128–XX			54	.SPACER,POST:5.1MM,L,POLYCARBONATE	80009	1291128XX
–60	131–3677–XX			8	.CONN,RCPT,ELEC:1 X 5 FEMALE	80009	1313677XX

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2–61	– – – – – – – –			38	SWITCH,KEY:(SEE A12S300,S301,S302,S303, S304,S305,S310,S311,S312,S313,S314,S315, S320,S321,S322,S323,S324,S325,S330,S331, S332,S333,S335,S350,S351,S353,S354,S355, S360,S361,S362,S363,S364,S365,S370,S371, S372,S373 REPL)		
–62	366–0617–XX			44	PUSH BUTTON:SILVER GRAY,9.6 X 4.2 X 8.5MM	80009	3660617XX
–63	– – – – – – – –			1	CKT BOARD ASSY:MAIN KEY(SEE A11 REPL) (ATTACHING PARTS)		
–64	211–0661–XX			6	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–65	407–3474–XX			1	.BRACKET,ANGLE:VAR RES MTG	80009	4073474XX
–66	– – – – – – – –			5	RES,VAR,NONWW:(SEE A11R302,R312,R322,R330,R340 REPL) (ATTACHING PARTS)		
–67	210–0583–XX			5	.NUT,PLAIN,HEX:0.25–32 X 0.312,BRS	73743	2X–20319–402
–68	210–0046–XX			4	.WASHER,LOCK:0.261 ID,INTL,0.018 THK,STL (END ATTACHING PARTS)	78189	1214–05–00–0541
–69	407–3475–XX			1	.BRACKET,ANGLE:VAR RES MTG,W/CUT LEAD	80009	4073475XX
–70	– – – – – – – –			3	RES,VAR,NONWW: (SEE A11R350,R360,R370 REPL) (ATTACHING PARTS)		
–71	210–0583–XX			3	.NUT,PLAIN,HEX:0.25–32 X 0.312,BRS	73743	2X–20319–402
–72	210–0046–XX			2	.WASHER,LOCK:0.261 ID,INTL,0.018 THK,STL (END ATTACHING PARTS)	78189	1214–05–00–0541
–73	210–0223–XX			2	.TERMINAL,LUG:0.26 ID,LOCKING,BRZ	0KB01	210–0223–XX
–74	– – – – – – – –			1	LEAD,ELECTRICAL:(SEE A11W111 REPL)		
–75	– – – – – – – –			1	LEAD,ELECTRICAL:(SEE A11W112 REPL)		
–76	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE A11W110 REPL)		
–77	210–0201–XX			1	.TERMINAL,LUG:0.12 ID,LOCKING,BRZ	TK1741	2004–4 PHOSPHOR
–78	211–0008–XX			1	SCREW,MACHINE:4–40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
–79	407–3851–XX			1	BRACKET,ANGLE:FRONT PANEL MTG,AL (ATTACHING PARTS)	80009	4073851XX
–80	211–0106–XX			2	SCREW,MACHINE:4–40 X 0.625,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
3–1	441–1740–XX			1	CHASSIS,CKT BD:370,ALUMINUM	TK0CF	ORDER BY DESC
–2	255–0334–XX			1	PLASTIC CHANNEL:12.75 X 0.175 X 0.155,NYLON	11897	122–NN–2500–060
–3	343–0778–XX			2	CLAMP,CABLE:5MM ID,NYLON	80009	3430778XX
–4	348–0948–XX			1	GROMMET,PLASTIC:BLACK,RING,9.5MM ID	80009	3480948XX
–5	351–0769–XX			2	GUIDE,CKT BD:	80009	3510769XX
–6	343–1289–XX			1	CLAMP,CABLE:STEEL	80009	3431289XX
–7	343–1084–XX			3	CLAMP,CABLE:NYLON	80009	3431084XX
–8	255–1107–XX			1	PLASTIC CHANNEL:500 X 3.7 X 4.0MM,NYLON	80009	2551107XX
–9	255–0334–XX			1	PLASTIC CHANNEL:12.75 X 0.175 X 0.155,NYLON	11897	122–NN–2500–060
–10	255–0334–XX			1	PLASTIC CHANNEL:12.75 X 0.175 X 0.155,NYLON	11897	122–NN–2500–060
–11	––––––––			1	CKT BOARD ASSY:STEP GEN(SEE A7 REPL) (ATTACHING PARTS)		
–12	211–0661–XX			3	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–13	––––––––			4	XSTR:(SEE A7Q490,Q495,Q816,Q832 REPL) (ATTACHING PARTS)		
–14	211–0315–XX			4	.SCR,ASSEM WSHR:4–40 X 0.437,PHN,STL	TK0435	ORDER BY DESC
–15	342–0787–XX			4	.INSULATOR,PLATE:XSTR,TO–3P,SI RUBBER (END ATTACHING PARTS)	80009	3420787XX
–16	––––––––			1	TRANSISTOR:(SEE A7Q462 REPL) (ATTACHING PARTS)		
–17	211–0315–XX			1	.SCR,ASSEM WSHR:4–40 X 0.437,PHN,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–18	131–2230–XX			1	.CONN,RCPT,ELEC:HEADER,2 X 8,2.54 SPACING	80009	1312230XX
–19	––––––––			1	RES,FXD,WW:(SEE A7R502 REPL) (ATTACHING PARTS)		
–20	211–0661–XX			2	.SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–21	––––––––			1	MICROCKT,LI:(SEE A7U170 REPL)		
–22	214–4003–XX			1	.HEAT SINK,XSTR:TO–220,AL (ATTACHING PARTS)	80009	2144003XX
–23	211–0661–XX			1	.SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
–24	210–0586–XX			1	.NUT,PL,ASSEM WA:4–40 X 0.25,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–25	––––––––			2	TERM,PIN:(SEE A7J72,J74 REPL)		
–26	––––––––			1	CA ASSY,SP,ELEC:(SEE W72 REPL)		
–27	––––––––			1	CKT BOARD ASSY:MOTHER(SEE A1 REPL) (ATTACHING PARTS)		
–28	211–0661–XX			8	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–29	––––––––			1	CA ASSY,SP,ELEC:(SEE A1W70 REPL)		
–30	––––––––			1	CA ASSY,SP,ELEC:(SEE A1W60 REPL)		
–31	––––––––			1	CA ASSY,SP,ELEC:(SEE A1W192 REPL)		
–32	––––––––			4	CONN,RCPT,ELEC:(SEE A1J20,J30,J40,J50 REPL)		
–33	––––––––			4	CONN,RCPT,ELEC:(SEE A1J22,J32,J42,J52 REPL)		

