

Service Manual



WFM601i Serial Digital Component Monitor 070-8967-00

**Please check for change information at the rear
of this manual.**

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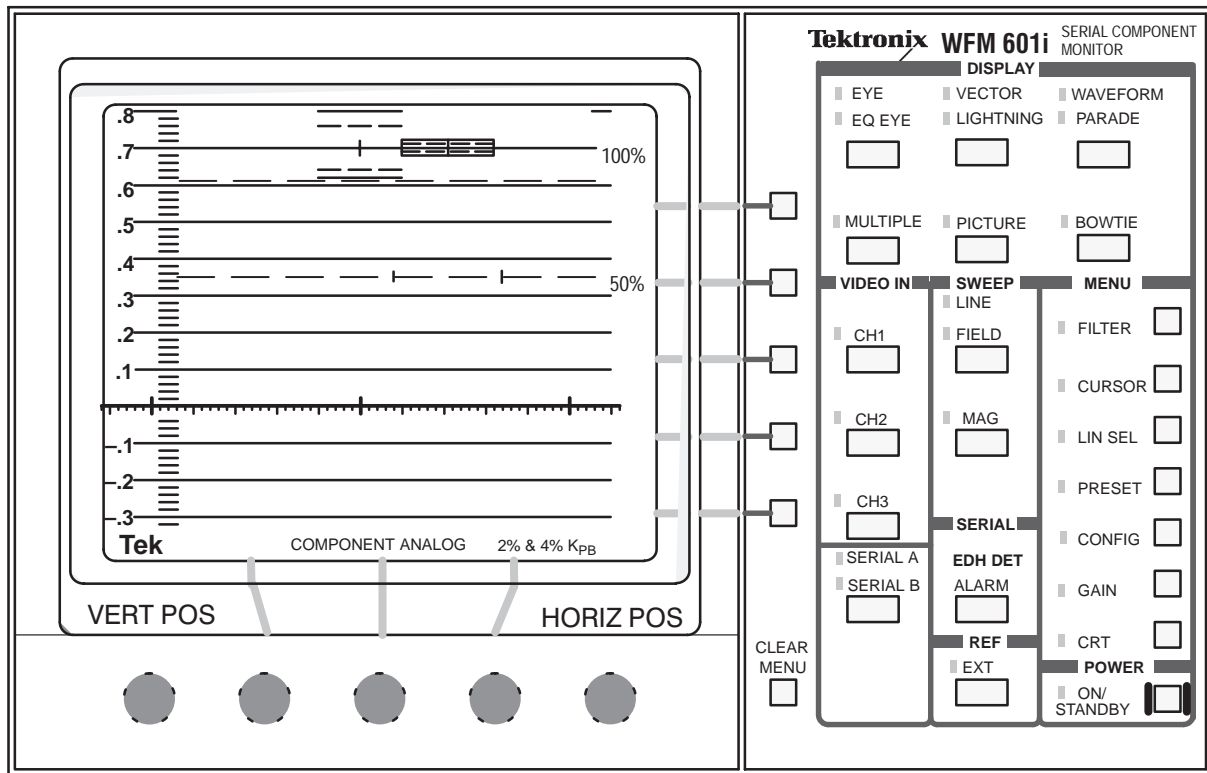
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The WFM 601i Serial Digital Component Monitor

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Safety Summary

This summary contains general safety information for operating and servicing personnel. Specific warnings and cautions are given throughout the manual where they apply, but may not appear in this summary.

Safety Terms and Symbols

Terms in This Manual

These terms may appear in this manual:



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



CAUTION. Caution statements identify conditions or practices that could result in damage to this product or other property.

The triangle with the asterick indicates where applicable cautionary or other information is to be found.

Terms on the Product

These terms may appear on the product:

CAUTION indicates an injury hazard not immediately accessible as one reads the marking, or a hazard to the equipment or other property.

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

Symbols

As marked on the equipment:



DANGER — High voltage.



Protective ground (earth) terminal.



ATTENTION — refer to manual.

Power Source	This product is intended to operate from a power source that applies no more than 250 volts RMS between the supply conductors or between either supply conductor and ground.
Ground The Product	This product is grounded through the grounding conductor of the power module power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.
Danger Arising From Loss Of Ground	If the protective connection to ground is lost, all accessible conductive parts (including knobs and controls that may appear to be insulated) can render an electric shock.
Use The Proper Fuse	Use only the fuse of correct type, voltage rating, and current rating, as specified in the parts list for the product. Refer fuse replacement to qualified personnel.
Do Not Operate In An Explosive Atmosphere	Do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.
Do Not Operate Without Covers	To avoid injury, do not operate the product without its covers and panels properly installed.
Do Not Service Alone	Do not service or adjust this product unless another person capable of rendering first aid and cardiopulmonary resuscitation is present.
Power Supply Shield	The plastic shield on the power supply board is required for protection from dangerous voltages that are present on the board. This shield must be in place at all times when operating the instrument.

Preface

This manual provides servicing information for the WFM 601i Serial Digital Component Monitor. Material found in this volume is targeted at the service technician; additional operating information can be found in the WFM 601i User manual.

Service Level Supported This manual supports both Module Level (for module exchange) and Component Level servicing. Module Level servicing utilizes the block diagram and its descriptions to isolate a problem to the circuits on a particular etched circuit board. To support Component Level servicing there is additional theory of operation, schematic diagrams, circuit board parts locating illustrations, and cross reference indexes (part location charts) for each circuit board.

When contemplating the level of servicing that is appropriate for a specific facility, please consider the fact that this instrument contains etched circuit boards that utilize surface mount technology. Surface mounted components are not soldered to the circuit board in the traditional manner, they require special techniques and tools to remove and re-install.

Specific Content Much of the information in this manual is shared with the User manual; however, the depth of the material depends on the potential use. A quick comparison will reveal that there are installation instructions in both manuals, along with specifications, servicing, and operating instructions.

The installation instructions in both manuals are nearly identical. Installation of this instrument is so straightforward that anyone can install the instrument in its operating environment.

The operating instructions in the User manual are much more detailed than those in the Service manual. The need for a service technician is considerably less than that of an end user. If the operating instructions in this manual are not complete enough, please refer to the User manual for more detailed instructions.

The specifications contained in the Specification section of this manual should be used by the servicing technician. Its tables contain Performance Verification step numbers to make it possible to document the test methods used to verify the accuracy of the instrument.

The User manual contains some servicing instructions for quick, nondangerous operations; however, the bulk of the servicing instructions are located in this manual. Note that there are specific procedures for troubleshooting and disassembly in this manual, they should only be attempted by competent service technicians. Items in the maintenance section contain both *Warnings* and *Cautions* that should be read and followed when performing maintenance on the instrument.

The last sections of this manual contain the Replaceable Parts Lists, Circuit Board Illustrations, and Schematic Diagrams needed to isolate and replace faulty components. Note that replacement part ordering information can be found in the Maintenance section of this manual.

Readjustment These instruments are designed to be returned to operation within stated specifications through a PC-based adjustment procedure. The disk holder for this manual contains one calibration software computer disk.

An IBM compatible personal computer (PC) with a DOS 3.3 or higher operating system, and a 3¹/₂ inch high density floppy drive is required to perform the readjustment procedure.



Specifications

Specifications

The WFM 601i is capable of measuring and monitoring 4–2–2 component serial digital. It displays the video signal in the familiar component analog representation, either paraded or overlaid. An equivalent time sampler is incorporated to show the eye pattern of the of the serial signal. Data integrity is verified by the EDH (Error Detection and Handling) system, and by a suite of serial digital format checks.

Features

The following list composes the feature set for the WFM 601i.

- Eye Pattern Display of the Selected Serial Input.
- Serial Jitter Measurement; three selectable bandwidths.
- Serial Format Checking.
- EDH: (Follows A/B switching) LED for presence and an alarm, rear panel TTL low through Remote Connector.
- RGB or Y P_B P_R display format.
- Any or all of channels 1, 2, or 3 displayed.
- Parade or Overlay display.
- Flat, Low Pass, or Diff'd Step filtering.
- X1, X5, X10, and Variable Vertical gain.
- Line and Field sweeps.
- 200 ns/div Line sweep.
- Bar Cursors; amplitude, time, amplitude + time, and marker.
- Line Select with readout; 1 line or 15 line, all fields or 1 of 2 fields. Bright up of selected lines on Picture Monitor Out (Y or G Channel).
- Vector Display; fixed or variable gain, 75% or 100% bars, SMPTE/EBU N10.
- Lightning or Diamond display; vertical gain, 75% or 100% bars, SMPTE/EBU N10.
- Electronic graticules for Lightning, Diamond, and Vector displays.

- Monitor Output; GBR or Y P_B P_R (follows A/B switching). Gamut error bright up.
- Reclocked Serial Component Digital output following A/B switching.
- Video Reference: Internal Serial Component signal (follows A/B switching), External Composite.

Menu An expanded feature set is available through menus and multi-use buttons and knobs. When the operator selects a menu item, such as Voltage and Timing Cursors, an on-screen label shows the current function of the controls.

The operator can also recall up to 10 front-panel setups through the Preset menu; 9 presets are user-programmable and 1 is factory-programmed.

Calibrator Vertical and horizontal instrument gain can be set using the calibrator signal. The calibrator signal is a 700 mV 100 kHz signal.

Characteristics Tables

The tables that follow specify instrument electrical characteristics, mechanical characteristics, environmental characteristics, and certification. The tables are logically grouped under specific functions, beginning with waveform input and vertical channel specifications and ending with mechanical characteristics.

Categories Each table consists of a column that identifies the characteristics that are defined by the entries in the Description column. A single item in the category column might have multiple description items, which could include performance requirements, reference information, and performance verification step numbers.

Descriptions The second column of the two-column format contains all of the descriptive material about the listed characteristic. In addition, the performance verification procedure step number, used to verify the characteristic, is also in this column.

Performance Requirements (*REQ*). Items with this designation are critical to instrument performance. In most cases they have a tolerance given and have a performance verification step number accompanying them. However, there are a few areas where instrument operation verifies that this performance requirement is met.

Reference Information (*REF*). This is information about the operation of the instrument that is important enough to place it with the performance requirements. In some cases there may be a tolerance listed, but these should be considered as typical, not absolute.

Performance Verification Procedure Step. This item identifies the location of the test method to prove the performance requirement. The procedure itself is located in Section 4. Section 5 contains calibration information, if readjustment becomes necessary.

Table 1–1: Waveform Vertical Deflection

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Deflection Factor	<p>REQ: For Digital Input: 700 mV digital input = 700 mV \pm 2 % screen display any magnifier setting.</p> <p>REF: Any one of the three channels.</p> <p>REF: RGB on-screen accuracy \pm 3 %.</p> <p><i>Performance Verification Procedure Step:7</i></p>
Variable Gain Range	<p>REF: 0.2X to 1.4X.</p> <p><i>Performance Verification Procedure Step:7</i></p>
Frequency Response	<p>REF: Luminance Channel (Y), to 5.0 MHz \leq 2% Color Difference Channels (P_B and P_R) to 2.5 MHz \leq 2 %.</p> <p>REF: Typically \leq 1% to 5.75 MHz luminance (Y) channel and \leq 1% to 2.75 MHz for the color difference (P_B or P_R) channel.</p>
Transient Response	<p>REF: Preshoot \leq 1%.</p> <p>REF: Overshoot \leq 1%.</p> <p>REF: Ringing \leq 1%.</p> <p>REF: Pulse-to-Bar Ratio: 0.99:1 to 1.01:1.</p>
Off-screen Recovery	<p>REF: 1% variation in baseline of a 5 MHz modulated pulse when positioned anywhere on screen.</p> <p>REF: X1, X5, or X10 with any variable gain setting.</p>
Voltage Cursor Accuracy	<p>REQ: \pm 0.5% over 20 – 30° C. \pm 1% over rated temperature range.</p> <p><i>Performance Verification Procedure Step:8</i></p>
Differentiated Step Filter	<p>REF: Amplitude of pulses \leq 1% variation.</p>
Field Rate Tilt	<p>REF: \leq 1%.</p>
Line Rate Tilt	<p>REF: \leq 1%.</p>
Low Pass Filter Gain	<p>REQ: 1 \pm 1%.</p> <p><i>Performance Verification Procedure Step:9</i></p>
Low Pass Filter Response	<p>REF: \leq 3 dB attenuation at 1 MHz.</p> <p>REF: \geq 40 dB attenuation at 4 MHz.</p>

Table 1–2: Serial Digital Interface (Serial A & Serial B)

CATEGORY	DESCRIPTION
Format	REF: 270 Mbit/s component. Complies with SMPTE 259M and CCIR 656.
Input Type	REF: Passive loopthrough 75 Ω compensated.
Input Level	REF: 800 mV peak-to-peak \pm 10%. REF: Input voltages outside this range may cause reduced receiver performance.
Return Loss	REQ: \geq 25 dB 1 – 270 MHz, channels on or off, power on. \geq 15 dB 1 – 270 MHz, power turned off. <i>Performance Verification Procedure Step:21</i>
Insertion Loss	REQ: \leq 1.5%.
Transmission Bandwidth	REQ: 50 kHz – 300 MHz \pm 1.0 dB. REF: –3 dB at not less than 500 MHz. <i>Performance Verification Procedure Step:22</i>
Loopthrough Isolation	REF: \geq 50 dB to 300 MHz.
Serial Receiver Equalization Range	REQ: Proper operation with up to 14.5 dB loss at 135 MHz using coaxial cable having $1/\sqrt{F}$ loss characteristics. 800 mV launch amplitude. REF: Nominally 150 meters of Beldon 8281 coaxial cable. <i>Performance Verification Procedure Step:19</i>

Table 1–3: Serial Video Output (Follows Serial A/B Selection)

CATEGORY	DESCRIPTION
Format	REF: 270 Mbit/s component. Complies with SMPTE 259M and CCIR 656.
Output Level	REQ: 800 mV peak-to-peak \pm 10% into 75 Ω load. REF: Internal jumper can change output to 740 mV peak-to-peak \pm 10%. <i>Performance Verification Procedure Step:7</i>
Return Loss	REQ: \geq 15 dB 1 – 270 MHz. <i>Performance Verification Procedure Step:20</i>

Table 1–4: Eye Pattern Display

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Type	REF: Equivalent Time Sampler.
Bandwidth	REQ: 50 kHz – 450 MHz: –3 dB to + 1 dB. REF: Low frequency –3 dB point at 500 Hz. Performance Verification Procedure Step:17
Rise Time	REF: 500 ps (20 – 80%), 775 ps (10 – 90%).
Aberrations	REF: < 10%, 800 mV Step.
Time Base Jitter	REF: < 200 ps peak-to-peak.
Jitter Attenuation	
10 Hz HPF	REF: < 10% for frequencies > 20 Hz. –3 dB at approximately 10 Hz.
100 Hz HPF	REF: < 10% for frequencies > 300 Hz. –3 dB at approximately 100 Hz.
1 kHz HPF	REF: < 10% for frequencies > 3 kHz. –3 dB at approximately 1 kHz.
Display Modes	
Overlay	REF: Overlays bits 0 – 9 of a serial word to form each eye opening. Useful for observing peak signal jitter.
10-Eye	REF: Parades bits 0 – 9 in a 10-Eye display. Useful for observing word and line correlated jitter.
Deflection Factor	
Vertical	REQ: 800 mV ± 5% with an 800 mV _{p-p} input. Performance Verification Procedure Step:16
Horizontal	
Overlay	REQ: 1 ns/Div ± 3%.
10-Eye	REQ: 3 ns/Div ± 3%.
Mag On	REQ: 500 ps/Div ± 3%.
	Performance Verification Procedure Step:18

Table 1–5: Video Error Detection and Diagnostics

CATEGORY	DESCRIPTION
Video Error Detection	
Type	REF: Active picture and full field. Field rate resolution. Uses CRC check word system. System is known as EDH (Error Detection and Handling) in industry literature. Complies with SMPTE RP 165.
Reporting Means	REF: Front-panel ALARM lamp, rear-panel TTL line, and CRT readout.
Error Statistics	REF: Asynchronous errored seconds. Active picture and full field statistics are separately compiled.
Diagnostics	
Embedded Audio	REF: Identifies the presence of up to 16 channels AES/EBU digital audio.
Ancillary Data	REF: Identifies the presence of ancillary data (other than audio and EDH), and indicates if a checksum error has occurred.
Format Errors	REF: Warns that a serial signal format error has occurred. Detected Errors: <ol style="list-style-type: none"> 1. SAV placed incorrectly. 2. Line length error. 3. Field length error. 4. Reserved values used improperly. 5. ANC data checksum error. 6. ANC data parity error. 7. ANC data placement error.
Signal Lost	REF: reports absence of serial video signal.