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
3–34	– – – – – – – –			1	CONN,RCPT,ELEC:(SEE A1J400 REPL)		
–35	– – – – – – – –			1	CONN,RCPT,ELEC:(SEE A1J220 REPL)		
–36	– – – – – – – –			1	CONN,RCPT,ELEC:(SEE A1J110 REPL)		
–37	– – – – – – – –			1	CONN,RCPT,ELEC:(SEE A1J190 REPL)		
–38	– – – – – – – –			5	TERM,PIN:(SEE A1J10,J12,J180,J410,J412 REPL)		
–39	407–3479–XX			1	BRACKET,CKT BD:ALUMINUM (ATTACHING PARTS)	80009	4073479XX
–40	211–0507–XX			2	SCREW,MACHINE:6–32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–41	– – – – – – – –			1	CKT BOARD ASSY:LV SUPPLY(SEE A19 REPL) (ATTACHING PARTS)		
–42	211–0661–XX			3	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
–43	211–0507–XX			3	SCREW,MACHINE:6–32 X 0.312,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–44	214–3874–XX			1	.HT SK,PWR SPLY:LV,AL (ATTACHING PARTS)	80009	2143874XX
–45	211–0661–XX			3	.SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–46	– – – – – – – –			3	TRANSISTOR:(SEE A19Q130,Q230,Q600 REPL) (ATTACHING PARTS)		
–47	211–0244–XX			3	.SCR,ASSEM WSHR:4–40 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	7772–312
–48	– – – – – – – –			2	MICROCKT:(SEE A19U100,U310 REPL) (ATTACHING PARTS)		
–49	211–0315–XX			4	.SCR,ASSEM WSHR:4–40 X 0.437,PHN,STL	TK0435	ORDER BY DESC
–50	342–0790–XX			2	.INSULATOR,FILM:MICA,0.07MA (END ATTACHING PARTS)	80009	3420790XX
–51	– – – – – – – –			5	SEMICOND:(SEE A19CR100,CR200,CR300, CR400,U410 REPL) (ATTACHING PARTS)		
–52	211–0244–XX			5	.SCR,ASSEM WSHR:4–40 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	7772–312
–53	– – – – – – – –			1	RELAY,SOL STATE:(SEE A19U700 REPL) (ATTACHING PARTS)		
–54	211–0244–XX			2	.SCR,ASSEM WSHR:4–40 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	7772–312
–55	– – – – – – – –			2	CONN,RCPT,ELEC:(SEE A19J64,J190 REPL)		
–56	– – – – – – – –			1	CONN,RCPT,ELEC:(SEE A19J196 REPL)		
–57	– – – – – – – –			3	TERM,PIN:(SEE A19J72,J194,J198 REPL)		
–58	– – – – – – – –			2	TERM,PIN:(SEE A19J280,J290 REPL)		
–59	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE W190 REPL)		
–60	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE W194 REPL)		
–61	348–1048–XX			2	PAD,CUSHIONING:150MM X 12MM X 13MM	TK0AU	ORDER BY DESC
–62	343–1273–XX			2	RETAINER,CKT BD:BRASS (ATTACHING PARTS)	80009	3431273XX
–63	211–0504–XX			2	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
3−64	−−−−−−−−			1	CKT BOARD ASSY:CPU(SEE A2 REPL)		
−65	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A2P20 REPL)		
−66	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A2P22 REPL)		
−67	136−0973−XX			2	.SKT,PL−IN ELEK:MICROCKT,DIP32	TK0FB	DILB32P−8J
−68	−−−−−−−−			2	TERM,TEST POINT:(SEE A2TP100,TP400 REPL)		
−69	105−0899−XX	J301393	J301782	2	.EJECTOR,CKT BD:NYLON	80009	1050899XX
	105−0978−XX	J301783		2	.EJECTOR,CKT BD:NYLON	TK00Z	21−0608
−70	337−3326−XX	J301393	J302428	1	.SHIELD,ELEC:CPU BD (ATTACHING PARTS)	80009	3373326XX
−71	211−0661−XX	J301393	J302428	5	.SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−72	−−−−−−−−			1	CKT BOARD ASSY:A/D(SEE A3 REPL)		
−73	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A3P30 REPL)		
−74	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A3P32 REPL)		
−75	−−−−−−−−			6	TERM,TEST PT:(SEE A3TP200,TP290,TP310, TP380,TP500,TP580 REPL)		
−76	−−−−−−−−			1	TERMINAL,PIN:(SEE A3J34 REPL)		
−77	−−−−−−−−			1	BUS,CONDUCTOR:(SEE A3P34 REPL)		
−78	105−0899−XX	J301393	J301782	2	.EJECTOR,CKT BD:NYLON	80009	1050899XX
	105−0978−XX	J301783		2	.EJECTOR,CKT BD:NYLON	TK00Z	21−0608
−79	337−3326−XX			1	.SHIELD,ELEC:CPU BD (ATTACHING PARTS)	80009	3373326XX
−80	211−0661−XX	J301393	J302428	5	.SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−81	−−−−−−−−			1	CKT BOARD ASSY:DGTL DISPLAY(SEE A4 REPL)		
−82	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A4P40 REPL)		
−83	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A4P42 REPL)		
−84	−−−−−−−−			1	TERM,TEST POINT:(SEE A4TP10,TP20 REPL)		
−85	105−0899−XX	J301393	J301782	2	.EJECTOR,CKT BD:NYLON	80009	1050899XX
	105−0978−XX	J301783		2	.EJECTOR,CKT BD:NYLON	TK00Z	21−0608
−86	337−3326−XX			1	.SHIELD,ELEC:CPU BD (ATTACHING PARTS)	80009	3373326XX
−87	211−0661−XX			5	.SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−88	−−−−−−−−			1	CKT BOARD ASSY:DISPLAY CONT(SEE A5 REPL)		
−89	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A5P50 REPL)		
−90	−−−−−−−−			1	CONN,PLUG,ELEC:(SEE A5P52 REPL)		
−91	−−−−−−−−			12	TERM,TEST POINT: (SEE A5TP10,TP20,TP30,TP60,TP70,TP80,TP90, TP100,TP500,TP502,TP648,TP658 REPL)		
−92	105−0899−XX	J301393	J301782	2	.EJECTOR,CKT BD:NYLON	80009	1050899XX
	105−0978−XX	J301783		2	.EJECTOR,CKT BD:NYLON	TK00Z	21−0608
−93	337−3326−XX	J301393	J302428	1	.SHIELD,ELEC:CPU BD (ATTACHING PARTS)	80009	3373326XX
−94	211−0661−XX	J301393	J302428	5	.SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC



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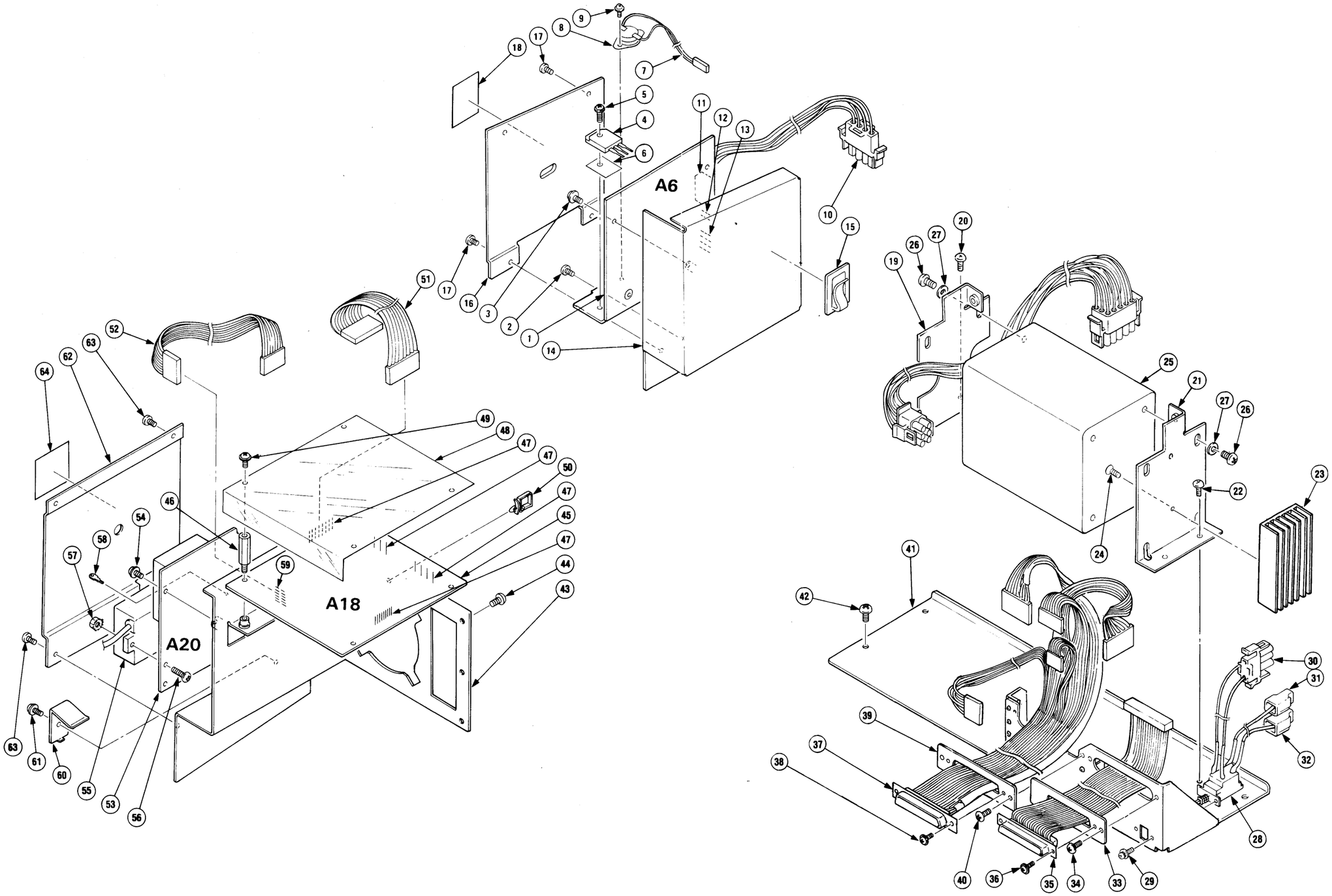

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Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
4–1	–––––––––			1	CKT BOARD ASSY:COLL SPLY OUT(SEE A6 REPL) (ATTACHING PARTS)		
–2	211–0507–XX			2	SCREW,MACHINE:6–32 X 0.312,PNH,STL	TK0435	ORDER BY DESC
–3	211–0661–XX			2	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–4	–––––––––			4	XSTR:(SEE A6Q438,Q440,Q538,Q540 REPL) (ATTACHING PARTS)		
–5	211–0315–XX			4	.SCR,ASSEM WSHR:4–40 X 0.437,PHN,STL	TK0435	ORDER BY DESC
–6	342–0787–XX			4	.INSULATOR,PLATE:XSTR,TO–3P,SI RUBBER (END ATTACHING PARTS)	80009	3420787XX
–7	–––––––––			1	CA ASSY,SP,ELEC:(SEE A6W66 REPL)		
–8	–––––––––			1	SWITCH,THERMOSTATIC:(SEE A6S92 REPL) (ATTACHING PARTS)		
–9	211–0661–XX			2	.SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–10	–––––––––			1	CA ASSY,SP,ELEC:(SEE A6W64 REPL)		
–11	–––––––––			1	CONN,RCPT,ELEC:(SEE A6J60 REPL)		
–12	–––––––––			1	TERMINAL,PIN:(SEE A6J66 REPL)		
–13	–––––––––			1	TERMINAL,PIN:(SEE A6J62 REPL)		
–14	407–3470–XX			1	BRACKET,CKT BD:COLLECTOR SUPPLY OUTPUT	80009	4073470XX
–15	343–1084–XX			2	CLAMP,CABLE:NYLON	80009	3431084XX
–16	337–3330–XX	J301393	J302394	1	SHIELD,ELEC:COLLECTOR SUPPLY (ATTACHING PARTS)	80009	3373330XX
–17	211–0008–XX	J301393	J302394	4	SCREW,MACHINE:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–18	334–6695–XX	J301393	J302394	1	MARKER,IDENT:MKD DANGER & POT	80009	3346695XX
–19	407–3478–XX			1	BRACKET,XFMR:LEFT,ALUMINUM (ATTACHING PARTS)	80009	4073478XX
–20	212–0507–XX			2	SCREW,MACHINE:10–32 X 0.375,PNH,STL (END ATTACHING PARTS)	TK0435	MACHINE SCREW
–21	407–3907–XX			1	BRACKET,XFMR:RIGHT,ALUMINUM (ATTACHING PARTS)	80009	4073907XX
–22	212–0507–XX			2	SCREW,MACHINE:10–32 X 0.375,PNH,STL (END ATTACHING PARTS)	TK0435	MACHINE SCREW
–23	214–3974–XX			1	HEAT SINK,ELEC:TRANSFORMER,ALUMINUM (ATTACHING PARTS)	80009	2143974XX
–24	211–0538–XX			2	SCREW,MACHINE:6–32 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–25	–––––––––			1	XFMR,PWR,STDN:(SEE T100 REPL) (ATTACHING PARTS)		
–26	212–0507–XX			8	SCREW,MACHINE:10–32 X 0.375,PNH,STL	TK0435	MACHINE SCREW
–27	210–1003–XX			8	WASHER,FLAT:0.2 ID X 0.438 OD X 0.036 BRS (END ATTACHING PARTS)	12327	ORDER BY DESC
–28	–––––––––			1	SWITCH,PUSH:(SEE S100 REPL) (ATTACHING PARTS)		
–29	211–0751–XX			2	SCR,ASSEM WSHR:M3 X 8 (END ATTACHING PARTS)	80009	2110751XX

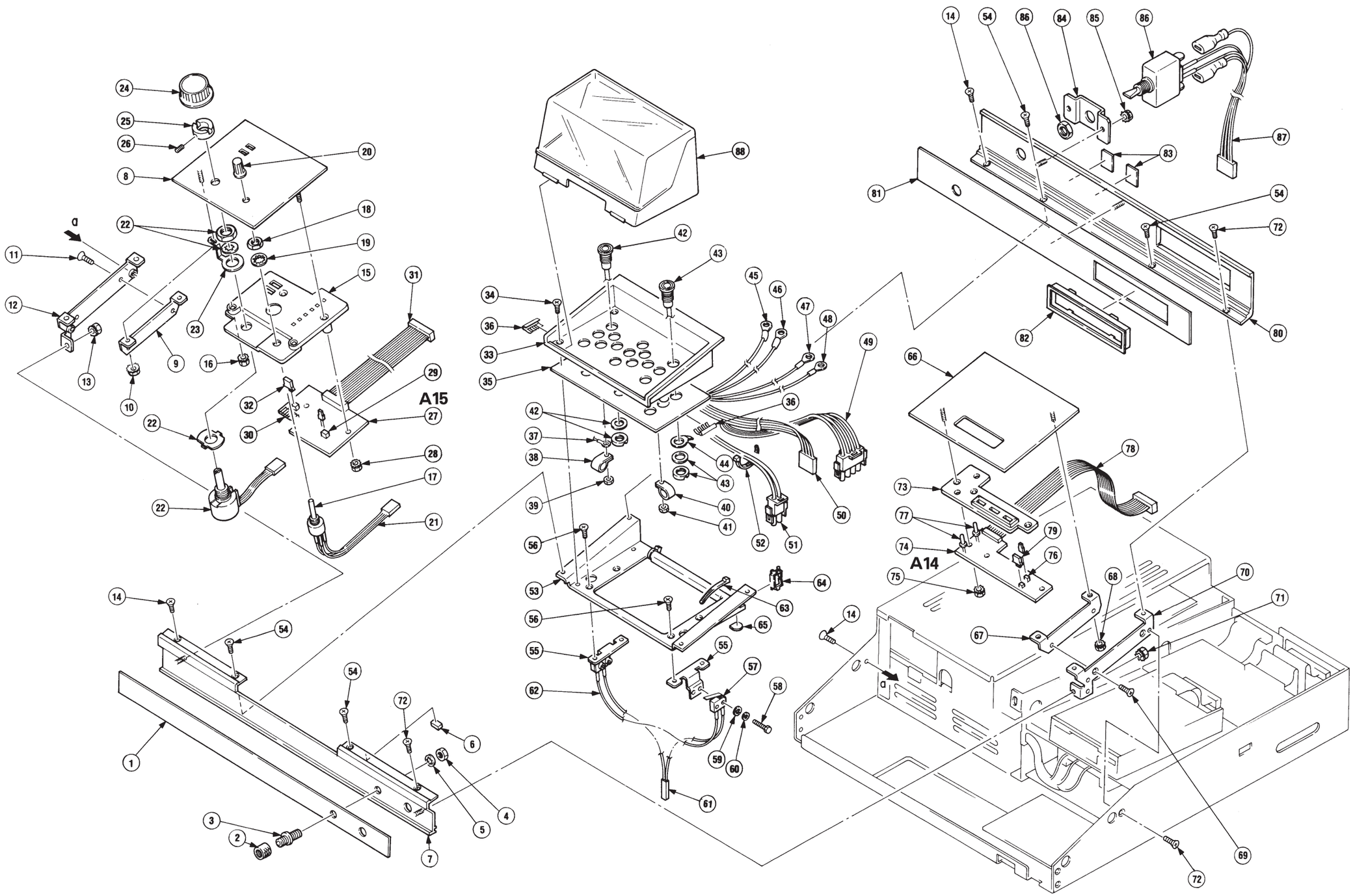
Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
4–30	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE W270 REPL)		
–31	– – – – – – – –			1	LEAD ELECTRICAL:(SEE W16 REPL)		
–32	– – – – – – – –			1	LEAD,ELECTRICAL:(SEE W18 REPL)		
–33	386–5485–XX			1	PLATE,CONN MTG:FEMALE,STEEL (ATTACHING PARTS)	80009	3865485XX
–34	211–0507–XX			2	SCREW,MACHINE:6–32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–35	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE W400 REPL) (ATTACHING PARTS)		
–36	211–0661–XX			2	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–37	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE W490 REPL) (ATTACHING PARTS)		
–38	211–0661–XX			2	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–39	386–5909–XX			1	PLATE,CONN MTG:FEMALE,STEEL (ATTACHING PARTS)	80009	3865909XX
–40	211–0507–XX			2	SCREW,MACHINE:6–32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–41	441–1948–XX			1	CHAS ASSY,CURV:TRCR,REAR,AL (ATTACHING PARTS)	80009	4411948XX
–42	211–0507–XX			4	SCREW,MACHINE:6–32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–43	441–1743–XX			1	CHASSIS,CRT:LEFT (ATTACHING PARTS)	80009	4411743XX
–44	211–0504–XX			3	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–45	– – – – – – – –			1	CKT BOARD ASSY:CRT OUTPUT(SEE A18 REPL) (ATTACHING PARTS)		
–46	129–1139–XX			4	SPACER,POST:25MM L,W4–40 THD,BRASS (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	80009	1291139XX
–47	– – – – – – – –			4	TERM,PIN:(SEE A18J180,J182,J184,J186 REPL)		
–48	342–0785–XX			1	INSULATOR,PLATE:CRT OUTPUT (ATTACHING PARTS)	80009	3420785XX
–49	211–0661–XX			4	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–50	343–1288–XX			1	CLAMP,CABLE:PLASTIC	80009	3431288XX
–51	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE W182 REPL)		
–52	– – – – – – – –			1	CA ASSY,SP,ELEC:(SEE W180 REPL)		
–53	– – – – – – – –			1	CKT BOARD ASSY:HV REG(SEE A20 REPL) (ATTACHING PARTS)		
–54	211–0661–XX			4	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–55	– – – – – – – –			1	HV MODULE:(SEE A20U300 REPL) (ATTACHING PARTS)		
–56	211–0012–XX			2	.SCREW,MACHINE:4–40 X 0.375,PNH,STL	TK0435	ORDER BY DESC