Table 1–6: External Reference

CATEGORY	DESCRIPTION
Input	REF: Analog composite video, or black burst.
Maximum Operating Input Voltage	REF: –1.8 V to +2.2 V, DC plus peak AC.
Absolute Maximum Input Voltage	REF: –8.5 V to +8.5 V, DC plus peak AC.
DC Input Impedance	REF: ≥ 20 k Ω .
Return Loss	REQ: ≥ 40 dB to 6 MHz. REF: Typically ≥ 46 dB to 6 MHz; ≥ 40 dB to 10 MHz. <i>Performance Verification Procedure Step:20</i>

Table 1–7: Waveform Horizontal Deflection

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Sweep	<p>REQ: Synchronization: <u>Internal:</u> Proper horizontal and vertical synchronization with a component digital signal conforming to CCIR Rec. 601i/656 and SMPTE 125M.</p> <p><u>External:</u> Proper horizontal and vertical synchronization with a composite sync signal of appropriate line and field rate.</p> <p><i>Sweep requirements verified by successfully completing the Performance Verification Procedure</i></p> <p>REF: Sweep Length: ≈ 12 divisions. REF: Sweep freeruns without input.</p>
Sweep Timing Accuracy	<p>REQ: 1 Line: 5 μs/division $\pm 1\%$. 2 Line: 10 μs/division $\pm 1\%$.</p> <p><i>Performance Verification Procedure Step:6</i></p> <p>REF: 1 Field: Displays one full field, including field rate sync. 2 Field: Displays two full fields and the field rate sync between them.</p>
Sweep Linearity	<p>REQ: $\pm 1\%$.</p> <p><i>Performance Verification Procedure Step:6</i></p>
Magnified Sweep Accuracy	<p>REQ: 1 Line: 0.2 μs/division $\pm 1\%$. 2 Line: 1.0 μs/division $\pm 1\%$.</p> <p><i>Performance Verification Procedure Step:6</i></p>
Magnified Sweep Linearity	<p>REQ: $\pm 1\%$.</p> <p><i>Performance Verification Procedure Step:6</i></p>
Timing Cursors	<p>REQ: Accuracy: $\pm 1\%$. REF: $\leq \pm 0.5\%$ at 25° C.</p> <p><i>Performance Verification Procedure Step:8</i></p>
Horizontal Position Range	<p>REQ: Any portion of the synchronized sweep can be positioned on-screen in all sweep modes.</p> <p><i>Performance Verification Procedure Step:4</i></p>

Table 1–8: Calibrator

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Waveform Square Wave	<p>REQ: Amplitude: 0.700 V $\pm 1\%$. <i>Performance Verification Procedure Step:7</i></p> <p>REQ: Frequency: 100 kHz $\pm 0.1\%$. <i>Performance Verification Procedure Step:5</i></p> <p>REF: Crystal controlled 10 μs square wave.</p>

Table 1–9: Component Vector Mode

CATEGORY	DESCRIPTION
Vector Display	REF: P_B is displayed on horizontal axis and P_R is displayed on vertical axis.
Vertical Bandwidth	REF: ≥ 1.0 MHz.
Horizontal to Vertical Bandwidth Matching	REQ: $\leq 2^\circ$ at 500 kHz and 2 MHz. <i>Performance Verification Procedure Step:12</i>
Vertical Gain Accuracy	REQ: $\pm 1\%$. <i>Performance Verification Procedure Step:11</i>
Horizontal Gain Accuracy	REQ: $\pm 1\%$. <i>Performance Verification Procedure Step:11</i>
Display to Graticule Registration	REQ: ≤ 0.25 box with the color bar black display dot centered in target. <i>Performance Verification Procedure Step:13</i>
Electronic Graticule Shape	REF: Minimal visible gaps or tails at corners of target boxes.

Table 1–10: Lightning and Diamond Mode

CATEGORY	DESCRIPTION
Vertical Gain Accuracy	REQ: $\pm 2\%$. <i>Performance Verification Procedure Step:14</i>
Electronic Graticule Display	
Lightning	REF: Y is displayed vertically. P_B is displayed horizontally on top half of display. P_R is displayed horizontally on bottom half of display.
Diamond	REF: GBR Deflection axis indicated.

Table 1–11: Bowtie Mode

CATEGORY	DESCRIPTION
Common Mode Rejection Ratio	REF: ≥ 34 dB at 2.5 MHz.
Accuracy	REF: $\pm 3\%$.
Interchannel Timing Match	REQ: ± 2.0 ns <i>Performance Verification Procedure Step:15</i>

Table 1–12: Picture Monitor Outputs

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Signal Format	REF: EBU/N10.
Active Video Accuracy	REQ: 700 mV ± 3%. REF: Typically < 1%. <i>Performance Verification Procedure Step:10</i>
Sync Amplitude Accuracy	REF: 300 mV ± 10%.
Monitor Output Impedance	REF: Nominally 75 Ω. Back porch clamped to 0 V.

Table 1–13: Power Source

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Electrical Rating	REQ: 90 – 250 V, 50/60 Hz, 1.5 A maximum. REF: Continuous range from 90 to 250V _{AC} . <i>Performance Verification Procedure Step:2</i>
Supply Type	REF: Single Phase.
Supply Connection	REF: Detachable cord set.
Power Consumption	REF: < 110 VA (75 watts).

Table 1–14: Crt Display

<i>CATEGORY</i>	<i>DESCRIPTION</i>
CRT Viewing Area	REF: 80 X 100 mm. Horizontal: 12.5 divisions. Vertical: 1.19 V.
Accelerating Potential	REF: Nominally 13.75 kV.
Trace Rotation Range	REQ: > ± 1° from horizontal. REF: Total adjustment range is typically ≥ 8°. <i>Performance Verification Procedure Step:3</i>
Graticule	REF: Internal with variable illumination.

Table 1-15: Environmental Characteristics

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Operating Temperature	REQ: 0° to 40° C (+32° to 122° F).
Storage Temperature	REQ: -40° to 75° C (-40° to 158° F).
Operating Altitude	REQ: To 15,000 feet (4572 meters). REF: (IEC 1010-1 compliant to 2000 meters).
Storage Altitude	REQ: To 50,000 feet (15,240 meters).
Vibration	REQ: 5 minutes at 5 – 15 Hz with 0.060 inch displacement. 5 minutes at 15 – 25 Hz with 0.040 inch displacement. 5 minutes at 25 – 55 Hz with 0.020 inch displacement. Military Specification: Mil-T-28800D, Paragraph 1.2.2, Class 3.
Mechanical Shock	REQ: Nonoperating: 50 g's 1/2 sine, 11 ms duration 3 shocks per surface (18 total).
Transportation	REQ: Qualified under NSTA Test Procedure 1A, Category II (24 inch drop).
Equipment Type	REF: Measurement.
Equipment Class	REF: IEC 1010-1, Annex H, Class I.
Installation Category	REF: Indoor use only IEC 1010-1, Annex J (Category 2).
Pollution Degree	REF: Pollution degree 2 (as defined in IEC 1010-1).
Humidity	REQ: Proper operation at 95% +0, -5% Relative Humidity REF: Do not operate with visible moisture on the circuit boards.

Table 1-16: Certification

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Safety	Designed to meet or exceed: UL1244 CAN/CSA C22.2 No. 231 IEC 1010-1 (for operation up to 2000 meters)

Table 1–17: Physical Characteristics

<i>CATEGORY</i>	<i>DESCRIPTION</i>
Dimensions	REQ: Height: 5 1/4 inches (133.4 millimeters). Width: 8 1/2 inches (215.9 millimeters). Depth: 18 1/8 inches (460.4 millimeters).
Weight	REQ: Net: 8 pounds (3.8 kilograms). Shipping: 15.7 pounds (7.2 kilograms) <i>approximate</i> .



Operating Information

Installation

The information contained here deals with the installation and operation of the WFM 601i Serial Digital Component Monitor. If the instrument is to be removed from its installed position for servicing, this will provide the information needed to remove or reinstall it. Note that the repackaging information is located at the end of the Maintenance section.

Standard Accessories

This instrument is shipped with a set of standard accessories. These are the items necessary to place the instrument in service, such as the power cord. When the box for the instrument was opened it should have contained:

1. One User Manual.
2. One power cord assembly (see Options).
3. One cartridge fuse.
4. Two 75 Ω End-Line Terminations, 26 dB to 300 MHz.
5. Four replacement graticule light bulbs.
6. Four replacement air filters.

Floppy Disks Included with this Manual

This manual is shipped with two 3.5-inch high density floppy disks. The disks will run on an IBM compatible PC with a DOS 3.3 or higher operating system and a 3.5-inch high density floppy disk drive.

One of the disks contains the current operating software for the instrument. For more information about installing the operating software see the “Installing Software” section on Page 6–34.

The second disk contains the “Adjustment Procedures” software needed to return the instrument to its specified levels. This procedure works in conjunction with the Adjustment Procedures section of this manual.

Mechanical Installation

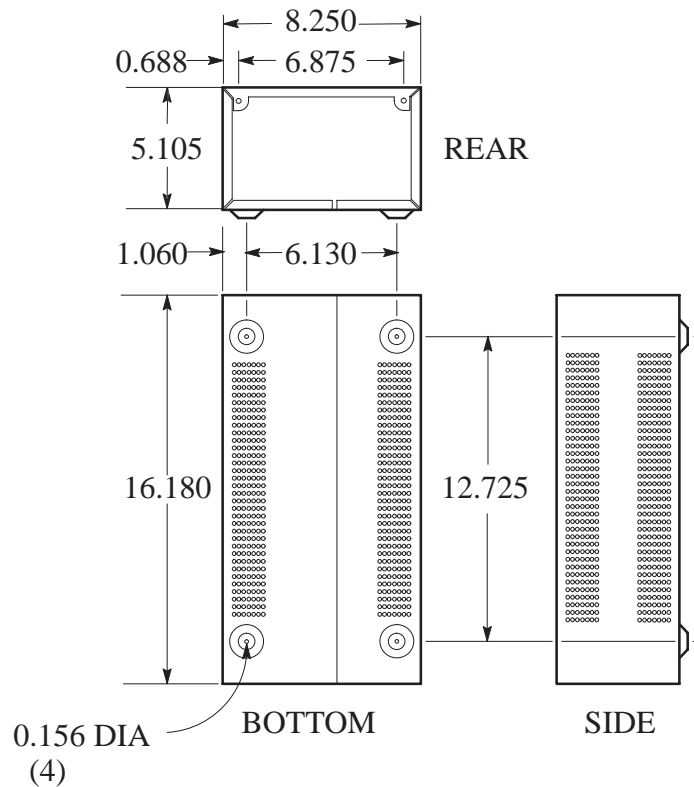


Figure 2-1: Dimensions of the 1700F00 Plain Cabinet

Cabinets

The cabinets available for this instrument not only provide necessary shielding and protection against accidental electrical shock, but also provide internal circuitry with protection against build up of dust. A supply of filtered, cooling air is provided from the rear panel and exits through the cabinet vent holes. Operation in air flow restricted environments may lead to excessive heat build up.

All qualification testing for the WFM601i was performed in a 1700F00 cabinet. To guarantee compliance with specifications, the instrument should be operated in a cabinet. The plain cabinet, 1700F00, is shown in Figure 2-1.

The optional 1700F00 cabinet is the basic element for all of the cabinets that fit this instrument. The 1700F02 portable carrying case is an enhanced version of this cabinet, as is the 1700F05 side-by-side rackmount assembly. All of these cabinets are available from Tektronix. If you need one of these cabinets, contact your nearest Tektronix field office or representative for assistance in ordering.

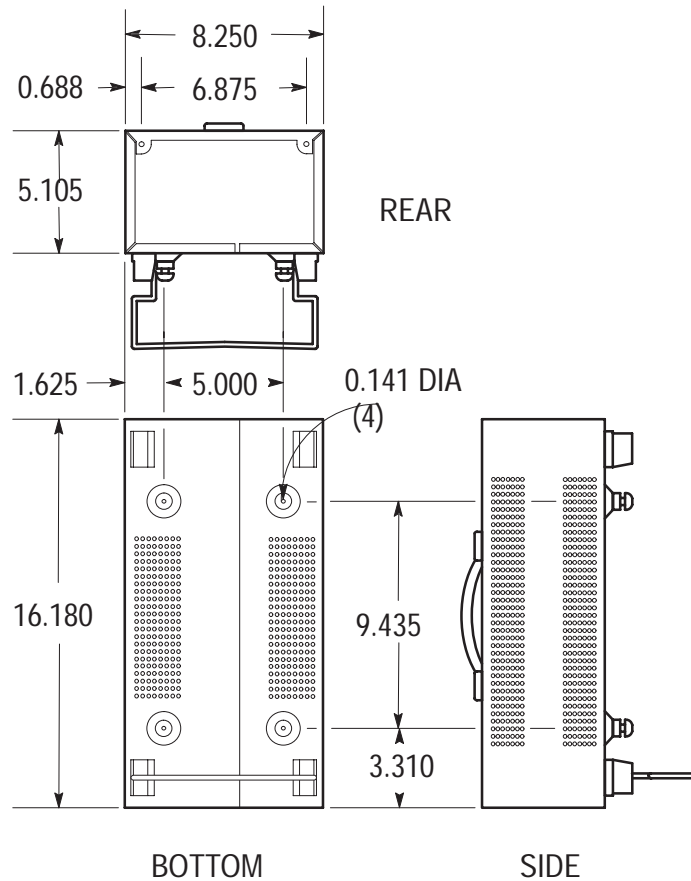


Figure 2-2: 1700F02 Portable Cabinet

The portable cabinet, 1700F02, is shown in Figure 2-2. The 1700F02 has a handle, four feet, and a flip-up stand. The mounting hole sizes and spacing are different from those of the 1700F00.

All of the 1700—Series metal cabinets (which also fit the WFM 601i), that are available from Tektronix as Optional Accessories, provide the proper electrical environment for the instrument. They supply adequate shielding, minimize handling damage, and reduce dust accumulation within the instrument.

Cabinet Installation



CAUTION. Do not attempt to carry an instrument in its cabinet without installing the mounting screws. Without the mounting screws there is nothing to hold the instrument in the cabinet if it is tipped forward.

The instrument is secured to the cabinet by two 6-32 Pozidrive® screws, located in the upper corners of the rear panel. See Figure 2-3.

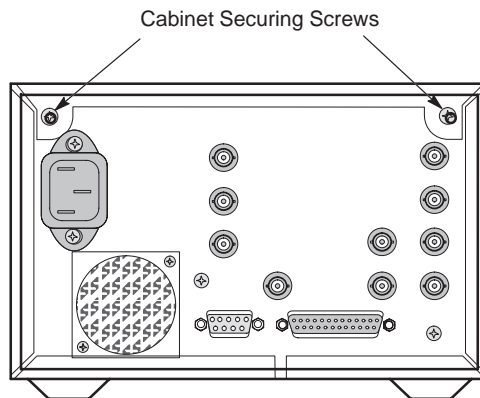


Figure 2-3: Rear View Showing the Securing Screws

Rack Adapter

The optional 1700F05 side-by-side rack adapter, shown in Figure 2-4, consists of two attached cabinets. It can be used to mount the WFM 601i and another half-rack width instrument, such as an analog component monitor (Tektronix 1760-Series), in a standard 19-inch rack.

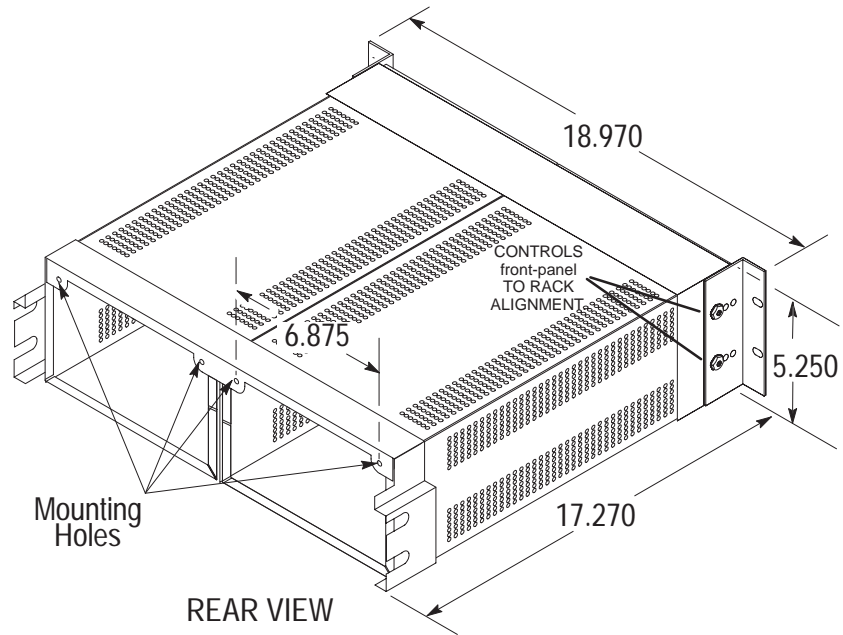


Figure 2-4: The 1700F05 Side-by-side Rack Adapter

The rack adapter is adjustable, so the instrument can be more closely aligned with other equipment in the rack. See Figure 2-4.