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
4−57	210−0586−XX			2	.NUT,PL,ASSEM WA:4−40 X 0.25,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−58	−−−−−−−−			3	TERM,TEST POINT: (SEE A20TP200,TP300,TP400 REPL)		
−59	−−−−−−−−			3	TERM,PIN:(SEE A20J182,J194,J200 REPL)		
−60	343−1275−XX			1	RETAINER,XSTR:HV,SST (ATTACHING PARTS)	80009	3431275XX
−61	211−0661−XX			1	SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−62	337−3329−XX			1	SHIELD,ELEC:HV REG (ATTACHING PARTS)	80009	3373329XX
−63	211−0008−XX			4	SCREW,MACHINE:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−64	334−6694−XX			1	MARKER,IDENT:MKD DANGER & POT	80009	3346694XX

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
5–1	333–3514–XX			1	PANEL,FRONT:371,PWR SW (ATTACHING PARTS)	80009	3333514XX
–2	200–0103–XX			1	NUT,PLAIN,KNURL:0.25–28 X 0.375 INCH OD,BRS	TK0588	ORDER BY DESC
–3	355–0507–XX			1	STUD,SHOULDERED:BINDING POST,BRS	TK0588	ORDER BY DESC
–4	210–0455–XX			1	NUT,PLAIN,HEX:0.25–28 X 0.375,BRS	73743	3089–402
–5	210–0046–XX			1	WASHER,LOCK:0.261 ID,INTL,0.018 THK,STL (END ATTACHING PARTS)	78189	1214–05–00–0541
–6	344–0396–XX			1	CLIP,CABLE:PVC	80009	3440396XX
–7	426–2334–XX			1	SUBPANEL,TEST F:	80009	4262334XX
–8	333–3718–XX			1	PANEL,FRONT	80009	3333718XX
–9	407–3472–XX			1	BRACKET,ANGLE:LOWER,PANEL (ATTACHING PARTS)	80009	4073472XX
–10	210–0586–XX			2	NUT,PL,ASSEM WA:4–40 X 0.25,STL	TK0435	ORDER BY DESC
–11	211–0038–XX			2	SCREW,MACHINE:4–40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–12	122–0183–XX			1	ANGLE,RAIL:SUBPANEL MTG,LEFT (ATTACHING PARTS)	80009	1220183XX
–13	210–0586–XX			1	NUT,PL,ASSEM WA:4–40 X 0.25,STL	TK0435	ORDER BY DESC
–14	211–0038–XX			5	SCREW,MACHINE:4–40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–15	351–0854–XX			1	GUIDE,PB:370A VAR COIL SUPPLY BD,PC (ATTACHING PARTS)	80009	3510854XX
–16	210–0586–XX			2	NUT,PL,ASSEM WA:4–40 X 0.25,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–17	––––––––			1	RES,VAR,NONWW:(SEE R210 REPL) (ATTACHING PARTS)		
–18	210–0583–XX			1	NUT,PLAIN,HEX:0.25–32 X 0.312,BRS	73743	2X–20319–402
–19	210–0046–XX			1	WASHER,LOCK:0.261 ID,INTL,0.018 THK,STL (END ATTACHING PARTS)	78189	1214–05–00–0541
–20	366–0626–XX			1	KNOB:SILVER GRAY,12MM OD	80009	3660626XX
–21	––––––––			1	CA ASSY,SP,ELEC:(SEE W210 REPL)		
–22	––––––––			1	SWITCH,ROTARY:(SEE S200 REPL) (ATTACHING PARTS)		
–23	210–0207–XX			1	TERMINAL,LUG:0.385 OD,PLAIN,BRS (END ATTACHING PARTS)	12697	01136902
–24	366–0621–XX			1	SHELL,KNOB:TEKTAN,30MM OD X 15MM H,ABS	80009	3660621XX
–25	377–0609–XX			1	INSERT,KNOB:8.6MM ID X 16MM OD X 8MM H,AL (ATTACHING PARTS)	80009	3770609XX
–26	213–0022–XX			1	SETSCREW:4–40 X 0.188,STL (END ATTACHING PARTS)	0KB01	ORDER BY DESC
–27	––––––––			1	CKT BOARD ASSY:CONFIG.LED(SEE A15 REPL) (ATTACHING PARTS)		
–28	210–0586–XX			2	NUT,PL,ASSEM WA:4–40 X 0.25,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–29	129–1128–XX			6	.SPACER,POST:5.1MM,L,POLYCARBONATE	80009	1291128XX
–30	––––––––			2	TERM,PIN:(SEE A15J200,J210 REPL)		
–31	––––––––			1	CA ASSY,SP,ELEC:(SEE A15W150 REPL)		

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
5−32	366−0617−XX			2	PUSH BUTTON:SILVER GRAY,9.6 X 4.2 X 8.5MM	80009	3660617XX
−33	386−5395−XX			1	PLATE,MTG ASSY:TEST ADAPTER (ATTACHING PARTS)	80009	3865395XX
−34	211−0025−XX			4	SCREW,MACHINE:4−40 X 0.375,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−35	386−5919−XX			1	PLATE,ELEC:GND,ALUMINUM	80009	3865919XX
−36	348−0970−XX			2	SHLD GSKT,ELEK:FINGER TYPE,0.75 L	80009	3480970XX
−37	210−0269−XX			1	TERMINAL,LUG:0.257 ID,PLAIN,BRS TINNED	0KB01	905−020
−38	343−1367−XX			3	CLAMP,LOOP:3.3MM ID,NYLON (ATTACHING PARTS)	TK0AR	30−0608
−39	210−0407−XX			3	NUT,PLAIN,HEX:6−32 X 0.25,BRS (END ATTACHING PARTS)	73743	3038−402
−40	343−1286−XX			1	CLAMP,CABLE:6.8 ID,NYLON (ATTACHING PARTS)	80009	3431286XX
−41	210−0407−XX			1	NUT,PLAIN,HEX:6−32 X 0.25,BRS (END ATTACHING PARTS)	73743	3038−402
−42	136−0887−XX			4	SOCKET,PIN TERM:0.16 DIA,RED	80009	1360887XX
−43	136−0888−XX			11	SOCKET,PIN TERM:0.16 DIA,GRAY	80009	1360888XX
−44	210−0241−XX			2	TERMINAL,LUG:0.515 ID,PLAIN,STL	TK1665	ORDER BY DESC
−45	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE W91 REPL)		
−46	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE W95 REPL)		
−47	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE W3 REPL)		
−48	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE W4 REPL)		
−49	−−−−−−−−			1	WIRE SET,ELEC:(SEE W104 REPL)		
−50	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE W103 REPL)		
−51	−−−−−−−−			1	WIRE SET,ELEC:(SEE W102 REPL)		
−52	343−0549−XX			4	STRAP,TIEDOWN,E:0.098 W X 4.0 L,ZYTEL	TK1499	HW−047
−53	407−3889−XX			1	BRACKET,MTG:ADAPTER PL W/PRESSNUT,AL (ATTACHING PARTS)	80009	4073889XX
−54	211−0038−XX			4	SCREW,MACHINE:4−40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−55	407−3484−XX			2	BRACKET,SW MTG:ALUMINUM (ATTACHING PARTS)	80009	4073484XX
−56	211−0038−XX			4	SCREW,MACHINE:4−40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−57	−−−−−−−−			2	SWITCH,SENS:(SEE S400,S402 REPL) (ATTACHING PARTS)		
−58	213−0986−XX			4	SCREW,MACHINE:2−26 X 12MM,HEX,BRS	80009	2130986XX
−59	210−0938−XX			4	WASHER,FLAT:0.109 ID X 0.25 OD X 0.032,STL	TK0413	ORDER BY DESC
−60	210−0054−XX			4	WASHER,LOCK:#4 SPLIT,0.025 THK STL (END ATTACHING PARTS)	86928	ORDER BY DESC
−61	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE W401 REPL)		
−62	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE W402 REPL)		
−63	343−0549−XX			3	STRAP,TIEDOWN,E:0.098 W X 4.0 L,ZYTEL	TK1499	HW−047
−64	344−0395−XX			1	CLIP,CABLE:NYLON	80009	3440395XX
−65	344−0396−XX			2	CLIP,CABLE:PVC	80009	3440396XX

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
5−66	333−3719−XX			1	PANEL,FRONT:	80009	3333719XX
−67	407−3472−XX			1	BRACKET,ANGLE:LOWER,PANEL (ATTACHING PARTS)	80009	4073472XX
−68	210−0586−XX			2	NUT,PL,ASSEM WA:4−40 X 0.25,STL	TK0435	ORDER BY DESC
−69	211−0038−XX			2	SCREW,MACHINE:4−40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−70	122−0184−XX			1	ANGLE,RAIL:SUBPANEL MTG,RIGHT (ATTACHING PARTS)	80009	1220184XX
−71	210−0586−XX			1	NUT,PL,ASSEM WA:4−40 X 0.25,STL	TK0435	ORDER BY DESC
−72	211−0038−XX			5	SCREW,MACHINE:4−40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−73	351−0855−XX			1	GUIDE,PB:370A LEFT−STANDBY−RIGHT SWBD	80009	3510855XX
−74	−−−−−−−−			1	CKT BOARD ASSY:LOR KEY(SEE A14 REPL) (ATTACHING PARTS)		
−75	210−0586−XX			3	NUT,PL,ASSEM WA:4−40 X 0.25,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
−76	129−1128−XX			3	.SPACER,POST:5.1MM,L,POLYCARBONATE	80009	1291128XX
−77	−−−−−−−−			2	LT EMITTING DOI:(SEE A14DS100,DS400 REPL)		
−78	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE A14W140 REPL)		
−79	366−0617−XX			3	PUSH BUTTON:SILVER GRAY,9.6 X 4.2 X 8.5MM	80009	3660617XX
−80	426−2336−XX			1	SUBPANEL,TEST F:ALUMINUM	80009	4262336XX
−81	333−3716−XX			1	PANEL,FRONT:	80009	3333716XX
−82	426−2331−XX			1	FRAME:POLYCARBONATE	80009	4262331XX
−83	343−1084−XX			2	CLAMP,CABLE:NYLON	80009	3431084XX
−84	407−3857−XX			1	BRACKET,CMPNT:CKT BREAKER,ALUMINUM (ATTACHING PARTS)	80009	4073857XX
−85	210−0586−XX			2	NUT,PL,ASSEM WA:4−40 X 0.25,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−86	−−−−−−−−			1	SWITCH.CKT BREAKER:(SEE S800 REPL)		
−87	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE W410 REPL)		
−88	337−3344−XX			1	SHIELD,ELEC:PROTECTIVE BOX,PC	80009	3373344XX



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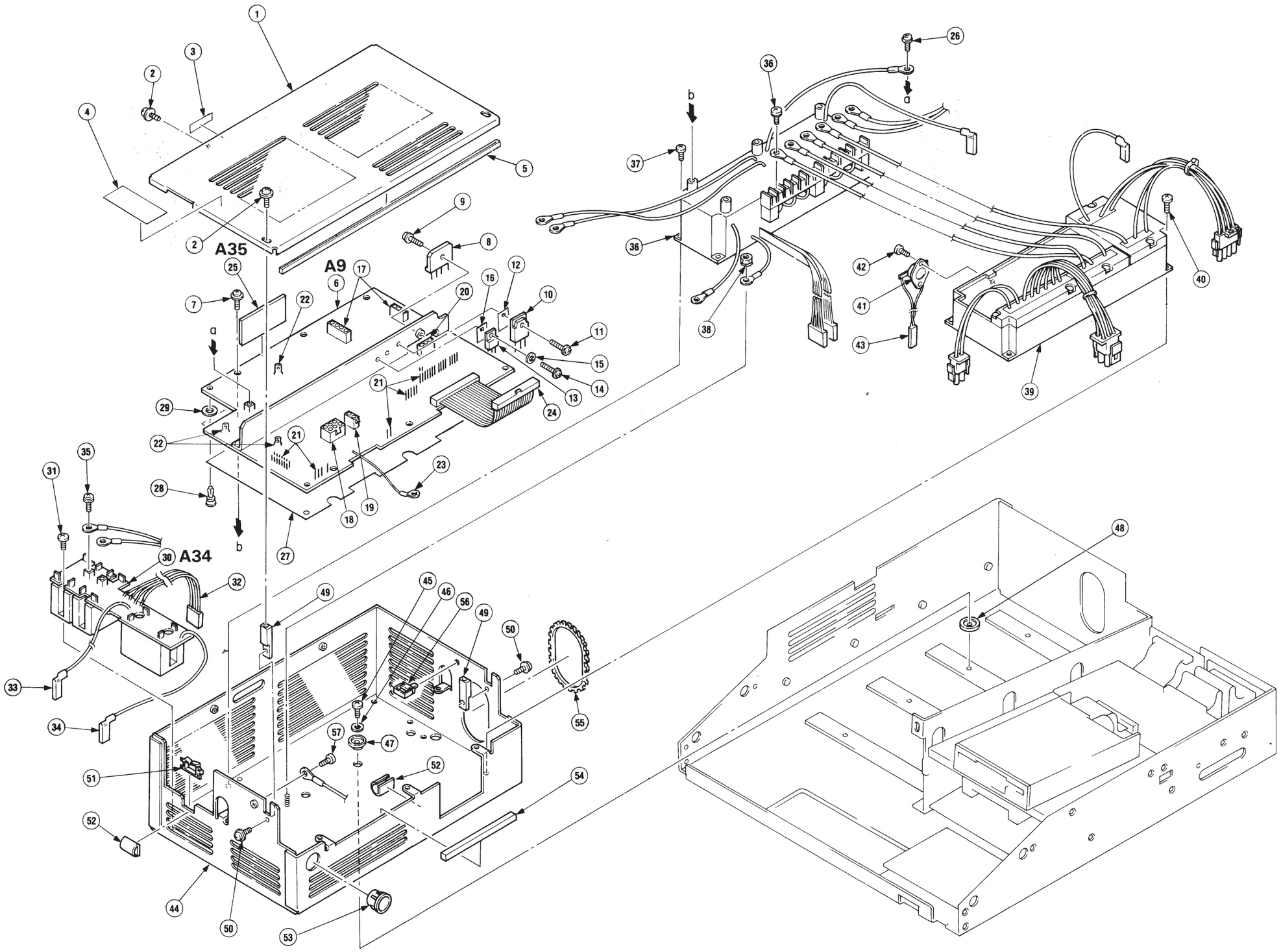