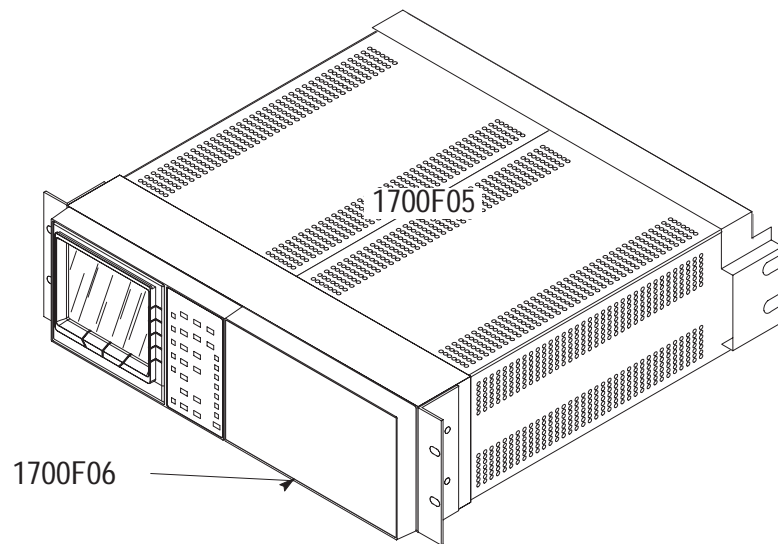


Figure 2-5: A 1700F05 with a Blank front-panel (1700F06)

If only one side of the rack adapter is used, a 1700F06 Blank Panel can be inserted in the unused section. See Figure 2–5. The rack adapter and panel are available through your local Tektronix field office or representative.

When only one instrument is mounted in the side-by-side adapter an accessory drawer (1700F07) can be installed in the blank side of the cabinet. See Figure 2–6.

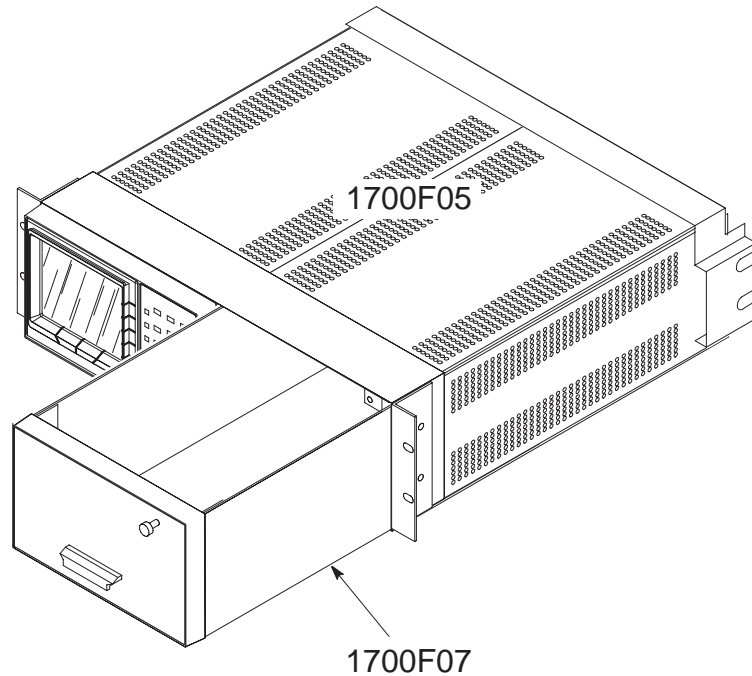


Figure 2–6: 1700F05 Rackmounting with a 1700F07 Utility Drawer

Custom Installation

For applications such as consoles the instrument can be mounted with the front molding flush or protruding from the console. In both cases, allow approximately 3 inches of rear clearance for BNC and power-cord connections.

To mount the instrument safely, attach it to a shelf strong enough to hold its weight. Install the mounting screws through the four 0.156-inch diameter holes in the bottom of the 1700F00 cabinet. See Figure 2–7.

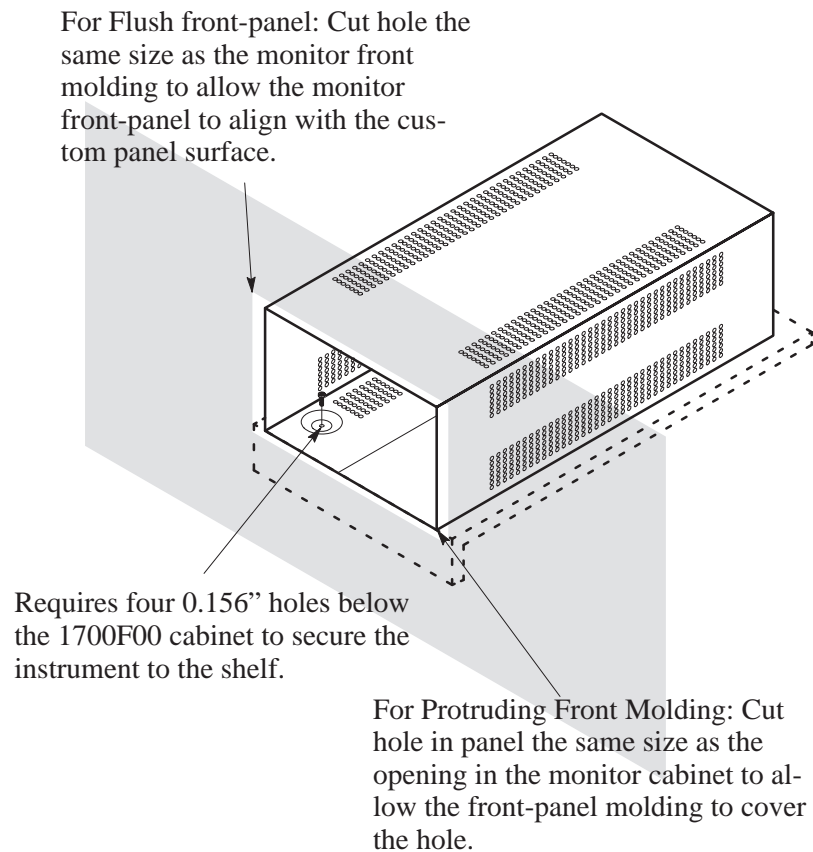


Figure 2-7: Custom Installation of an Instrument

Electrical Installation

Power Source

These monitors are designed to operate from a single-phase power source having one of its current-carrying conductors at or near earth ground (the neutral conductor). Only the line conductor is fused for over-current protection. Systems that have both current-carrying conductors live with respect to ground (such as phase-to-phase on multiphase systems) are not recommended as power sources. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.



WARNING. When power is supplied, line voltage will be present in the instrument, even if the POWER switch is set to STANDBY.

Mains Frequency and Voltage Range The WFM601i monitors operate at 50 and 60 Hz, over the range of 90 – 250 Volts, without operator adjustment.

Power Cord Options The WFM601i is delivered from the factory with a 60 Hz/117 V power cord unless one of the power cord options was ordered. Table 2–1 provides a description of the available power cord options for these monitors.

Table 2–1: Power Cord Options

Power Cord Option	Description
Option A1	Universal Europe, 220 V/16 A (Locking Power Cord).
Option A2	United Kingdom, 240 V/15 A (Power Cord).
Option A3	Australia, 240 V/10 A (Power Cord).
Option A4	North America, 250 V/10 A (Power Cord).
Option A5	Swiss, 240 V/6 A (Power Cord).

Rear-Panel Connectors

Signals into and out of the instrument are connected via the rear panel. Video signals are input/output through the BNC connectors. General information about the rear-panel connectors is provided in the following paragraphs. Figure 2–8 shows the rear-panel configuration.

75 Ω Loophrough Video Inputs There are two 75 Ω compensated passive loophrough serial digital inputs. These inputs are not internally terminated; inputs require 75 Ω external termination to provide accurate measurement capabilities.

Maximum operating input voltage for all inputs is –1.8 V to +2.2 V DV plus peak AC. Absolute maximum input voltage is –8.5 V to +8.5 V DC plus peak AC.

External Reference (EXT REF) The external reference input provides external synchronizing signals to these instruments. Input is either black burst or composite video. It is a 75 Ω compensated loophrough input, requiring external termination.

Serial Out This connector provides a reclocked serial digital output following the SERIAL A/SERIAL B selection.

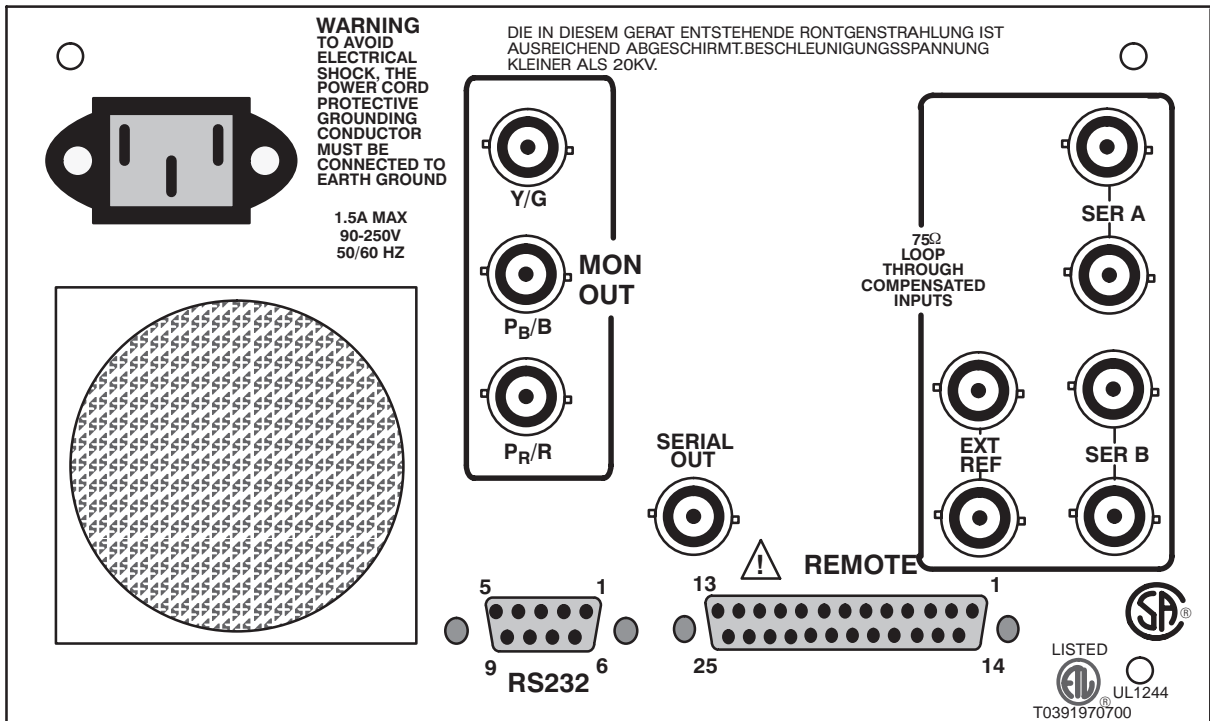


Figure 2-8: Rear-panel Connectors

MON OUT The MON OUT connectors are three 75 Ω outputs that provide either GBR (sync on the G output) or color difference signals (sync on Y).

REMOTE Connector The rear-panel REMOTE connector is a 25-pin, D-type connector. It provides limited remote control functions via TTL signals or ground closures to designated pins. Eight front-panel setups can also be stored and recalled through the REMOTE connector. Table 2-2 shows pin assignments and Figure 2-9 shows the connector.



Figure 2-9: Rear-panel REMOTE Connector

Table 2–2: Remote Connector

Pin Number	Function	Signal Requirement	Miscellaneous Information
1	Not Used		
2	Ground		
3	Not Used		
4	External Blanking Input	TTL Low	
5	Ground		
6	–Y Audio Out (Left)		Audio Option Only
7	+Y Audio Out (Left)		Audio Option Only
8	Ground		
9	–X Audio Out (Right)		Audio Option Only
10	+X Audio Out (Right)		Audio Option Only
11	Ground		
12	+ Time Code		Reserved for future applications.
13	– Time Code		Reserved for future applications.
14	Ground		
15	$\overline{\text{Line Strobe}}$	In Line Select Modes, goes low during selected lines	
16	$\overline{\text{Serial Video Alarm}}$	Goes low when front panel ALARM indicator is illuminated.	
17	$\overline{\text{Preset 1}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 1 memory location to store the current front-panel settings.
18	$\overline{\text{Preset 2}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 2 memory location to store the current front-panel settings.
19	$\overline{\text{Preset 3}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 3 memory location to store the current front-panel settings.
20	$\overline{\text{Preset 4}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 4 memory location to store the current front-panel settings.
21	$\overline{\text{Preset 5}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 5 memory location to store the current front-panel settings.

Table 2-2: Remote Connector (Cont.)

Pin Number	Function	Signal Requirement	Miscellaneous Information
22	$\overline{\text{Preset 6}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 6 memory location to store the current front-panel settings.
23	$\overline{\text{Preset 7}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 7 memory location to store the current front-panel settings.
24	$\overline{\text{Preset 8}}$	Ground (TTL low)	Recalls the stored front-panel setup from this location, or selects the Preset 8 memory location to store the current front-panel settings.
25	$\overline{\text{Store}}$	Ground (TTL low)	Grounding STORE enables storage of instrument settings. When STORE is low, and one of the PRESETs is grounded the current front-panel set-up will be stored in that Preset memory location.

RS-232 Connector

The serial interface is 9-pin subminiature D-type connector that provides a serial interface for remote control. It has a driver built in for RS-232 serial binary data interchange. The operational mode is full duplex. Data rate = 9600 baud; data type is asynchronous. Figure 2-10 shows both the pin assignments and the connector orientation.

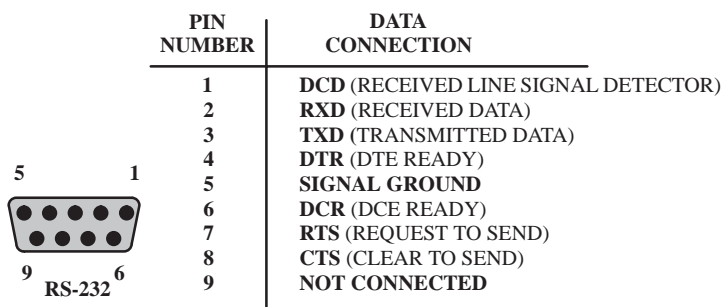


Figure 2-10: Rear-panel RS-232 Connector

Getting Started

This section duplicates material contained in the WFM 601i User manual. The information is presented here for the convenience of service personnel. This section contains a brief introduction, “minimal” operating instructions (in six easy steps!), general menu information, an overview of the instrument functions, and brief instructions for displaying the desired signal. Please consult the User manual any time you need a more complete explanation of these or any other topics.

The Tektronix WFM 601i Serial Digital Component Monitor has been designed for ease of operation. If you have previous experience with waveform monitors and vectorscopes, you may be able to operate the instrument without referring frequently to this section. However, you should be aware of the following “special characteristics” of the WFM 601i:

- Each type of Waveform display (one line, two line, one field, and two field) has one level of horizontal magnification that may be turned on and off with the MAG button. The level of magnification depends on the display type; you can sequentially display the four magnified views by repeatedly pressing the Line/Field SWEEP button (once SWEEP MAG has been selected).
- The Bowtie Display subtracts channels 2 and 3 from channel 1 and automatically displays the results in a “parade” format. This lets you use the Bowtie test signal to check and adjust inter-channel timing on component systems.
- The five buttons arranged vertically to the right of the display are called *Bezel Buttons*. Use these buttons to toggle or select the on-screen menu options that they are aligned with.
- The middle three knobs under the display are called *Bezel controls*. Turn these knobs to adjust the parameters—or scroll through the lists—that appear above them on the display screen.

Operating Instructions

1. Connect the serial digital signal to the instrument (SER A or SER B); add a termination to the loopthrough connector, if necessary.
2. Plug the instrument in and switch it on. The On/Standby (POWER) switch is on the bottom-right corner of the front panel.
3. Select the CONFIG menu with its front-panel button and adjust the parameters as required for your particular installation.