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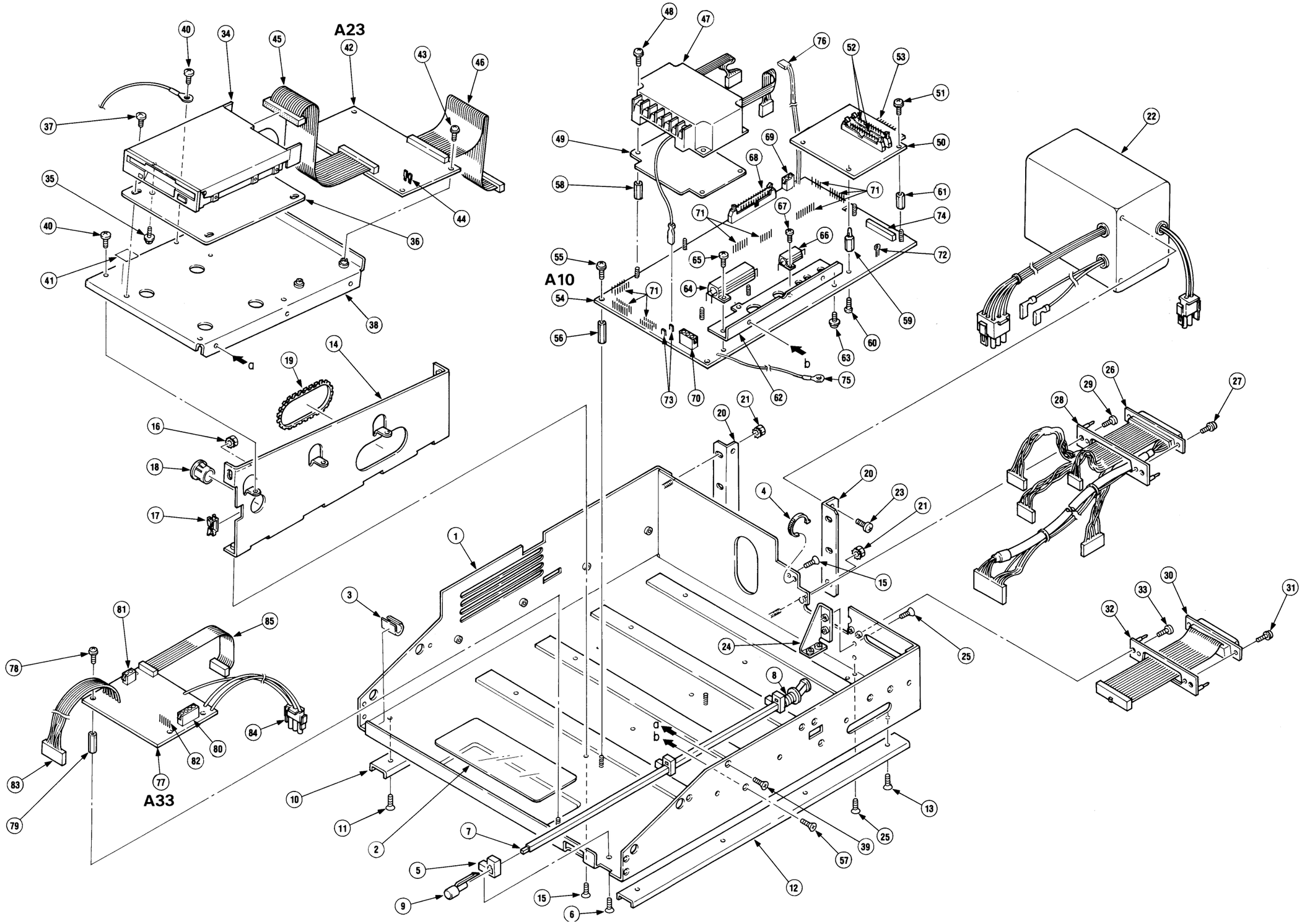
Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
6–1	441–1923–XX			1	CHAS,TEST FXTR:GUARD BOX COVER,AL (ATTACHING PARTS)	80009	4411923XX
–2	211–0661–XX			4	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–3	334–7730–XX			1	MARKER,IDENT:MKD LOOPING INFO	80009	3347730XX
–4	334–6690–XX			1	MARKER,IDENT:MKD CAUTION & DANGER	80009	3346690XX
–5	252–0719–XX			1	PLASTIC SH,CHAN:0.047 X 0.063 THK,39.37 L	80009	2520719XX
–6	––––––––			1	CKT BOARD ASSY:LV RELAY(SEE A9 REPL) (ATTACHING PARTS)		
–7	211–0729–XX			8	SCR,ASSEM WSHR:6–32 X 0.437,PH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
–8	––––––––			1	SEMICOND,DVC:(SEE A9CR300 REPL) (ATTACHING PARTS)		
–9	211–0315–XX			1	.SCR,ASSEM WSHR:4–40 X 0.437,PHN,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–10	––––––––			1	SEMICOND,DVC:(SEE A9CR200 REPL) (ATTACHING PARTS)		
–11	211–0315–XX			1	.SCR,ASSEM WSHR:4–40 X 0.437,PHN,STL	TK0435	ORDER BY DESC
–12	342–0787–XX			1	.INSULATOR,PLATE:TRANSISTOR,TO–3P (END ATTACHING PARTS)	80009	3420787XX
–13	––––––––			2	SEMICOND,DVC:(SEE A9CR202,CR204 REPL) (ATTACHING PARTS)		
–14	211–0315–XX			2	.SCR,ASSEM WSHR:4–40 X 0.437,PHN,STL	TK0435	ORDER BY DESC
–15	210–1178–XX			2	.WASHER,SHLDR:U/W TO–220 TRANSISTOR	13103	7721–7PPS
–16	342–0163–XX			2	.INSULATOR,PLATE:TRANSISTOR,SILICON RBR (END ATTACHING PARTS)	80009	3420163XX
–17	––––––––			2	CONN,RCPT,ELEC:(SEE A9J91,J94 REPL)		
–18	––––––––			1	CONN,RCPT,ELEC:(SEE A9J92 REPL)		
–19	––––––––			1	CONN,RCPT,ELEC:(SEE A9J92 REPL)		
–20	––––––––			1	CONN,RCPT,ELEC:(SEE A9J95 REPL)		
–21	––––––––			8	TERM,PIN:(SEE A9J80,J82,J89,J93,J150,J160, J400,J410 REPL)		
–22	––––––––			3	TERM,QIK DISK:(SEE A9J90,J97,J99 REPL)		
–23	––––––––			1	CA ASSY,SP,ELEC:(SEE A9W10 REPL)		
–24	––––––––			1	LEAD,ELECTRICAL:(SEE A9W90 REPL)		
–25	––––––––			1	CKT BOARD ASSY:LOOPING(SEE A35 REPL)		
–26	211–0751–XX			1	.SCR,ASSEM WSHR:M3 X 8	80009	2110751XX
–27	342–0895–XX			1	INSULATOR:POLYCARBONATE,LV CKT BD (ATTACHING PARTS)	80009	3420895XX
–28	210–3110–XX			4	RIVET,SOLID:5.5MM L X 3.4MM OD,TRUSS,NYLON	TK0BK	27–0601
–29	210–1475–XX	J301393	J301917	4	WASHER,PLAIN:3.56 ID X 7.94 OD X 0.8 THK (END ATTACHING PARTS)	80009	2101475XX
–30	––––––––			1	CKT BOARD ASSY:LOR RELAY(SEE A34 REPL) (ATTACHING PARTS)		
–31	211–0504–XX			6	SCREW,MACHINE:6–32 X 0.250,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
6−32	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE A34W89 REPL)		
−33	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE A34W94 REPL)		
−34	−−−−−−−−			1	LEAD,ELECTRICAL:(SEE A34W97 REPL)		
−35	211−0751−XX			2	.SCR,ASSEM WSHR:M3 X 8	80009	2110751XX
−36	−−−−−−−−			1	HV MODULE:(SEE U800 REPL) (ATTACHING PARTS)		
−37	211−0504−XX			4	SCREW,MACHINE:6−32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−38	210−0457−XX			1	NUT,PL,ASSEM WA:6−32 X 0.312,STL	TK0435	ORDER BY DESC
−39	−−−−−−−−			1	RESISTOR,SERIES:(SEE R400 REPL) (ATTACHING PARTS)		
−40	211−0504−XX			4	SCREW,MACHINE:6−32 X 0.250,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−41	−−−−−−−−			1	SWITCH,THERMAL:(SEE S90 REPL) (ATTACHING PARTS)		
−42	211−0008−XX			2	SCREW,MACHINE:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−43	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE W93 REPL)		
−44	441−1922−XX			1	CHAS,TEST FXTR:GUARD BOX,ALUMINUM (ATTACHING PARTS)	80009	4411922XX
−45	211−0511−XX			8	SCREW,MACHINE:6−32 X 0.5,PNH,STL	TK0435	ORDER BY DESC
−46	210−0803−XX			8	WASHER,FLAT:0.15 ID X 0.375 OD X 0.032,STL (END ATTACHING PARTS)	12327	ORDER BY DESC
−47	342−0774−XX			8	INSULATOR,BSHG:4MM ID X 6MM THK,16MM OD	80009	3420774XX
−48	361−1380−XX			8	SPACER,RING:3MM L X 8.1MM ID	80009	3611380XX
−49	220−0105−XX			2	NUT BLOCK:4−40 X 5.5MM,BRS (ATTACHING PARTS)	TK0CB	ORDER BY DESC
−50	211−0661−XX			2	SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−51	344−0395−XX			1	CLIP,CABLE:NYLON	80009	3440395XX
−52	344−0396−XX			2	CLIP,CABLE:PVC	80009	3440396XX
−53	348−0949−XX			1	GROMMET,PLASTIC:BLACK,RING,15MM ID	80009	3480949XX
−54	255−1108−XX			1	PLASTIC CHANNEL:1000 X 4.4 X 5.0MM,NYLON	80009	2551108XX
−55	255−0334−XX			1	PLASTIC CHANNEL:12.75 X 0.175 X 0.155,NYLON	11897	122−NN−2500−060
−56	343−1288−XX			1	CLAMP,CABLE:PLASTIC	80009	3431288XX
−57	211−0504−XX			1	SCREW,MACHINE:6−32 X 0.250,PNH,STL	TK0435	ORDER BY DESC