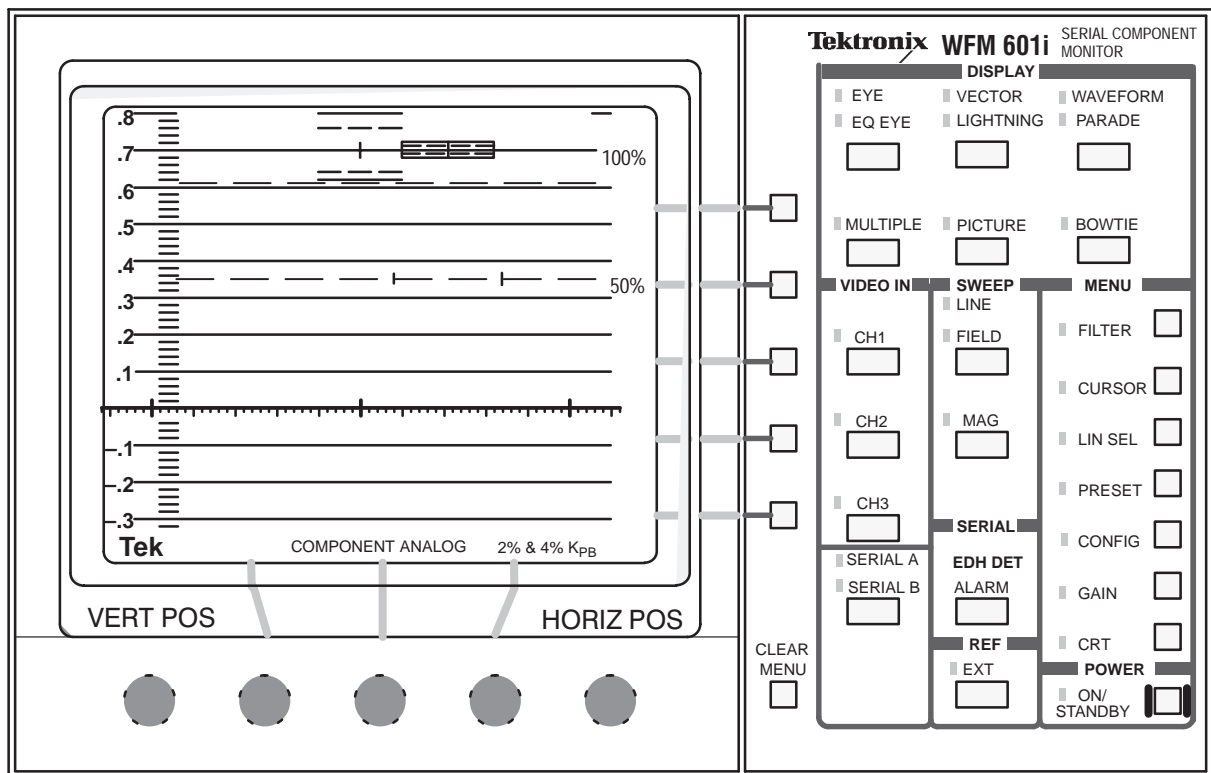


Figure 2-11: WFM601i Front Panel

4. Use the DISPLAY and INPUT buttons to view some aspect of the desired signal.
5. Select the CRT menu to adjust the waveform, readout, and scale brightness, and the waveform focus. Press the CLEAR MENU button to remove the menu from the display.
6. Use the front-panel controls to observe and measure the signal(s) of your choice. If necessary, see the following pages for limited details, or the User manual for complete instructions.

General Menu Information

The WFM 601i menus are almost self-explanatory. The next few paragraphs describe the general techniques. To get started, press the appropriate MENU button (on the far right of the front panel) to call up one of the on-screen menu readouts.

Multi-Use Bezel Controls and Buttons

Menu selections appear along the right side of the screen. Descriptive labels, when present, appear in *ITALIC* text. Actual selections appear in Roman (standard) text, with the current selection outlined. Use the five bezel buttons along the right side of the CRT to change the selections.

Figure 2–12 shows the bezel controls and buttons.

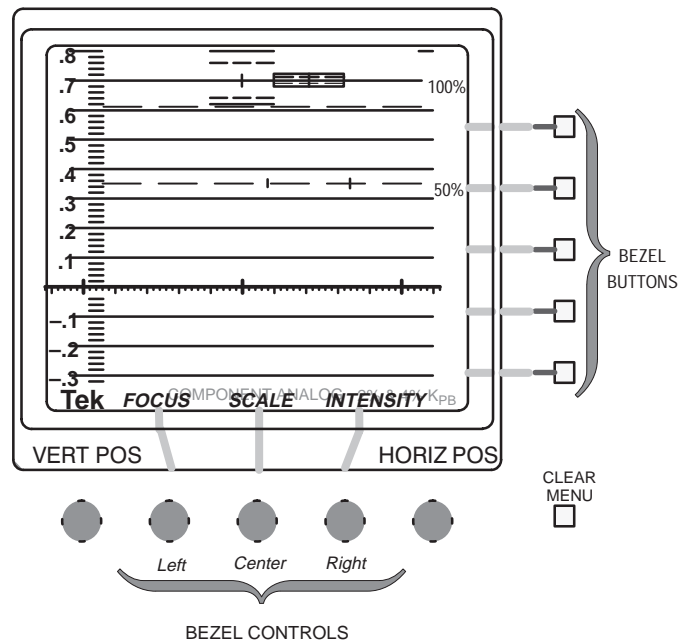


Figure 2–12: The CRT Menu, with the Bezel Controls and Buttons

The center three controls under the CRT are referred to as left, center, and right bezel controls. Control functions vary with menu choice; a readout just above each active knob shows its present function. The knobs are used as variable analog controls to set values such as phase, amplitude, and intensity. The left control is also used to scroll and select categories within the CONFIG menu.

Moving Between Menus

Selecting a second menu removes the present menu display, but the functions typically remain active (with the menu LED remaining lighted to show this state). To reinstate a menu display, push that menu button again.

CRT, PRESET, and CONFIG menus will be exited completely when another menu button is pushed.

Clear Menu Push CLEAR MENU to clear part of the menu display, but leave essential readout elements such as control assignments and measurement readouts. (The menu LED remains lighted to show this state.) Push the menu button to bring back the full display.

CRT, PRESET, and CONFIG menus will be exited completely when CLEAR MENU is pushed.

Exiting a Menu Function To exit a menu function while its display is present, push that menu button. (The menu button functions as an on-off toggle switch.) If the menu display is not present, but the menu function is still in effect (LED is lighted), push the menu button to bring back the full display, then push it again to exit the menu.

Display Modes

The type of signal will determine which display modes may be used. Six buttons control the video display format.

EYE — Selects the eye pattern display.

EQ EYE — Selects the equalized eye pattern display.

VECTOR — Selects the vector display.

LIGHTNING — Selects lightning or diamond display as selected through the CONFIGURE menu.

WAVEFORM — Selects a waveform overlay display.

PARADE — Displays the selected inputs in a multi-line parade.

BOWTIE — Selects the bowtie display.

PICTURE — Selects the monochrome picture monitor mode.

MULTIPLE — Allows the following simultaneous displays:
waveform + vector or lightning
parade + vector or lightning

Eye The Eye pattern mode is a voltage-verses-time display of the serial bit stream. This mode is used to observe the amplitude, rise time, aberrations, and jitter of the serial signal.

EQ Eye In EQ Eye the serial signal is displayed after equalization.

Vector Vector mode presents an XY plot of the P_B (B–Y) and P_R (R–Y) color difference components. The angle represents chrominance phase and the distance from the center represents chrominance amplitude.

Lightning and Diamond

The front-panel LIGHTNING button is used to select either the Lightning display or the Diamond display. To select which one to display, go to the CONFIGure WFM/VEC menu and select either Lightning or Diamond. Push the CLEAR MENU button to clear the menu readout.

The Lightning display is useful for viewing the amplitude and timing relationship between the Y, P_B , and P_R signals.

The Diamond display evaluates the RGB signal for gamut limit violations. Signals which are inside the electronic diamond graticule are within gamut limit. For signals outside the diamond, the graticule is labeled with G, B, and R to determine the color problem area.

Waveform The waveform monitor portion of the instrument provides a voltage-versus-time display of the video signal. The selected input can be displayed in one or two line, or one or two field sweeps. In Line Select mode, identified lines of any field can be selected and displayed. Time and Voltage cursors can be activated and positioned for reference or measurement.

Parade Parade displays up to 3 channels in succession. The LINE/FIELD button offers only two choices: one line and one field.

Bowtie Bowtie mode is used in conjunction with the Bowtie test signal. It is useful for determining the timing between Y and P_B (Ch. 1 and 2), and Y and P_R (Ch. 1 and 3).

In Bowtie mode, the left half of the display shows Channel-1 minus Channel-2 and the right half shows Channel-1 minus Channel-3. If the timing between channels is matched, the centers of the bowties will be centered and not skewed. If Channel-2 is delayed with respect to Channel-1, the skew moves to the right. If Channel-2 is advanced with respect to Channel-1, the skew moves to the left.

Picture The Picture mode allows the operator to verify the signal source. In Picture mode with Line Select on, a bright-up marker identifies the selected line in the picture.

Multiple When Multiple display is selected, Waveform or Parade can be displayed at the same time as Vector or Lightning (or Diamond).

When exiting Multiple display, the instrument will return to the previous display settings. When multiple is re-selected, the previous Multiple display settings will be restored.



Theory of Operation

Block Diagram Descriptions

The WFM 601i is a serial digital component monitor. It provides eye pattern, waveform, parade, component vector, bowtie, lightning, and diamond displays. The voltage-verses-time “Eye Pattern” display allows viewing and measurement of the serial bit stream. Limited format checking of the digital signal, and a transcoded output providing GBR or Y, P_B, P_R signals to drive component picture monitors are also provided.

With the exception of the power supplies, the block diagrams discussed here can be found in the Diagrams and Circuit Board Illustrations section, at the rear of this manual. There are three large block diagrams.

Signal flow, microprocessor-generated levels, and feedback lines are shown as solid lines. Control lines are shown as dashed lines. Signal flow is usually from left to right on these diagrams.

Power Supplies

The low voltage power supply is of the switching high efficiency type. It is a universal supply that will operate over a mains range of 90 to 250 V_{AC}. The high voltage power supply provides an acceleration potential of approximately 13.75 kV. See Figure 3-1.

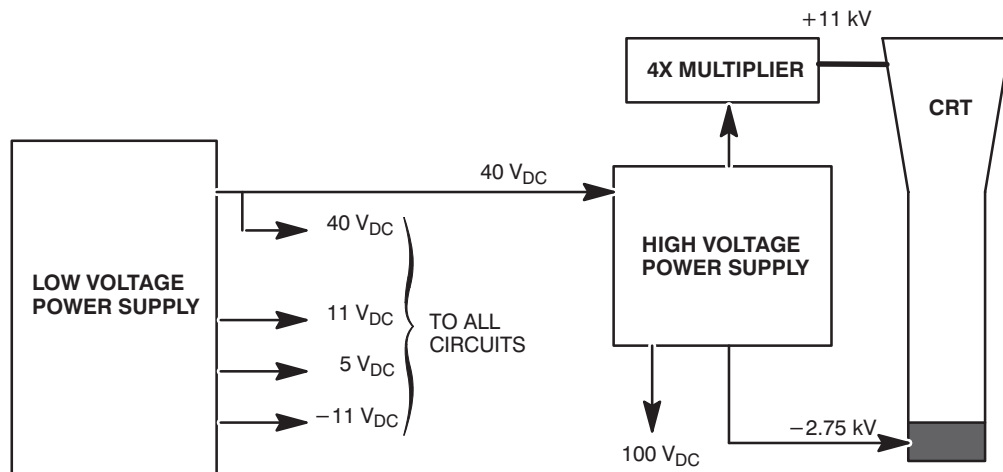


Figure 3-1: Power supply block diagram.

Block Diagram 1, Input and Waveform Processing

This block diagram contains the serial inputs and outputs, eye pattern sampler, and the vertical and horizontal amplifiers along with the CRT and blanking.

Serial Input/Output

The component serial digital video signal is input through buffered high impedance bridging loopthrough circuits. After equalization, deserializing, and descrambling the signal is input to a Coprocessor. The equalized serial component signal is also reclocked to provide a serial video signal output to drive other equipment.

The input signal is selected by the front-panel Serial A, Serial B selection switch. Only one input at a time may be displayed.

Eye Pattern Sampler

The Eye Pattern circuitry implements an equivalent time sampler to allow viewing of the serial bit stream as a voltage-verses-time signal. The input signal can be displayed either before (Eye) or after (Eq Eye) serial receiver equalization. The selected signal is sampled and held at approximately a 6.75 MHz rate. Using a phase locked oscillator, the trigger for the Sampler is derived from the 27 MHz Parallel Clock and F_H signals.

Coprocessor

The Coprocessor, which has parallel video as an input, generates signals used to display the video signal on the WFM 601i CRT and/or provide usable transcoded outputs. It also checks the digital signal for compliance by using several format checks. The Coprocessor outputs the word synchronizing pulse to enable the recovery of the R-Y and B-Y channels from the multiplexed video data stream. In addition, it generates the signals used to clamp, re-establish the vertical blanking interval, and provide composite synchronization. The Coprocessor also removes nonvideo data from the signal, that includes End of Active Video (EAV), Start of Active Video (SAV), and ancillary data. Lastly, the Coprocessor maintains a handshake with the Microprocessor over the Microprocessor data bus.

Y Delay, Half-Band Filters, and Digital-to-Analog Converters (DACs)

The multiplexed video data stream from the Coprocessor is converted to analog components by three Digital-to-Analog Converters. Video data is delayed prior to application to the Y channel Half-band Filter. Enable signals (Timing) for the Y Delay and the two color difference Half-band Filters are generated by a Programmed Array Logic (PAL) device, using the Coprocessor Y Datum output.

The Half-band Filters are clocked at twice the timing signal frequency. These clock signals are counted down from the Phase Lock Loop 27 MHz clock. Timing (enable) signals are 13.5 MHz for luminance, and 6.75 MHz for color difference. Clocking signals are at 2X the timing signal. The half-band filtered digital component signals are input to three DACs that are also clocked at 2X the timing frequency ($Y = 27$ MHz, P_B and $P_R = 13.5$ MHz). The DAC outputs are

the component analog signals (Y, P_B, P_R), whose gain is Microprocessor controlled through Daculator A7U212 (Component board), Diagram 12.

The component analog outputs of the three signal DACs are input to anti-aliasing Reconstruction Filters. The DC offset of each Reconstruction Filter is Microprocessor controlled through Daculator A7U212 (Component board).

Input Multiplexer	The Line Rate Controller dictates the selection of display when color difference or RGB signals are being displayed. The output of the multiplexer drives the Flat, Luminance, and Differentiated Step Inputs of the Filter Multiplexer.
Filter Selection Multiplexer	The Filter Selection Multiplexer controlled by the Line Rate Controller selects the input to be displayed.
Square Wave Calibrator	The calibrator provides a 700 mV, 100 kHz output. Its amplitude is set by a microprocessor-controlled DAC, and its timing is set by the Line Rate Controller.
Vertical Amplifier	<p>The Vertical Amplifier is a variable gain amplifier that has controlling inputs driven by either Microprocessor or synchronous Line Rate Controller outputs.</p> <p>Stage gain is controlled by the microprocessor-generated DAC converted control voltages. Magnification is switched by a signal from the Line Rate Controller.</p> <p>An offset voltage from the DACs vertically positions the display. When CRT readout is being processed the gain of the amplifier is changed by the Line Rate Controller. The differential output of the Vertical Amplifier drives the vertical output amplifier which drives the CRT deflection plates.</p>
Horizontal Reference Multiplexer and Reference Switch	The Horizontal Reference Multiplexer selects either the COMPSYNC from the Coprocessor or the External Reference input as the instrument sync reference. The Multiplexer is controlled by the front-panel REF switch.
Sweep Generators and Horizontal Signal Multiplexer	<p>Line and Field Rate signal generators are started and stopped by the retrace signals from the Line Rate Controller. Sweep ramp run up times (≈ 17 ms for the field sweep and 64 μs for the line sweep) are controlled by the Microprocessor.</p> <p>The Horizontal Signal Multiplexer is controlled by the Line Rate Controller to select a signal to drive the horizontal circuitry.</p>
Horizontal Amplifier	The Horizontal Amplifier is a variable gain amplifier with controlling inputs from either the Microprocessor or the Line Rate Controller. Stage gain is

controlled by the Microprocessor-generated control voltages. Magnification is switched by a signal from the Line Rate Controller.

An offset voltage horizontally positions the display. The amount of positioning offset required for the Waveform mode is significantly greater than that required for the other display modes; therefore, a separate offset is required. When a CRT readout is being processed the gain of the amplifier is changed by the Readout Select signal from the Line Rate Controller.

The differential output of the Horizontal Amplifier drives the horizontal output amplifier which drives the CRT deflection plates.

An additional amplifier stage within the Horizontal Amplifier provides a differential output that controls the intensity for the Picture Monitor mode. Picture Monitor contrast is controlled by the Microprocessor.

Blanking Logic

The Blanking Logic is a multiplexer that is controlled by the Line Rate Controller. It selects the blanking/unblanking signals that drive the Z-Axis Amplifier, which drives the CRT control grid.