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
7–1	441–1919–XX			1	CHAS,TEST FXTR:MAIN,AL	80009	4411919XX
–2	342–0776–XX			1	INSULATOR,FILM:370	80009	3420776XX
–3	344–0396–XX			1	CLIP,CABLE:PVC	80009	3440396XX
–4	343–0549–XX			1	STRAP,TIEDOWN,E:0.098 W X 4.0 L,ZYTEL	TK1499	HW–047
–5	351–0774–XX			3	GUIDE,SLIDE:PWR SW,POLYCARBONATE (ATTACHING PARTS)	80009	3510774XX
–6	211–0038–XX			3	SCREW,MACHINE:4–40 X 0.312,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–7	384–1703–XX			1	EXTENSION SHAFT:PWR SW	80009	3841703XX
–8	214–3420–XX			1	SPRING,HLCPS:10.0MM OD X 9.5MM L,CLE,SST	80009	2143420XX
–9	366–1767–XX			1	PUSH BUTTON:BLACK,GREEN INDICATOR	80009	3661767XX
–10	122–0181–XX			1	ANGLE,RAIL:LEFT (ATTACHING PARTS)	80009	1220181XX
–11	211–0502–XX			4	SCREW,MACHINE:6–32 X 0.188,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–12	122–0182–XX			1	ANGLE,RAIL:RIGHT (ATTACHING PARTS)	80009	1220182XX
–13	211–0502–XX			4	SCREW,MACHINE:6–32 X 0.188,FLH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–14	441–1920–XX			1	CHAS,TEST FXTR:ALUMINUM,MID (ATTACHING PARTS)	80009	4411920XX
–15	211–0538–XX			7	SCREW,MACHINE:6–32 X 0.312,FLH,STL	TK0435	ORDER BY DESC
–16	210–0457–XX			1	NUT,PL,ASSEM WA:6–32 X 0.312,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–17	344–0395–XX			1	CLIP,CABLE:NYLON	80009	3440395XX
–18	348–0949–XX			1	GROMMET,PLASTIC:BLACK,RING,15MM ID	80009	3480949XX
–19	255–0334–XX			1	PLASTIC CHANNEL:12.75 X 0.175 X 0.155,NYLON	11897	122–NN–2500–060
–20	407–3486–XX			2	BRACKET,XFMR:ALUMINUM (ATTACHING PARTS)	80009	4073486XX
–21	220–0410–XX			6	NUT,PL,ASSEM WA:10–32 X 0.375 HEX,STL (END ATTACHING PARTS)	0KB01	511–101200–50–0
–22	––––––––			1	TRANSFORMER:(SEE T200 REPL) (ATTACHING PARTS)		
–23	212–0507–XX			4	SCREW,MACHINE:10–32 X 0.375,PNH,STL (END ATTACHING PARTS)	TK0435	MACHINE SCREW
–24	407–3854–XX			1	BRACKET,ANGLE:ALUMINUM,SUPPORT (ATTACHING PARTS)	80009	4073854XX
–25	211–0538–XX			4	SCREW,MACHINE:6–32 X 0.312,FLH,100 DEG,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–26	––––––––			1	WIRE SET,ELEC:(SEE W491 REPL) (ATTACHING PARTS)		
–27	211–0661–XX			2	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–28	386–5917–XX			1	PLATE,CONN MTG:STEEL (ATTACHING PARTS)	80009	3865917XX
–29	211–0510–XX			2	SCREW,MACHINE:6–32 X 0.375,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
7−30	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE W142 REPL) (ATTACHING PARTS)		
−31	211−0661−XX			2	SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−32	386−5484−XX			1	PLATE,CONN MTG:MALE,STEEL (ATTACHING PARTS)	80009	3865484XX
−33	211−0510−XX			2	SCREW,MACHINE:6−32 X 0.375,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−34	−−−−−−−−			1	FLOPPY DISK DRIVE:(SEE A24 REPL)STAND.ACC (ATTACHING PARTS)		
−35	211−0751−XX			4	SCR,ASSEM WSHR:M3 X 8 (END ATTACHING PARTS)	80009	2110751XX
−36	337−3588−XX			1	SHIELD,ELEC:ALUMINUM (ATTACHING PARTS)	80009	3373588XX
−37	211−0658−XX			4	SCR,ASSEM WSHR:6−32 X 0.312,PNH,STL,POZ (END ATTACHING PARTS)	TK0435	17691−300
−38	407−3855−XX			1	BRKT,TEST FXTR:ALUMINUM,FDD MTG (ATTACHING PARTS)	80009	4073855XX
−39	211−0538−XX			3	SCREW,MACHINE:6−32 X 0.312,FLH,STL	TK0435	ORDER BY DESC
−40	211−0507−XX			3	SCREW,MACHINE:6−32 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
−41	334−6696−XX			1	MARKER,IDENT:MKD DANGER	80009	3346696XX
−42	−−−−−−−−			1	CKT BOARD ASSY:FDD INTERFACE (SEE A23 REPL) (ATTACHING PARTS)		
−43	211−0661−XX			4	SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
−44	−−−−−−−−			2	TERM,TEST POINT:(SEE A23TP100,TP200 REPL)		
−45	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE A23W200 REPL)		
−46	−−−−−−−−			1	CA ASSY,SP,ELEC:(SEE A23W100 REPL)		
−47	−−−−−−−			1	INPUT RELAY MODULE:(SEE U300 REPL) (ATTACHING PARTS)		
−48	211−0244−XX			4	SCR,ASSEM WSHR:4−40 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	7772−312
−49	337−3629−XX			1	SHIELD,ELEC:INPUT RELAY MODULE,AL	80009	3373629XX
−50	−−−−−−−			1	CKT BD ASSY:KEY INTERFACE(SEE A13 REPL) (ATTACHING PARTS)		
−51	211−0661−XX				SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	TK0435	ORDER BY DESC
−52	−−−−−−−−			2	CONN,RCPT,ELEC:(SEE A13J100,J142 REPL)		
−53	−−−−−−−−			1	HEADER,R−ANGLE:(SEE A13J131 REPL)		
−54	−−−−−−−−			1	CKT BOARD ASSY:SENSE(SEE A10 REPL) (ATTACHING PARTS)		
−55	211−0661−XX			6	SCR,ASSEM WSHR:4−40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
−56	129−0713−XX			6	SPACER,POST:19.05MM L,W/4−40 THD EA END	80009	1290713XX
−57	211−0538−XX			2	SCREW,MACHINE:6−32 X 0.312,FLH,STL	TK0435	ORDER BY DESC
−58	129−1328−XX			4	SPACER,POST:15MM L,4−40 THD,BRASS	80009	1291328XX

Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
7–59	343–1446–XX			2	RETAINER,CKT BD:12.7MM L,NYLON	80009	3431446XX
–60	213–0146–XX			2	SCREW,TPG,TF:6–20 X 0.312,TYPE B,PNH,STL	TK0435	ORDER BY DESC
–61	129–1131–XX			2	SPACER,POST:12.7MM L,4–40 THD,BRASS (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	80009	1291131XX
–62	214–3877–XX			1	.HT SK,CKT BD:AL (ATTACHING PARTS)	80009	2143877XX
–63	211–0661–XX			3	.SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–64	––––––––			1	RES,FXD,WW:(SEE A10R100 REPL) (ATTACHING PARTS)		
–65	211–0097–XX			2	.SCREW,MACHINE:4–40 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–66	––––––––			3	RES,FXD,WW:(SEE A10R104,R106,R108 REPL) (ATTACHING PARTS)		
–67	211–0062–XX			6	.SCREW,MACHINE:2–56 X 0.312,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESC
–68	––––––––			1	CONN,RCPT,ELEC:(SEE A10J90 REPL)		
–69	––––––––			1	CONN,RCPT,ELEC:(SEE A10J104 REPL)		
–70	––––––––			1	CONN,RCPT,ELEC:(SEE A10J302 REPL)		
–71	––––––––			12	TERM,PIN:(SEE A10J101,J102,J140,J300,J308, J330,J414,J415,J416,J417,J418,J419 REPL)		
–72	––––––––			3	TERM,TEST POINT:(SEE A10TP250,TP460, TP708 REPL)		
–73	––––––––			2	TERM.QIK DISC:(SEE A10J301,J303 REPL)		
–74	––––––––			1	CONN,RCPT,ELEC:(SEE A10J130 REPL)		
–75	––––––––			1	LEAD ELECTRICAL:(SEE A10W105 REPL)		
–76	––––––––				CA ASSY,SP,ELEC:(SEE A10W160 REPL)		
–77	––––––––			1	CKT BD ASSY:CONFIG.RELAY(SEE A33 REPL) (ATTACHING PARTS)		
–78	211–0661–XX			4	SCR,ASSEM WSHR:4–40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
–79	129–1328–XX			4	SPACER,POST:15MM L,4–40 THD,BRASS (END ATTACHING PARTS) CKT BOARD ASSY INCLUDES:	80009	1291328XX
–80	––––––––			1	CONN,RCPT,ELEC:(SEE A33J104 REPL)		
–81	––––––––			1	CONN,RCPT,ELEC:(SEE A33J102 REPL)		
–82	––––––––			1	TERM,PIN:(SEE A33J103 REPL)		
–83	––––––––			1	CA ASSY,SP,ELEC:(SEE A33W419 REPL)		
–84	––––––––			1	WIRE SET,ELEC:(SEE A33W302 REPL)		
–85	––––––––			1	CA ASSY,SP,ELEC:(SEE A33W330 REPL)		