Block Diagram 2, Component

Component Blanking Switching

The Y, P_B, P_R Reconstruction Filter outputs drive the Component/Blanking Switching matrix. Switch output is buffered and becomes the input to the Color Difference to GBR Transcoder, Bypass Switching, and Component display mode switching.

Color Difference to GBR Transcoder

The three channel outputs drive both the Component Display Switching matrix and the Color Difference to GBR Transcoder. Either the color difference input signal or the transcoded GBR signal can be buffered to drive the back porch-clamped Picture Monitor Output Amplifiers.

Gamut Limit Comparator and Clamped Amplifiers

The Gamut Limit Comparator circuit provides a flashing display on the Monitor output when GBR gamut limits are exceeded. The Monitor Out display can be either transcoded (GBR) or unprocessed components (Y/P_B/P_R). The Monitor Out signals are clamped by a pulse that is generated by the Coprocessor (always timed with the serial video). Composite sync, generated by the Coprocessor, is added to the G/Y channel of the Monitor Out. The Y/G, P_B/B, and P_R/R outputs are compensated in 75 Ω .

GBR to Diamond Transcoder and Mode Switching

GBR signals from the Color Difference to GBR Transcoder are input to the GBR to Diamond Transcoder to be matrixed and applied to the Component Mode switching. The outputs from the Transcoder are B+G and B-G (top half of Diamond), and R+G and R-G (bottom half of Diamond). These outputs drive the vertical and horizontal axes for the diamond display. Mode switching provides the inputs to the axes for Lightning, Diamond, Component Vector, and Bowtie displays.

X-Y Component Outputs

The X-Y component outputs are back porch clamped and low-pass filtered to 1.5 MHz. In Bowtie mode the Y (vertical) output bypasses the low-pass filter. The outputs then drive the Horizontal and Vertical Signal multiplexers (Diagram 1).

Block Diagram 3, Microprocessor and Line Rate Controller**Microprocessor**

The 16-bit Microprocessor has its program code stored in a Flash Erasable Programmable Read-Only Memory (EPROM). The Nonvolatile Random Access Memory (NOVRAM) stores all of the constants used by the Microprocessor. The Random Access Memory (RAM) is used to move system level code for execution by the Microprocessor. The Read-Only Memory (ROM) contains code used by the Microprocessor during boot-up.

The Address Buffer is unidirectional to select the addresses in the storage devices (RAM, ROM, and EPROM) while the Data Buffer is bidirectional for two-way communication with the storage devices.

Line Rate Controller

The Line Rate Controller is loaded from the Microprocessor, synchronized to the incoming video reference, and outputs the synchronous switching signals that are required to make the displays viewed on the CRT.

Sync Separator

A sync separator is used to time the Line Rate Controller. The sync is stripped from either the internal video signal or the external reference video, depending on the front-panel REF switch.

Synchronous Outputs

Data from the Microprocessor is loaded into latches that are clocked by the Line Rate Controller to lock their outputs to the incoming video signal.

Readout State Machine

The Readout State Machine interprets the readout instructions from the Microprocessor and loads digital data into the DAC. Analog output of the DAC drives the stroke generators to create the readout segments that are displayed on the CRT.

- Serial Static Outputs** This is a serial in/parallel out register for signals that do not need to be synchronized to the video signal.
- Serial Interface** The Serial Interface is a latch, driven by the Microprocessor, that outputs the chip select and enables for the serial devices, such as the DACs and the serial/parallel registers used for the Remote and Front Panel.
- Digital-to-Analog Converter** There are a number of D-to-A Converters (DACs) used to decode Microprocessor instructions and output positioning, gain, and DC offsets to the various circuits throughout the instrument. The DACs are part of serially loaded and clocked devices that are commonly referred to as Daculators.
- RS232** The RS-232 input consists of a 9-pin connector and a line driver. It is used to calibrate the instrument.
- Remote** The Remote input consists of a 25-pin connector and parallel in/serial out registers to provide an external interface for remote control of the instrument.

Circuit Theory

The following discusses circuit theory for the WFM 601i Serial Digital Component Monitor to the component level. It is arranged on a diagram-by-diagram basis for the schematic diagrams located at the rear of the manual.

Diagram (1) BNC and Input Boards

Input Amplifiers

The serial inputs are high return loss, 75 Ω compensated (external termination required) passive loopthrough inputs. Q1 and Q2 are buffers that, in conjunction with the printed circuit inductors on the BNC board (A4A1), keep the return loss relatively constant up through 300 MHz.

CR1, CR2, CR4, CR6, Q2, and Q4 form a switch. When SERIAL A is selected, Q10 turns off, which turns off Q2. Current from R8 causes both CR1 and CR2 to conduct, forming a low impedance connection from Q1's emitter to the base of Q5. At the same time, Q11 is on, saturating Q4. Q4 sinks all of the current from R14, which reverse biases CR4 and CR6, preventing the signal on Q3's emitter from reaching the base of Q5. Thus only the SER A input reaches amplifier Q5. Similarly, when SERIAL B is selected, Q11 and Q4 are off, turning on CR4 and CR6, and Q10 and Q2 are on, reverse biasing CR1 and CR2. In this case only the SER B input reaches the base of amplifier Q5.

Q5 and Q7 form an emitter-coupled amplifier. There are two outputs, one from each collector. Q5 drives the 75 Ω input of the Deserializer board (Diagram 2) through J1. Q7 drives the eye sampler input (Diagram 4) through J2. The gain from input (BNC connectors) to J1 or J2 is 0.50. Q6 and Q9 provide DC feedback to the amplifier to force equal collector currents in Q5 and Q7.

Serial Out and Mon Out

The reclocked serial signal, from the Deserializer (Diagram 2) passes back through J4 to the rear-panel Serial Out connector (J7). Component analog output signals from the Component board (Diagram 10) pass through J5 and appear at rear-panel BNC connectors J8, J9, and J10. These signals are normally used to drive a picture monitor.

External Reference Input

The EXT REF input is a 75 Ω compensated, high impedance bridging loopthrough. Emitter follower Q8 provides the high input impedance. CR7 and CR8 keep the input return loss high when the instrument power is turned off.

Diagram (2) Deserializer

Deserializer	The serial signal from the Input board (Diagram 1) is applied through amplifier Q1 to the AIX (pin 26) input of the Deserializer, U7. U7 equalizes the signal for coax cable loss, recovers the data clock, and converts the serial data to parallel data. Pins 9 – 18 (D9 through D0) are the single-ended ECL data outputs of the Deserializer, with emitter pull-downs provided by R49 and R50. The recovered parallel clock is output at pin 19 and can be observed at test point TP1. R18 sets the VCO free-run frequency.
EQ Out Amplifier	The input serial signal, after equalization, is output at pin 31 (MON). U6 amplifies this signal by 20 dB and drives the eye pattern sampler (Diagram 4) through J4. This signal is used for the EQ EYE display mode.
Signal Present Detector	When a serial signal is detected by U7, pin 35 (DPR) is set to 0 V, which turns on FET Q3. Its drain will be at 0 V, sending a “signal present” condition to the Serial Coprocessor (Diagram 5). With no serial input, pin 35 is at –5 V, shutting Q3 off and sending a +5 V “no signal” message to the Coprocessor.
ECL Line Driver	The signal data bus to the Coprocessor board (Diagram 5) is differential. U8 converts the single-ended ECL signal from the Deserializer to differential ECL.
Coax Cable Driver	Deserializer U7 outputs a differential reclocked serial video signal from pins 3 and 4 (SX and SY). Q5 and Q6 convert this signal to single-ended, with Q7 and Q8 providing current gain to drive the 75 Ω rear-panel output by way of J8. Jumper P3 allows the output amplitude to be set at either 800 mV or 740 mV (the latter is required by some “first generation” serial equipment).

Diagram (3) Eye Pattern PLL

TV-Line Locked PLL	<p>U15 is a PLL IC that locks its VCO to 10 times the horizontal line frequency ($10 \cdot F_h$) in 10-EYE mode, and $9 \cdot F_h$ in OVERLAY mode. R78, R79, and C54 determine the VCO free-run frequency, and therefore centers the control voltage on pin 9 when locked.</p> <p>U16 is a Programmable Logic Device (PLD; also known as a Programmable Logic Array (PAL)) that provides the divide-by-9 or divide-by-10 for the PLL. In OVERLAY mode, U16 outputs a $3 \cdot F_h$ signal for the horizontal sweep-gate pulse generator Q1. This sweep-gate pulse (3XFH_TRIG) is a 1 μsec negative-going pulse generated by half-shot Q1. This pulse is used by the Line Rate Controller on the Main board to gate the horizontal sweep at $3 \cdot F_h$ only in the OVERLAY mode. It is not used in 10-EYE or other waveform modes. One more output</p>
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($F_{HX9/5}$) is provided at either $9/5 \cdot F_h$ in OVERLAY or $2 \cdot F_h$ in 10-EYE mode, providing an offset reference frequency for the selectable bandwidth eye-sampler PLL.

Eye-Sampler PLL

U2 is a PLD programmed as a unique, reference frequency canceling, phase/frequency detector. It also contains a divide-by-4 on the $9/5 \cdot F_h$ input from U16, thereby operating at a reference frequency of $9/20 \cdot F_h$ in OVERLAY or $1/2 \cdot F_h$ in 10-EYE mode. The output from the phase/frequency detector is in differential form and drives differential amplifier U6A. However, the twice reference frequency components are a common mode signal and are rejected by the CMRR of differential amplifier U6A. The reference-frequency canceling feature of this phase/frequency detector is necessary since the eye-sampler PLL bandwidth can be as wide as 2.5 kHz. With this relatively wide bandwidth, little or no attenuation of the reference frequency components at the phase/frequency detector output is provided by the subsequent error-amplifier U6B.

The second input to the phase/frequency detector (U2), at the reference frequency, is provided in complex form as in-phase and quadrature signals from TTL comparators U5A and U5B. The comparators convert the low-pass filtered outputs from ECL mixers U11C and U11A to TTL signal levels. L3 through L6, and associated components, form two differential low-pass filters with approximately 600 kHz bandwidth. These filters pass only the frequency difference component from the mixers. One of the two inputs to the mixers is provided by an ECL divide-by-2. U12B is clocked by the 27 MHz recovered clock from the Deserializer board on Diagram 2.

U13A is a differential line-receiver for recovering the 27 MHz differential ECL clock from the Deserializer board. U13C is driven by the 13.5 MHz output of U12B through a bridge connected, RC phase shifter. The phase shift is preset to 90 degrees to generate the in-phase and quadrature outputs from the mixers. The other input to the mixers is from one of the two switchable VCXO's, U4A and U4C.

The two VCXOs run at a frequency lower than 13.5 MHz by $1/2 \cdot F_h$ in 10-EYE mode and $9/20 \cdot F_h$ in OVERLAY mode. These two frequencies slip the sampling phase by 9 eye widths per TV line in OVERLAY and 10 eye widths per TV line in 10-EYE mode. Since these two frequencies are too far apart to be accommodated properly by a single VCXO, two crystals in separate oscillators are needed. U4A is the 9-eye oscillator, and U4C is the 10-eye oscillator. These ECL, logic-gate VCXO's are tuned by LC tank circuits to prevent spurious modes and drive the crystals with approximately 50 μ Watts.

The PLL error amplifier, U6B, provides a type 2, 3rd-order control loop. U9A and U9D are analog switches that select different feedback networks to change the control bandwidth. The C17 network is used alone for the 2500 Hz bandwidth. This network is shunted by U9D with the C26 network for 250 Hz bandwidth and by U9A with the C35 network for 25 Hz bandwidth.

U8A divides the VCXO's output frequency by two to provide the approximately 6.75 MHz, differential, sample clock to U14 on Diagram 4.

Diagram (4) Eye Sampler

U14 is the sample and hold IC that forms the equivalent time sampled eye pattern by sampling the buffered serial digital input signal. The selected input signal is buffered and passed to the Eye Pattern board from the Deserializer board by way of a 75 Ω coax to J9. Relay K1 selects either this signal in EYE mode, or a second equalized signal in EQ EYE mode as the input to U14. Adjustable capacitor C52 is the only frequency response adjustment for the EYE display. C52 is adjusted as per the calibration procedure to yield approximately a 500 MHz bandwidth.

The Eq Eye signal is provided by the Deserializer (Diagram 2) and is routed to J10 by way of 75 Ω coax. The signal level is too small for display and is increased by about 8 dB by MMIC U18.

The lower bandwidth U14 output is converted from differential to signal ended by U10. U17 amplifies and buffers the output from U10 to drive a 75 Ω transmission line. This signal is then routed to the Main board (EYE_OUT) to be switched to the vertical amplifier for the EQ EYE and EYE display modes.

Optional External Eye-Pattern Output

A 75 Ω SMB connector, J4, is provided as an auxiliary output. The serial output coax connected to J8 on the Deserializer board can be disconnected and connected to J4 on this board to provide a 700 mV, 75 Ω eye-pattern output to an external waveform monitor. The serial-digital output from the backpanel then becomes a 75 Ω eye signal that can be routed via 75 Ω coax. The external waveform monitor must have at least 10 MHz bandwidth and be set for EXT sync trigger on house video with DC RESTORER off in order to properly display the eye pattern. With the WFM 601i in 10-EYE mode, 10 eyes/TV line will be displayed and in OVERLAY mode 9 eyes/TV line will be displayed.

Diagram (5) Coprocessor

ECL-to-TTL Converter

Data from the Deserializer is input to the Coprocessor as differential ECL. R5 – R16 are line terminating resistors. U1, U2, and U3 are ECL-to-TTL converters outputting 10-bit, single ended TTL levels for the Coprocessor.

The serial clock is converted to TTL levels by U1, and output as a differential signal to the DAC board (Diagram 8), where it is phase locked and regenerated before returning to clock the Coprocessor. It returns to the Coprocessor circuit

board, as the internal clock, through J1 as 27 MHz and $\overline{27\text{ MHz}}$. Only the 27 MHz is used by the Coprocessor.

The No Signal from the Deserializer is the serial stream present indicator for the Coprocessor. It is low when the serial data stream is present.

Coprocessor

The Coprocessor relieves the Microprocessor of many line-by-line decisions as well as determining when there are errors in the data stream and flagging gamut errors.

The Coprocessor, U5, is clocked by the 27 MHz regenerated clock from Diagram 4. It provides 10-bit differential outputs (DACD0 — DACD9) to the DACs and Digital Half-Band Filters on Diagrams 7 and 8. The Y Time signal is one of the inputs to the Clock PAL on Diagram 6, which provides timing to deinterleave the Y and color difference signals.

Control and interrogation of the Coprocessor is over data and address buses shared with the Component circuit board (Diagram 12). The buses connect through J2. The Coprocessor uses 8 bits (BD8 — BD15) of the data bus and 6 bits (BA0 — BA5) of the address bus. The address bus controls which internal input and output registers are being read or written to. In addition, there is an enable bit, BA15, that is high for the Coprocessor and low for the Component board.

There are five Coprocessor outputs that communicate directly with the Component circuit board.

COMPSYNC — Provides the composite sync signal used by the Component circuitry.

$\overline{\text{BLANK}}$ — An active low signal that controls switches that control the input levels to the Component Amplifiers during the vertical interval.

$\overline{\text{CLAMP PLS}}$ — An active low signal that controls when clamping of the Component Amplifiers occurs.

$\overline{\text{GAMUT ERR}}$ — Goes low when a gamut error is being detected on the Component circuit board. Error data is read out to the Microprocessor over data bits BD8 - BD15.

GAMUT INH — Turns off the flashing display, on the Monitor Out signal, when a gamut error is occurring.

CSPARES — Not used.

Line Buffer RAM

This function is not used in the WFM601i current applications.

Serial PROM The Serial PROM is used to initialize the Coprocessor. When Power is applied the RESET line goes high, which automatically tells the Coprocessor to read the Serial PROM for its initial configuration. The Coprocessor generates a Clock signal for the Serial PROM, which begins to output the configuration data (CONFIG D) to the Coprocessor. When all the necessary configuration data is received the Coprocessor generates CONFIG DONE to disable the Serial PROM output.

Diagram (6) Clocks, Power, and Interconnects

Phase Detector and Error Amplifier U16 is a TTL-to-ECL converter whose noninverting output drives one input of an exclusive OR gate that serves as a phase detector to compare the regenerated clock to the input clock signal. The output of U24C drives an operational amplifier that serves as the error amplifier. U14A is compensated by a feedback circuit that sets the phase lock loop bandwidth. The placement of P1 dictates the bandwidth, which determines the speed of lockup. The output of U14A is the error signal that drives CR7, a varactor diode in the oscillator circuit.

OSC, Frequency Doubler, and Side-band Filter U24A is an exclusive OR gate wired as a crystal controlled (Y1) 13.5 MHz oscillator. The output of U24A is tied directly to U24B, input pin 12. A separate path causes the output of U24A to be phase shifted by 90° before being applied to U24B, input pin 9. The two signals applied to the exclusive OR gate of U24B, result in frequency doubling to 27 MHz. The inverted output of U24B is fed back to one input of the phase detector to determine if the oscillator output and the incoming clock are in phase. The Side-band Filter cleans up the Frequency Doubler output prior to conversion back to TTL.

ECL to TTL Conversion U27 is a differential ECL-to-TTL converter that outputs 27 MHz clocking signals for the Luminance Half-band Filter and Digital-to-Analog Converter (DAC).

Clock PAL U93 is a Programmable Logic Array (PAL) that generates the 13.5 and 6.75 MHz enable and clock signals for the recovery of the luminance and color difference signals from the digital input. Because the Y, P_B, and P_R signals are present on the digital signal at different times it is necessary to clock the Half-band filters at the correct times to convert the digital signal into the analog components. The Y Time signal, that enables the divided down outputs, is generated by the Coprocessor on Diagram 5. The clocking signal, to be divided down, is the 27 MHz regenerated clock.

-5.2 Supply The -5.2 V supply is a continuous mode flyback switching supply that uses the instruments +40 V supply as a power source. The switch is Q1, a field-effect

transistor (FET), running at a 100 kHz rate. Its duty cycle sets the output voltage. U23 is the controller whose switching rate is set by C42 and R88, connected to pin 4. The +5 V supply, at pin 8, is the reference for the controller. C51 and R90 (pin 1) are the compensation for the controller internal error amplifier.

U22A is the voltage feedback amplifier for the controller. It is an inverting operational amplifier with a gain of -0.5 . During normal operation its output is +2.5 V, which is the voltage required by the controller.

CR101 and C171 limit any voltage spikes at the drain of Q1 to 100 V. The snubber circuit is composed of C1, CR3, and the parallel network of R90, R91, and R92, which reduces the rise time on the drain of Q1 which lowers the supply radiated noise.

CR1 is the supply rectifier. C46, L8, and C47 form the output pi filter.

Diagram (7) Y Delay, Half-band Filter, and DAC

Y Delay The luminance channel elements are clocked at twice the clock frequency of the color difference channels. In order to properly time the luminance and color difference signals, a solid state delay is used. U94 is clocked at the luminance rate by the Clock PAL to delay the Y signal prior to digital half-band filtering.

Digital Half-band Filter In order to simplify the analog filtering at the output of the Digital-to-Analog Converters (DACs), the Digital Half-Band Filter, U29, clocks data out at twice the rate of the input data. The clock signal is the buffered, regenerated clock from Diagram 6. The clock synchronizing signal (which is at luminance frequency, 13.5 MHz) is from the Clock PAL, which is also on Diagram 6.

Y DAC The Y channel DAC is U9, which converts the 10-bit digital input data to an output analog current. The enable signal, from the regenerated clock, is at twice the luminance frequency (27 MHz). R271 is a 75 Ω terminating resistance that converts the output analog current to a voltage.

Gain of the DAC is controlled by a signal fed back from the gain and control circuitry on Component circuit board (A7) on Diagram 12.

Diagram (8) P_B and P_R Half-band Filters and DACs

Digital Half-band Filters The Digital Half-band Filters, U17 and U20, clock data out at twice the rate of the input data. The clock signal is from the Clock PAL on Diagram 6, and is 13.5 MHz, which is twice the color difference frequency. The clock synchronizing signal (6.75 MHz) is also from the Clock PAL.

P_R DAC and P_B DAC

The P_R channel DAC is U18, which converts the 10-bit digital input data to an output analog current. The enable signal, from the Clock PAL, is at twice the color difference frequency (13.5 MHz). R255 is a 75 Ω terminating resistance that converts the output analog current to a voltage.

Gain of the DAC is controlled by a signal fed back from the gain and control circuitry on the Component circuit board (A7) on Diagram 12.

The P_B channel DAC is U19, which converts the 10-bit digital input data to an output analog current. The enable signal, from the Clock PAL, is at twice the color difference frequency (13.5 MHz). R256 is a 75 Ω terminating resistance that converts the output analog current to a voltage.

Diagram (9) Y, P_B, and P_R Reconstruction Filters

Y Filter

The input to the Y Filter is band-pass filtered by a fifth order elliptical filter with its 60 dB stop point at ≈ 16 MHz. Filter bandwidth is approximately twice that of the color difference filters P_R and P_B. U300 is an active all-pass filter that also provides a delay compensation, C308, to match the propagating delay of the filter to the filter delay in the color difference channels.

U301 and U302 provide amplitude and group delay equalization. U301 is a second order band-pass filter. R312 is the frequency response adjustment for the luminance channel (Y). DC level offset, from the DAC on Diagram 10, is added to meet the signal display requirements. R325 and C325, in the feedback loop around U301, are the SIN X/X equalization. J300 is a 75 Ω compensated output (not normally used).

P_B and P_R Filters

These color difference filters are identical. The input is band-pass filtered by a fifth order elliptical filter with a 60 dB stop point at ≈ 10 MHz. Filter bandwidth is approximately half that of the luminance (Y) filters. U400 and U500 are active all-pass filters that also provide a delay compensation, C407 and C507, to match the propagating delay of the filter to the filter delay of the other color difference and luminance channels.

U401 and U402 (P_B), and U501 and U502 (P_R), provide amplitude and group delay equalization. U401 and U501 are second order band-pass filters. R410 (P_B) and R510 (P_R) are the frequency response adjustments for the color difference channels. DC level offset, from the DAC on Diagram 10, is added to meet the signal display requirements. R425 and C425 (P_B), and R525 and C525 (P_R), in the feedback loops around U401 and U501, are the SIN X/X equalization. J400 and J500 are 75Ω compensated outputs (not normally used).

Diagram (10) Transcoders and Picture Monitor Outputs

Input Selection Luminance and color difference signals (Y, P_B, and P_R) are input to three identical input amplifiers, which are switched between the component signals and blanking levels. Switching is controlled by the Coprocessor, Diagram 7. Blanking levels for P_B and P_R are set by the DAC on Diagram 10. Blanking level for Y is at ground. Output signals, Y/Blank, P_B/Blank, and P_R/Blank, from the input amplifiers drive the Transcoder and inputs to the horizontal and vertical signal processing amplifiers on Diagram 9.

RGB Transcoder Driven by input amplifiers, the Color Difference to RGB Transcoder consists of three operational amplifiers (U41, U51, and U61) and resistance matrices. The operational amplifiers and the resistance matrices are signal mixers. Subtraction and addition of signals is accomplished by presenting the color difference components to either the inverting or noninverting inputs of the amplifiers. The resultant signal proportions are shown in Table 3-1. Note that Y is input to the noninverting input of all three amplifiers (U41, U51, and U61), and that both P_B and P_R are input to the inverting input of U41 (the G transcoder). This makes the output mix for SMPTE format $G = Y - 0.3441 P_B - 0.7141 P_R$.

Table 3-1: Transcoder Signal Mixing

GBR	SMPTE
Green	$Y - 0.3441 P_B - 0.7141 P_R$
Blue	$Y + 1.772 P_B$
Red	$Y + 1.402 P_R$

The GBR outputs of the operational amplifiers drive clamped amplifiers (U45, U55, and U65) whose output is always GBR. Offset levels are from the DAC on Diagram 10. The clamping pulse is from the Coprocessor.

The Transcoder is in operation under all circumstances; however, the Monitor Output can display either color difference or RGB. When the desired monitor output is color difference, the Monitor output signal bypasses the Transcoder. U43, U53, and U63 are switchable input amplifiers driven by either the Transcoder output or color difference signals output by the Input Selection amplifiers.

Gamut Limit and Sync Insertion

Each of the components of the GBR signal, output by the Transcoder, is passed through a low-pass filter and then compared against limits from the DAC on Diagram 10. The plus limit is set at 735 mV (700 mV + 5%) and the minus limit at -35 mV (0 ± 5% of the 700 mV total amplitude). When one of the GBR signals exceeds a limit, the comparator output becomes the Gamut Error signal,

which is monitored by the Coprocessor. In addition, it also drives a brightup circuit (Q76 driving U76), that causes the G/Y component of the Monitor Output to increase in brightness whenever a gamut limit is exceeded, if the Monitor gamut alarm is enabled.

A Gamut Inhibit signal is generated by the Coprocessor, Diagram 4, which inhibits the Monitor gamut alarm brightup, if the function is not enabled. If the brightup is enabled, the Gamut Inhibit signal toggles on and off at about 2 Hz, which causes the brightup of gamut errors to flash on the monitor.

In addition to being the brightup amplifier for gamut limit errors, U76 inverting input is a summing junction where composite sync is inserted for the G/Y Monitor Output to synchronize a picture monitor. U74A is an inverter and Q441 an emitter follower driving both the Monitor Output and the Horizontal Reference Multiplexer on Diagram 11.

Monitor Output The Monitor Output amplifiers are identical clamped amplifier circuits, capable of driving a component picture monitor. Input signal can be either color difference or GBR, with composite sync added to the G/Y component. Clamping is to ground, controlled by a clamping pulse generated by the Coprocessor. Each input has a flatness compensation, C711, C721, and C731. R85, R95, and R105 set the output impedance to 75 Ω for each of the channels.

Diagram (11) Lightning, Vector, and Bowtie Switching

Input Switching Signal selection for the component displays is accomplished by a series of four-element switches (U101, U103, and U151) activated by the Controller switch enable signals SW1 – SW11. Signals to input for the various displays are routed to the vertical inverting and noninverting amplifier inputs and to the noninverting horizontal amplifier as shown in Table 3–2. Switch enable signals that are asserted to close the individual switches are included in parentheses.

Table 3–2: Component Display Output Switching

CRT Display	Line	Vertical Noninverting Input	Vertical Inverting Input	Horizontal Input (noninverting)
Component Vector	All	P _R (SW 4)	Ground (SW 5)	P _B (SW 6)
Lightning (Difference)	X	Y (SW 3)	Ground (SW 5)	P _B (SW 10)
	X+1	Ground (SW 2)	Y (SW 3)	P _R (SW 11)
Diamond (RGB)	X	G+B (SW 1)	Ground (SW 5)	B-G (SW 1)
	X+1	Ground (SW 2)	G+R (SW 8)	R-G (SW 8)
Bowtie (Difference)	X	Y (SW 3)	P _B (SW 6)	none
	X+1	Y (SW 3)	P _R (SW 9)	none

Vertical Amplifier

The vertical amplifier, U127, is a differential amplifier. It is used as a differencing amplifier in the BOWTIE mode and on alternating lines, and a noninverting amplifier in the LIGHTNING and DIAMOND modes. In the BOWTIE mode Y is applied to the + input as well as the – input; P_B for one line and P_R for the second line. In the LIGHTNING mode Y is applied to the + input for the top half of the display and to the – input, which is inverted, for the bottom half of the display. The output of U127 drives either an active low-pass filter, Q136, Q137, and Q134, or is switched past the filter (U102A) for the Bowtie display.

The low-pass filter consists of three emitter follower stages with an overall gain of slightly less than unity. C133 and C136 are adjusted to match the frequency response and phase of the vertical channel to that of the horizontal channel.

The output of the filter is clamped to re-establish the back porch near 0 V. In the lightning and diamond modes, the offset correction is different depending on whether the signal was inverted or not; a separate restoring circuit is required for the top and bottom halves. The sample capacitors, C120 and C121, are charged whenever the CLAMP PLS goes low and either $\overline{\text{TOP}}$ or $\overline{\text{BOTTOM}}$ is asserted, causing the output of U125A or U125B to go low and close either U124A or U124D. The clamped amplifiers, U126A and U126B, have a DC level (V Offset from the DAC on Diagram 10) at their noninverting inputs. This voltage is adjusted to position the clamped back porch levels to the center of the lightning graticule box vertically.

Diamond Transcoder

The Diamond Transcoder consists of resistance matrices, and an inverting operational amplifier, U70. The resultant outputs, input to the Vertical and Horizontal Amplifiers, are the four signals required to create the Diamond

display (G+R, G+B, B-G, and R-G). Signal gain is approximately 0.5. C74 is adjusted to match the phase of the inverted component (-G) to that of the B and R components, which results in a straight, vertical black-to-white transition on the Diamond display.

Horizontal Amplifier

The horizontal amplifier is driven by Q180, an emitter follower to provide a high output impedance. Q151 and Q157 form an active low-pass filter that is used by all of the component outputs. U162A and U162B are clamped amplifiers. Their operation is very similar to that of the vertical amplifier clamps. The Horiz Offset, from the DAC (Diagram 10), positions the clamped back porch levels to the center of the lightning graticule box horizontally.

Display Switching

The selection of signals, driving Vertical and Horizontal Output Amplifiers to display vectors, lightning, diamond, bowtie and audio are controlled by DIP switches. LTNG Y is the vertical drive and LTNG X is the horizontal drive. Switches U77B and U77A are closed for audio signals. U84A (LTNG X) is closed for all other displays. U102A is closed for bowtie display (bypassing the vertical amplifier low-pass filter), while U102D is closed for all displays except Bowtie and Audio displays.

U74D is an inverter for the Z BRIGHT signal from the Coprocessor that intensifies the CRT display.

Diagram (12) Control and Daculator

Controller

U206 is a First-In First-Out (FIFO) memory. It is written to asynchronously by the Microprocessor and synchronously read out. U207 controls the readout of the memory to synchronize the output to sync. U208 and U209 are shift registers that are also clocked by an output from U207 to ensure that the switching required to build the component displays remains synchronous. U202 is an address decoder enabling U206 so that the Microprocessor can write to it.

U204 is an asynchronous register that handles transactions that do not need to be synchronized to the instrument sync.

U210 is an 8-bit serial in/parallel out shift register whose outputs are asynchronous switching control lines. They control display switching (Diagrams 8 and 9). U203 is an 8-bit parallel load serial output shift register for use in identifying future options.

D/A Converter

U220 is an 8-bit serial in/parallel out shift register that generates DAC load and chip enable signals for U212.

U212 is a serial Digital-to-Analog Converter (DAC) with 16x12 static RAM. VOUT (0 – 15) are the analog outputs, each of which has a sample-and-hold for the output level. Serial data is loaded from the serial bus (BMOSI) when the LD goes low. The clock signal (BSCK) is from the Microprocessor. Output voltage levels provide the component processing operating levels (Diagrams 9, 10, and 11).

Diagram (13) Vertical Input

Input MUX The Input MUX is an 8-to-1 multiplexer (U79) controlled by the Line Rate Controller on Diagram 17. It selects one of three Y, P_B, P_R (or R, G, B) or a time-multiplex of three to drive the Low Pass Filter, Chrominance Filter, or the unfiltered (Flat) input to the Filter MUX on Diagram 14. In addition, the INT VIDEO signal is recovered from the output of the Input MUX and routed to A1U56 (Diagram 15) to provide video for the PIX MONITOR mode.

Luminance/Diff Step Filters The output of the Input MUX drives the Low Pass Filter through R103. L5 and L6 are adjusted for a white bar square corner while C131 is adjusted for a null at 4 MHz. The output signal from U72B drives the Diff Step Filter.

The input stage of the Diff Step Filter is an active low-pass filter (U72A) that drives a differentiator consisting of C111 and R249. The differentiator circuit converts staircase risers into sharp spikes that are amplified by a factor of approximately 5 by U65.

Horiz Ref MUX The multiplexer is made up of two Line Rate Controller asserted multiplexers, U70A and U70B.

When the INT $\overline{\text{EXT}}$ control line is asserted, it goes low and U70D and U70A close to drive Q19 from the rear-panel EXT REF input. Q19 is an emitter follower providing a high impedance output that drives the Sync Separator on Diagram 17.

Diagram (14) Vertical Output

Square Wave Calibrator The input CAL LEVEL is from a DAC, shown on Diagram 19. It drives the inverting input of U47A, an operational amplifier. Q20 is a saturating switch driven by a 100 kHz output from the Line Rate Controller on Diagram 17. The square wave output is 1.096 V.

Filter MUX The Filter MUX is an 8-to-1 multiplexer controlling the input selection for the Vertical Amplifier. In order to accommodate an additional three inputs U66 selects the signal to be applied to the AUX input of U67. Switches are closed when their control lines are asserted low by synchronous outputs from the Line Rate Controller shown on Diagram 17. The Y Audio and Time Code (not implemented) inputs are differential. U84A (Audio) and U88B (Time Code) are converters, for the differential inputs, that output a single ended signal to drive the Filter MUX. A JITTER input is selectable with J15 and J16 but is not currently implemented.

Vertical Amplifier The Vertical Amplifier, U55, contains two independent amplifiers. The external gain controlled Auxiliary amplifier is not used.