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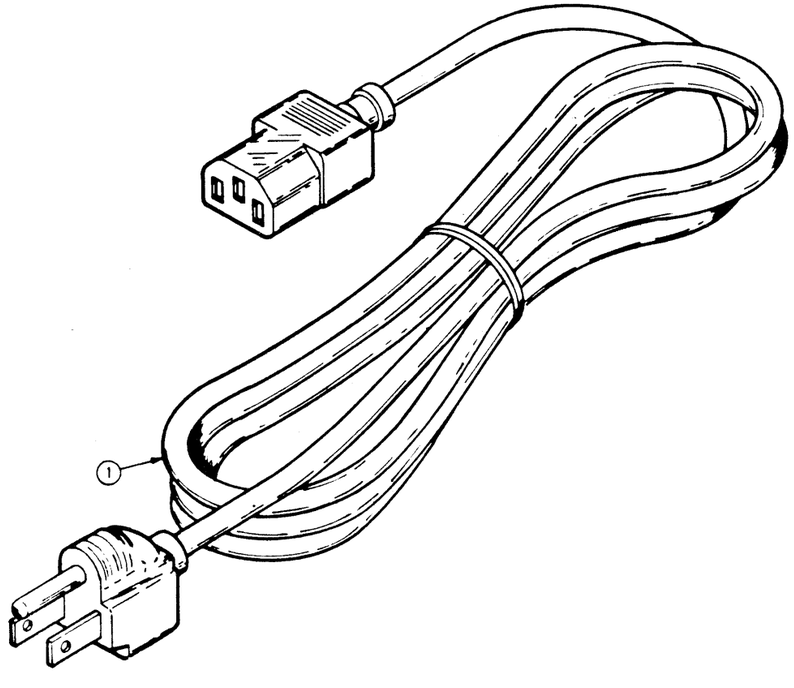

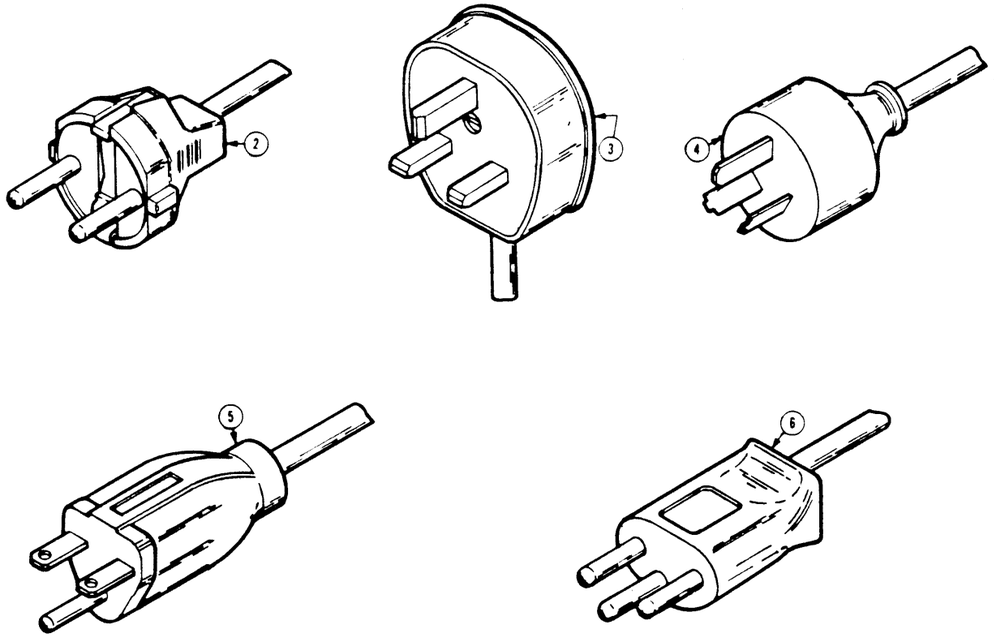

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Fig. & Index No.	Tektronix Part No.	Serial No. Effective	Serial No. Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
					STANDARD ACCESSORIES		
	070−7779−XX			1	MANUAL,TECH:OPERATORS,370A	TK2548	PER TEK P/N
	159−0260−XX			1	FUSE,CARTRIDGE:2A,250V,MEDIUM	80009	1590260XX
	159−0259−XX			1	FUSE,CARTRIDGE:4A,125V,MEDIUM	80009	1590259XX
	337−3344−XX			1	SHIELD,ELEC:PROTECTIVE BOX,PC	80009	3373344XX
	119−3446−XX			1	FLOPPY DISKETTE:2DD,3.5 INCH	80009	1193446XX
	−−−−−−−−			1	FLOPPY DISK UNI:(SEE A24 REPL)		
	−−−−−−−−			1	A1001−ADAPTER,TEST:BLANK		
	−−−−−−−−			1	A1002−ADAPTER,TEST:IN−LINE		
	−−−−−−−−			1	A1005−ADAPTER,TEST:AXIAL LEAD		
	−−−−−−−−			1	A1007−ADAPTER,TEST:4 & 6 LEAD TRANSISTOR		
8−1	161−0066−00			1	CA ASSY,PWR:3,18 AWG,250V/10A,98 INCH,STR (STANDARD ONLY)	S3109	161−0066−00
−2	161−0066−09			1	CA ASSY,PWR:3,0.75MM SQ,250V/10A,99 INCH (OPTION A1 ONLY)	S3109	86511000
−3	161−0066−10			1	CA ASSY,PWR:3,0.1MM SQ,250V/10A,2.5 METER (OPTION A2 ONLY)	S3109	BS/13−H05VVF3G0
−4	161−0066−11			1	CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER (OPTION A3 ONLY)	S3109	198−000
−5	161−0066−12			1	CA ASSY,PWR:3,18 AWG,250V/10A,98 INCH,STR (OPTION A4 ONLY)	TK2541	13E68,25−1E−250
−6	161−0157−00			1	CABLE ASSY,PWR,:3 X 0.75MM SQ,250V,7.0 L (OPTION A5 ONLY)	TK1267	ORDER BY DESC
					OPTIONAL ACCESSORIES		
	016−0357−XX			1	ADAPTER,HOOD:C5B & OPT 01		
	067−0187−XX			1	FIXTURE,CAL:370A MAINTENANCE	80009	0160357XX
	122−0895−XX			1	HOOD,CRT:13 X 14 CM W/LABEL	80009	0670187XX
	016−0249−XX			1	ADAPTER,CAMERA:C50	80009	1220895XX
	070−7780−XX			1	MANUAL,TECH:SERVICE,370A	80009	0160249XX
	−−−−−−−−			1	A1003−ADAPTER,TEST:TO−3/TO−66	80009	0707780XX
	−−−−−−−−			1	A1004−ADAPTER,TEST:OFFSET LEAD/POWER		
	−−−−−−−−			1	A1006−ADAPTER,TEST:LONG−LEAD XSTR		
	−−−−−−−−			1	A1008−ADAPTER,TEST:LONG−LEAD FET		
	−−−−−−−−			1	A1009−ADAPTER,TEST:4 & 6 LEAD FET		
	−−−−−−−−			1	A1010−ADAPTER,TEST:IC		
	−−−−−−−−			1	A1023−ADAPTER,TEST:SOT 23 SMD		