The main Vertical Amplifier has inputs for the filtered video signal and the differential readout signal. The single ended output from the Filter MUX is converted to the differential output required to drive the Vertical Deflection Amplifier. Output is switched between video signal and the readout by the V RO SEL signal from the Line Rate Controller.

Vertical control levels, such as Gain and Position from the DACs (Diagram 19) and the Magnifier control signal from the Line Rate Controller (Diagram 17), control the output gain and positioning of the displayed signal. Gain and frequency response characteristics of the CRT are compensated by a network between the VOUT+ and VOUT- terminals of U55.

Vertical Deflection Q10 and Q16 are power transistors that drive the CRT deflection plates. A sample of the horizontal output voltage is fed into the emitters of the transistors to compensate for CRT orthogonality error. U57A and B are noninverting buffer amplifiers driving U64B, which converts the differential signals to a single ended voltage that is applied through R168, the Y Align adjustment.

Diagram (15) Horizontal

Sweep Generators The sweep generators are nearly identical buffered integrators. They are started by either the line or field sweep speed signal from a DAC shown on Diagram 17. For purposes of simplicity we will discuss only the Field Sweep generator.

The FLD SWP SPD signal from the DAC is filtered by an input filter with a 0.1 second time constant, R83 and C55. U39A is a buffer to drive U62A, an integrator. C101 is the integrator capacitance. When retrace occurs, U63B closes and discharges C101. When the FLD SWP SPD goes high, and U63B is open, the output of U62A ramps up and provides the vertical sweep to the Vertical Input Switch (Picture mode) and the Horizontal Signal Multiplexer.

Horizontal Signal MUX

The Horizontal Signal input selection consists of dual in-line package (DIP) switch segments (U59, U63, U70, and U94) and an 3-to-8 line decoder (U60). The decoder is controlled by three synchronous outputs from the Line Rate Controller (Diagram 15). It is permanently enabled (pins 4, 5, and 6) so that any change in state of the control lines (pins 1, 2, and 3) will pull one of the six outputs (Y0 – Y6) low and close the appropriate DIP switch segment.

Horizontal Amplifier

The Horizontal Amplifier, U56, contains two independent amplifiers. The external gain-controlled Auxiliary Amplifier is used as a single ended luminance amplifier. The output of the Luminance Filter Amplifier (Diagram 11) is input to the + input of the Auxillary Amplifier. Its gain is controlled by the PIX CONTRAST level from a DAC shown on Diagram 17. The single ended output drives an inverting operational amplifier, U47B. The minus input of U47B is a summing junction for the PIX BK LVL (black level) and the luminance from U56. The output of U47B is the picture monitor intensity signal to the Z-Axis control circuit (Diagram 19).

The main Horizontal Amplifier, which has inputs for horizontal signals and the readout signal, converts the single ended input from the Horizontal MUX to a differential output. In addition, it amplifies the differential input of the readout signal. U47D is an inverter to generate the –H RO SIG. Output is controlled by the H RO SEL signal from the Line Rate Controller.

Horizontal levels, such as Gain and Position from the DACs (Diagram 17), and control signals, such as Mag from the Line Rate Controller (Diagram 15), are input through U56, the Horizontal Amplifier. Gain and frequency response characteristics of the CRT are compensated for by a network between the VOUT+ and VOUT– terminals. The + and –H signals from the VOUT terminals are also supplied to the Vertical Deflection Amplifier (Diagram 6) for orthogonality adjustment (Y-Align).

Horizontal Deflection

The Horizontal Deflection circuit consists of seven discrete transistors to drive the horizontal deflection plates of the CRT with a differential signal.

Q28 is the current source for this paraphrase amplifier. The amplifier itself is driven from inputs Q12 and Q14. Their bases are a summing junction for the input signal and compensated feedback. Q11 and Q13 are common base amplifiers with the bases held at –3 V. Q8 and Q15 are driven independently. Shunting resistors across Q8 and Q15 lessen power dissipation in the current source (Q28).

CR8 is a boot strap circuit to divert current to the negative-going side when the amplifier is slewing rapidly.

Diagram (16) Microprocessor

The Microprocessor controls the functions of the WFM 601i. It has a 32-bit internal architecture and operates with a 16-bit data bus and a 24-bit address bus.

Microprocessor and ROM

U18 is the Microprocessor. It is crystal controlled, with Y1 as the active element of the clock oscillator. DS1 is an indicator that turns on and holds when the 5 V supply stabilizes during turn on. U7 senses the 5 V supply and pulls the $\overline{\text{RESET}}$ line low if the 5 V supply goes low.

LS1 is a permanent magnet-type speaker for audible feedback that is driven by Q3. CR2 is a voltage clamp for the speaker voice coil.

U13 is a Read Only Memory (ROM) with 18 address bits; it outputs the eight Most Significant Bits (MSB) to the data bus.

Data and Address Buffers

U5, U8, and U12 are the address buffers for the 24-bit address bus. The bus is enabled by $\overline{\text{ADDR EN2}}$ from the decoder. The DIR control line is held high allowing the processor to write to the buffer whenever the $\overline{\text{ADDR EN2}}$ is pulled down. The buffered address bus selects addresses in the NOVRAM, RAM, and FLASH EPROM.

The data buffers, U15 and U19, are bidirectional. When the DIR control line is low data from the NOVRAM, RAM, and Flash EPROM is read into the Microprocessor data bus on the $\overline{\text{DATA EN2}}$. When DIR is pulled high, and $\overline{\text{DATA EN2}}$ is pulled down (by the Decoder), the Microprocessor writes to the data buffers on the data bus.

NOVRAM, RAM, and Flash EPROM

The NOVRAM (U14) stores all of the constants used by the Microprocessor. The Microprocessor writes the eight MSBs into the NOVRAM when both $\overline{\text{CE}}$ and $\overline{\text{WE}}$ are pulled low. $\overline{\text{RW}}$ from the Microprocessor pulls down $\overline{\text{WE}}$. $\overline{\text{CE}}$ is pulled low by $\overline{\text{NOVRAM}}$ which is decoded by the address decoder. Content of the NOVRAM is read back out to the Microprocessor, through the Data Buffer (U19), when $\overline{\text{RW}}$ goes high and the $\overline{\text{CE}}$ and $\overline{\text{OE}}$ are pulled low by $\overline{\text{NOVRAM}}$.

System level code is loaded into RAM (for reading by the Microprocessor) from the Flash EPROM, where it is stored. Unless VPP is high (for programming purposes) the Flash EPROM, U10 and U16, functions as a 256k X 8 Read Only Memory (ROM). (Write instructions are ignored.) U10 stores the lower eight bits and U16 the upper eight bits. It is read out when $\overline{\text{FLASH}}$, $\overline{\text{RD LO}}$, and $\overline{\text{RD HI}}$ are pulled low.

Flash EPROM output is written into the Random Access Memory (RAM), U11 and U17, when $\overline{\text{SRAM}}$, $\overline{\text{WR LO}}$, and $\overline{\text{WR HI}}$ are pulled low. The Microprocessor reads the RAM when $\overline{\text{SRAM}}$, $\overline{\text{RD LO}}$, and $\overline{\text{RD HI}}$ are pulled low.

- Decoders** The Address Decoder is U21. It is a 3-line to 8-line decoder using the three MSBs of the address bus to output five control signals. The decoder is enabled when the Microprocessor pulls $\overline{\text{DECODE}}$ and $\overline{\text{ADDR EN}}$ low.
- U2 is a logic array that decodes Microprocessor outputs. It uses buffered address 0 (BA0) as a clock. Its outputs enable the data and address buffers, control read and write for the RAM and Flash EPROM, and output two control signals for digital expansion.
- Buffered Output** U23 buffers five outputs and one input for the Microprocessor. It is permanently enabled by tying pin 1G low and pulling pin 2G low.

Diagram (17) Dynamic Control

Microprocessor instructions are synchronized to line and field rates to generate time-dependent control signals by the circuitry on this diagram.

- Sync Separator** The sync separator consists of U68. The V sync and H sync outputs are used to synchronize the Line Rate Controller (U34).
- Line Rate Controller** The Line Rate Controller (U34) is a programmable logic device. It is capable of logic and timing simulations. It has three separate clock signals: 6 MHz from U93, 16 MHz from the Microprocessor, and a 5 MHz clock signal from an ECL oscillator. In order to lock the internal clock to video, U34 asserts $\overline{\text{START}}$ at the leading edge of H sync. When $\overline{\text{START}}$ goes low, it remains low for approximately 60 μs ; it then goes high to shut off the oscillator (Q4, Q5, Q6, and U26C) until the next cycle.
- U34 has 144 configurable blocks of RAM that are loaded from ROM at power up. U40 is a first-in/first-out RAM that is loaded from the Microprocessor, and read out to the Line Rate Controller and synchronous latches on command from the Line Rate Controller. U40 can be written to by the Microprocessor and read from by the Line Rate Controller independently.
- Synchronous Outputs** Output signals from the Microprocessor are timed out to analog switches and DACs by the Line Rate Controller clocks synchronous latches (U42, U43, U44, U51, and U52). Each latch is clocked by its own individual output from the Line Rate Controller.

Diagram (18) Readout

The Readout Control state machine interprets the readout instructions from the Microprocessor and loads digital data into the DAC. Analog output of the DAC

drives the stroke generators to create the readout segments that are displayed on the CRT.

Readout Control

The Readout Control is a programmable logic device, U27, configured as a state machine. It uses 13 buffered addresses and eight buffered data bits to produce an eight-bit data word (R0 – R7) that is converted by an eight-bit DAC (U37). Device clock is the buffered 16 MHz from the Microprocessor. When Readout Control is off U36, a RAM, can be written to directly by the Microprocessor, through its 13-bit address port. A screen draw requires 13 bits.

U37 is a dual DAC that decodes the Microprocessor instructions. The A output drives the Vertical Readout Stroke Generator and the B half performs the same function for the Horizontal Readout Stroke Generator. Calibration constants are provided by the serial digital-to-analog converters (DACs) shown on Diagram 19.

Readout Stroke Generator

The Readout Stroke Generator consists of two identical circuits. Each generator has an inverting buffer amplifier, U48A or U48B, whose gain is unity. The output of the buffer amplifier drives a sample-and-hold, U54A or U54C. Timing for the sample-and-holds is identical. The output of the sample-and-hold drives an integrator, U48C or U48D, whose output is a linear interpolation between DAC values. Charging current is controlled by the Shape adjustment (R134 or R135). The output of the Readout Stroke Generator drives the Vertical and Horizontal deflection circuits when readout is enabled.

Diagram (19) DACs and Serial

Serial Interface & Serial Static Outputs

U24 is a four-line to eight-line decoder that outputs chip select and enable signals for the nonsynchronous switching control lines. U9 is an 8-bit parallel load serial output shift register. Status of the A, B, C, and D input lines identify the Main circuit board revision level. SW1 is included for troubleshooting purposes. R28 is a set of pull-up resistors for eight parallel inputs and three of the Microprocessor (Diagram 16) control lines.

U77 is an eight-bit serial in/parallel out shift register. Its outputs are asynchronous switching control lines.

D/A Converters

U32 and U38 are eight-bit serial in/parallel out shift registers that generate DAC load and chip enable signals. These signals are used by the DACs, Remote interface parallel in/serial out shift registers (Diagram 20), and the chip selects for the Bezel Controls A/D converters on Diagram 21.

U31, U35, and U86 are serial digital-to-analog converters with 16x12 static RAM. VOUT (0 – 15) are the analog outputs, each of which has a

sample-and-hold for the output level. Serial data is loaded from the serial bus (BMOSI) when the LD goes low. The clock signal (BSCK) is from the Microprocessor. Output voltage levels provide the instrument's operating levels.

U39C and U39D are buffer amplifiers. U45A and U45B are adders for horizontal and vertical positioning voltages. The RC circuits across the adders are low-pass filters.

Diagram (20) Remote and Digital Bus Connectors

RS-232 U92 is an RS-232 line driver receiver. C175 is part of the internal voltage doubler circuit and C171 is part of a voltage inverter circuit. Input and output signals are TTL. Chip output will be low with an input signal of +2.4 V or more.

Remote U90 and U91 are eight-bit parallel-load, serial-output shift registers. Levels at the parallel inputs are loaded into the shift register and clocked out by the serial clock (BSCK). U90 and U91 are cascaded by taking the serial output of U91 and tying it to the serial input of U90. Inputs to the registers are asserted TTL low; R356 is a pull-up resistor to set the inputs to a TTL high when they are not asserted. Serial output, to the Microprocessor, is from pin 9 of U90.

Digital Bus Connectors The Component circuit board, assembly A7, plugs into J2 and J5. Not all signals routed through the connectors are used by the Component board.

Diagram (21) Z-Axis and Control

Bezel Controls The bezel controls are the five, two-section, potentiometers located below the CRT. The outside two are dedicated controls for vertical and horizontal positioning. The center three potentiometers are assigned by menu selection.

U3 and U4 are eight-bit switched capacitor successive approximation A-to-D converters with serial output. Levels, from the potentiometers, are input on the AN inputs, converted, and output as serial data that can be read by the Microprocessor (Diagram 16) on the serial bus (MISO).

Blanking Logic U49 is a four-section CMOS switch. Blanking selection signals, from the Dynamic Control (Diagram 15), going low close the switch elements. CR4 serves as an OR gate. The output of CR4 drives Q7, which is the current drive for the Z-Axis amplifier on Diagram 22. The higher the collector current the greater the CRT intensity.

CR5 is also an OR gate. The $\overline{\text{OPT BLANK}}$ originates on the Component circuit board. $\overline{\text{BLANK}}$ is from the Dynamic Control (Diagram 15) and pulls low, to ground the base of Q7 when the CRT is blanked.

CR7, which is driven by the microprocessor BOOT_BLANK signal, keeps the CRT blank during power up.

Trace Rotation Trace rotation is controlled by an output from one of the DACs on Diagram 17. U5A drives a coil around the CRT that is located inside the CRT shield.

Graticule Lights U1D is a triangle wave generator with a 600 ms period (1.7 kHz). U1C inverts the triangle waveform. U1A and U1B act as voltage comparators, comparing the triangle waveforms against the voltage level of the GRAT LITES signal. GRAT LITES comes from DAC U31 (Diagram 19). The outputs of U1A and U1B are periodic rectangular pulses with duty cycles dependent on the voltage of the GRAT LITES signal. The output of U1B is 180° out of phase with the output of U1A which helps reduce the pulsed load to the power supply.

The pulse signals from U1A and U1B drive the graticule lights through transistors Q2 and Q1. The brightness of the bulbs depends on the duty cycle of the pulsed signals.

+ and -8 V Supplies and VPP1 Supply The + and - 8 V supplies are nearly identical. They consist of bipolar voltage regulators (U53 and U78) with output clamping and parallel resistance power dissipation compensation.

The VPP1 supply is a +12 V source used to program the Flash EPROM. For normal operation P4 is in the 2-3 position. U20 is a voltage sensing regulator whose output voltage is established by R46 and R47.

Diagram (22) Front Panel

Switching There are 28 momentary contact switches arranged in a matrix. When U7, a serial in/parallel out shift register, is loaded, shifted, and read, PB8 – PB10 are pulled low along with the CS (chip select and $\overline{\text{SH/LD}}$ (shift/ $\overline{\text{load}}$) for U6 and U8. When one or more of the push-button switches is closed a low state is loaded into one of the U6 parallel inputs. The levels on the inputs are clocked into and through the serial output by the BSCK (buffered serial clock). The serial output is put onto the MOSI (serial interface bus) to be read by the Microprocessor.

LED Drivers Low levels to complete the LED circuits are loaded into the serial in/parallel out shift registers (U2, U3, U4, and U5) from BMOSI (buffered serial interface bus).

Levels are then shifted into the parallel register by the $\overline{\text{LED CS}}$ and clocked out by the $\overline{\text{LED EN}}$, which is delayed by U10A, a D-type flip-flop.

Diagram (23) Low Voltage Power Supply

The Low Voltage Power Supply converts the mains line voltage (90 – 250 V_{AC}) to supply the power requirements of the instrument. The voltages supplied by the Low Voltage Power Supply are +40 V, ± 11 V, and +5 V.

The Low Voltage Power Supply is a flyback switcher. When the switcher MOSFET (Q14) is turned on, its drain voltage drops to approximately 0 V. The current through the 350 μ H primary winding of T3 begins ramping up. The voltages present at all secondaries is such that the rectifier diodes are reverse biased. Energy is being stored in the magnetic field of T3. When Q14 turns off, the drain voltage “flies back” in a positive direction. Current now flows in all of the secondary windings and supplies power.

Line Rectifier and Filter

The input line voltage is filtered by the rear-panel connector to reduce the electrical noise conducted into or out of the instrument. R123 limits the initial charging current through the rectifier diodes and C71.

CR32, CR33, CR34, and CR35 form a bridge rectifier. C71 filters the 110 – 350 V_{DC} rectifier output. L8 filters the switching noise produced by the switcher. R116 reduces the circulating current in the parallel circuit consisting of L8 and C52. DS7, R116, and R118 form a line voltage indicator. R120 and R122 charge C62, which provides power to U6 until the primary housekeeping winding provides power through CR22.

VR3 is the source of the +5 V required by the transformer driver to operate the Power switch. When power is connected to the instrument, it gets enough current from R119 and R121 to Zener and provides the power required to operate the transformer driver oscillator.

Transformer Driver

The transformer driver is a Colpitts oscillator whose inductive resonator is the isolation transformer T2. The front-panel Power switch is a momentary push button that shorts the secondary of the transformer and causes the oscillator to stop when it's pushed. When the secondary shorts, Q13 stops oscillating. Q12 turns off and starts U5A, a one-shot multivibrator, that clocks U8A, which is the Power switch memory. It changes state every time the front-panel Power switch is pushed.

If power is removed from the instrument, U8A retains its memory due to the storage capacitor, C58. C58 is capable of holding its charge for a week or more at a time.

Pulse Width Modulator

U6 is a current-mode pulse width modulator that uses two feedback loops. The inner current feedback loop directly controls the switcher MOSFET peak current. The outer voltage feedback loop programs the inner loop peak current trip point.

U6 pin 2 is the inverting input of an internal operational amplifier. The noninverting input is set to 2.5 V by an internal voltage reference. The voltage at pin 1 will vary in order to maintain pin 2 at 2.5 V.

The voltage at U6 pin 1 is internally level shifted to set the trip point of the internal comparator. Pin 3 is the external input to the comparator. Pin 4 sets the internal oscillator to 80 kHz, R92 and C55 determine the frequency.

The pulse width modulator works as follows: The oscillator resets the internal flip-flop and U6 pin 6 goes high, turning the switcher MOSFET on. The current through the switcher MOSFET increases, causing the voltage across R90 to increase. This voltage is divided across R91 and R92, to input to the comparator (pin 3). When the voltage at pin 3 reaches the comparator trip point, the latch toggles and the switcher MOSFET is turned off. This process is repeated at an 80-kHz rate. Switching the MOSFET transistor on and off drives the power transformer, T3.

C53 increases the noise immunity by rolling off the internal operational amplifier frequency response. R97 holds the switcher MOSFET off as the circuit is powering up. R93 slows the turn-on of the switcher MOSFET while CR26 speeds up the turn-off.

Snubber

An extra winding in the transformer helps with voltage snubbing. C51 connects from the drain of Q14 to the extra winding. This connection provides snubbing action to any voltage that goes beyond twice the rectified power line input. Rise-time snubbing is accomplished with R88, CR25, and C59. The rise-time snubber minimizes RF radiation that could interfere with sensitive analog circuits in the instrument.

Output Filters

The three output windings supply four output voltages. Each output is rectified by a single diode and filtered by an LC pi filter.

Error Amplifier

The error amplifier regulates the +5 V output by feeding an error signal to the pulse width modulator. U3A is a voltage reference that outputs 2.5 V for the operational amplifier, U3B. R71 and R73 provide a feedback voltage for the error amplifier. C42 and R77 form a frequency-dependent network for loop stabilization. The output of the error amplifier operational amplifier drives the light emitting diode input stage of the optoisolator, U4.

An optoisolator consists of a light emitting diode, as a transmitting device, and a light-sensitive transistor as a receiver. When the intensity of the LED changes,

the base current in the receiver changes equivalently to alter the pulse width modulator feedback voltage.

Shutdown Logic

U7 is a quad comparator, whose outputs are open collectors. All four comparator outputs are connected in parallel and under normal operating conditions are high. Whenever the output of any one of the comparators goes low, Q15 will turn off and the pulse width modulator current sense line will go high and shut down the power supply.

U7B shuts off the supply if the +16 V supply gets too low. U7C will turn off the supply if the line voltage gets too low.

U7D prevents the power supply from running on in the event of a +5 V supply short. Shorting the 5 V supply disables the optoisolator, which causes the error voltage to fall below 2.5 V. After a short period of time C65 discharges and causes the output of U7D to go low and shut down the power supply.

Over Voltage Protection

Q11 is a silicon-controlled rectifier (SCR) that is triggered if the +5 V output rises above approximately 5.5 V. If the SCR triggers, the +5 V is shorted to ground and the supply shuts down and waits a few milliseconds before attempting to restart. Over voltage shutdown can be tested by shorting R74 and R78 together.

DS6 is an LED that is internal to the instrument. It is lighted whenever the +5 V supply is running. This servicing aid makes it possible to determine if the power supply is operating without having to look at the front panel.

Diagram (24) High Voltage Power Supply

HV OSC and Error Amp

The High Voltage Power Supply is generated by a sine wave oscillator and step-up transformer. Q7 and T1 are the principal elements of an Armstrong oscillator running at about 22 kHz. Error amplifier U2 regulates the +100 V output and keeps the High Voltage Power Supply constant under varying load conditions by controlling the base current to Q7. The +100 V output is regulated directly, while the High Voltage Power Supply is indirectly regulated through a current feedback circuit.

R40, C15, R66, and R61 form the High Voltage Power Supply current feedback circuit. As the current from the High Voltage Power Supply is increased, the voltage to the + side of the error amplifier (U2) increases, which increases the base drive to Q7, the HV Osc. This current feedback compromises the regulation of the +100 V supply to keep the high voltage constant with varying intensities.

C26 and Q8 are a start delay circuit that holds the error amplifier output low, through CR12, until C26 is charged. Delaying the start of the high voltage

oscillator allows the Low Voltage Power Supply to start, unencumbered by the load from the high voltage oscillator.

Power Supply Outputs

CR7 is the high voltage rectifier. Filter capacitors C6 and C7 work with CR7 to provide -2750 V to the CRT cathode. U1 is a four-times multiplier providing $+11\text{ kV}$ to the CRT anode.

Focus Amplifier

Q1 and Q2 form an operational amplifier that sets the voltage at the bottom of the focus divider. The front-panel FOCUS pot determines what that voltage will be. The Center Focus control, R9, is set for optimum beam focus, as viewed on the CRT, with the front-panel FOCUS control set to mid range. Once the Center Focus adjustment has been set, adjusting the front-panel FOCUS control changes the voltage at the bottom end of the divider, and consequently the voltage on the CRT focus anode.

Grid Drive Circuit

The cathode of the CRT is at a -2750 V potential with the grid coupled to the Z-Axis Amplifier by the grid drive circuit. The grid is approximately 75 V negative with respect to the cathode. CR10 and CR11 form a voltage doubler to provide 200 V_{DC} to the CRT bias control, R53.

Low frequency blanking information gets to the CRT grid through an amplitude modulated AC signal. This $200\text{ V}_{\text{p-p}}$ sine wave from the anode of CR15 is coupled through C16 and R41 to a clipping circuit consisting of CR8 and CR9. Clipping level for the positive excursion of the sine wave is set by the CRT Bias adjustment, R53. The negative clipping level is set by the front-panel INTENSITY control through the Z-Axis Amplifier. The clipped sine wave is coupled through C12 to a rectifier made up of CR5 and CR6, which changes it to a DC voltage proportional to the peak-to-peak amplitude of the clipped sine wave. The DC voltage becomes the CRT control grid bias voltage. DS1 and DS2 limit the CRT grid to cathode voltage at instrument turn on or off. DS4 limits the CRT heater to cathode voltage.

C8 couples high frequency blanking information from the Z-Axis Amplifier to the CRT grid.

Z-Axis Amplifier

The junction of R10 and R5 is the summing junction for the amplifier. It is at $+5\text{ V}_{\text{DC}}$. R6 and R17 are a voltage level shifter to bias the base of Q3 at 0 V , when the summing junction is at $+5\text{ V}$. R5 is the feedback resistor, which sets the overall amplifier gain at 36 V/mA of input current. Q3 is an emitter follower that drives Q4, a common emitter amplifier. Q6 is a common base stage driven from Q4. The collector of Q6 is the output of the amplifier. Q5 is a constant current source that is the collector load for Q6. C11 is a speedup capacitor that modulates the constant current source to increase amplifier rise time.



Performance Verification

Performance Verification

The specifications for this instrument can be verified using the following step-by-step procedure. Equipment that is called out in this procedure is assumed to be operating correctly and within calibration.

An accuracy ratio of 4:1 or better for warranted measurement specifications will be obtained using the equipment called out in the “Recommended Equipment List” with the following exceptions. Accuracy ratio for the equipment used to measure:

Monitor Out Gain Accuracy is 1.5:1.

External Reference Return Loss is 3.1:1.

The performance verification procedures should be performed at regular intervals to ensure that instrument performance is within tolerance. The recommended interval for performance verification is 2000 hours of operation, or at least every 12 months.

Recommended Equipment List

The following equipment and accessory items are required to do the Performance Verification Procedure. Broad specifications are followed by an example of equipment that meets these specifications.

NOTE. Step 16 requires a serial signal source with an output amplitude known to within 2%. Most serial signal sources are only accurate to $\pm 10\%$. It is therefore critical to verify signal amplitude before performing this step.

Most oscilloscopes are incapable of 2% accurate amplitude measurements. One exception is the calibrated vertical offset capability in the Tektronix 11403A, which allows the scope to operate as a 0.6% accurate comparator. Best results will be obtained with the 11A72 amplifier with a 75/50 Ω min-loss pad. The pad should be verified to within 0.5%.

If you do not have the equipment or the capability to verify serial signal level accuracy to 2%, it is recommended that Tektronix Service perform this step.

Electrical Instruments

1. Test Oscilloscope

Vertical Amplifier: 100 MHz Bandwidth, 2 mV Sensitivity.

For example: Tektronix 2245A 100 MHz Oscilloscope.

2. Oscilloscope Probe

For example: Tektronix P6101A X1 Passive Voltage Probe.

3. Serial Digital Television Signal Generator

Output conforming to CCIR 601/SMPTE 125.

For example: Tektronix TSG422 (Option 1S) Digital Component Generator with Serial Digital Video Output.

4. Leveled Sine wave Generator

Output Level Range: -11.55 dBm (200 mV) to 0.43 dBm (800 mV).

Frequency: 50 kHz to 10 MHz.

For Example: Tektronix SG5030 installed in a TM500-Series Power Module.

5. Frequency Counter

Range: 10 Hz to 10 MHz. Accuracy: $\pm 0.001\%$.

For example: Tektronix DC 503A installed in a TM500-Series Power Module.

6. Power Module

For powering and housing Tektronix SG 5030, FG 503, and DC 503A.

For example: Tektronix TM506-Series Power Module.

7. Spectrum Analyzer (For Return Loss Measurements; Optional, see note with step 20.)

Frequency span up to 300 MHz and sensitivity up to 50 dB; with internal tracking generator.

For example: Tektronix 2712 Option 04.

8. RF Bridge (Lower frequency, for External Reference Input Return Loss Measurements; Optional, see note with step 20.)

Range: At least 46 dB return loss sensitivity, 50 kHz to 10 MHz.

For example: WIDEBAND Part No. A57TLSCR, and high-frequency terminator A56T75B.

9. RF Bridge (Higher frequency for Serial Digital Input and Output Return Loss Measurements; Optional, see note with step 20.)

Range: At least 46 dB return loss sensitivity, 50 kHz to 300 MHz.

For example: WIDEBAND Part No. A57TGA/CR, and high-frequency terminator A56T75B.

10. Cable Network

A network having a $1/\sqrt{F}$ loss characteristic, and a loss of 14.5 dB at 1/2 the serial clock frequency.

For example: 150 meters (492 ft) of Belden 8281 low loss 75 Ω cable.

Auxiliary Equipment

11. 75 Ω Terminators

Four required. Three should be end-line, two of which are for use on the Serial Inputs, and one should be a standard, for use on the External Reference Input. The fourth one should be a feedthrough type.

For example: Two 75 Ω end-line terminations, 26 dB to 300 MHz (Tektronix Part No. 011-0163-00) for use on Serial Inputs.

One - 75 Ω end-line termination (Tektronix Part No. 011-0102-00) for use on the External Reference Input.

One - 75 Ω feedthrough termination (Tektronix Part No. 011-0103-02).

12. 75 Ω BNC minimum loss pad

For example: Tektronix Part No. 011-0057-01.

13. Coaxial Cable

Three 75 Ω cables required; two 50 Ω cables required.

For example: 75 Ω – 42-inch (Tektronix Part No. 012-0159-00).
50 Ω – 42-inch (Tektronix Part No. 012-0057-01).

14. Two - 50 Ω -to-75 Ω Minimum Loss Attenuators (DC Coupled)

For example: Tektronix Part No. 011-0057-01.

15. One - BNC female to female connector

For example: Tektronix Part No. 103-0028-00.

Calibration Data Report

The Calibration Data Report that follows can be used to document instrument performance. In addition it can be used as a short form Performance Check for those familiar with the Performance Verification Procedure. Only steps that have numeric Performance Requirements are included in this report form (Steps 1, 2, and 4 are omitted).



Calibration Data Report

Instrument **WFM601i**

Cal. Date _____

Serial Number _____

Certificate Number ¹ _____

Technician _____

Procedure **070-8967-00**

Revision Date _____

Step	Operation	Minimum Tolerance	Maximum Tolerance	Incoming	Outgoing
3	Trace Rotation Range ²	$\pm 1^\circ$	---		
5	Calibrator Timing Frequency	999900 Hz	100100 Hz		
6	Timing Accuracy/ Linearity	1-Line (5 μ s/div) 1 cycle/2 div ± 0.5 minor div	---		
		2-Line (10 μ s/div) 1 cycle/div ± 0.5 minor div	---		
		2-Line Magnified (1 μ s/div) 1 cycle/10 div ± 0.5 minor div	---		
		1-Line Magnified (200 ns/div) 1 cycle/2 div ± 0.5 minor div	---		
7	Vertical Gain	686 mV	714 mV		
7	Calibrator Amplitude	693 mV	707 mV		
7	Variable Gain Range ²	0.2X	1.4X		
7	Serial Output	720 mV	880 mV		
8	Voltage Cursor Accuracy	696.5 mV = 700 mV	703.5 mV = 700 mV		
8	Timing Cursor Accuracy	0.999 = 1.0	1.01 = 1.0		
9	Low-pass Filter Gain	0.99	1.01		
10	PIX OUT Active Video Gain Accuracy	679 mV	721 mV		
11	Vector Horizontal Gain Accuracy	700 mV = 7.92 div	700 mV = 8.08 div		
11	Vector Vertical Gain Accuracy	700 mV = 9.9 div	700 mV = 10.1 div		

Step	Operation	Minimum Tolerance	Maximum Tolerance	Incoming	Outgoing
12	Vector Mode Bandwidth Matching	$\leq 2^\circ$ loop opening at 500 kHz or 2 MHz	---		
13	Vector Registration	≤ 0.25 box with the X1 color block dot centered in box	---		
14	Lightning Vertical Gain Accuracy	9.8 div	10.2 div		
15	Bowtie Interchannel Matching	-2 ns	+2 ns		
16	Eye Gain (with 800 mV _{p-p} input signal)	760 mV	840 mV		
17	Eye Bandwidth 50 kHz to 450 MHz	-3 dB	+1 dB		
18	Eye Timing (Horizontal Deflection Factor) Overlay 10-Eye Mag On	1 ns/div \pm 3.0% 3 ns/div \pm 3.0% 500 ps/div \pm 3.0%	---		
19	Serial Receiver Equalization Range (with 800 mV launch amplitude)	Proper operation with up to 14.5 dB loss at 135 MHz	---		
20	EXT REF Return Loss	≥ 40 dB to 6 MHz	---		
21	Serial Video Input Return Loss (Power on)	≥ 25 dB to 1 - 270 MHz	---		
21	Serial Video Input Return Loss (Power off)	≥ 15 dB to 1 - 270 MHz	---		
21	Serial Video Output Return Loss (Power on)	≥ 15 dB 1 - 270 MHz	---		
22	Transmission Bandwidth (50 kHz - 300 MHz)	± 1 dB	---		

¹ Certificate number not provided, unless "Certificate of Traceability" is issued.

² Checks are important for correct calibration; however, test data is not applicable.

Verification Procedure

1. Preliminary Setup

- a. Connect the WFM 601i AC power cord to the variable autotransformer. Set the mains Power switch for the autotransformer to On. Set the autotransformer to the local nominal mains voltage (110 V or 220 V).
- b. Connect a serial digital output from the digital component television test signal generator to the WFM 601i SER A input; terminate the remaining side of the loopthrough connector with a 300 MHz, 75 Ω end-line termination.
- c. Connect a second serial digital output from the digital component television test signal generator to the SER B input; terminate the remaining side of the loopthrough connector with a 300 MHz, 75 Ω end-line termination.
- d. Connect the digital component television test signal generator black burst signal to the WFM 601i EXT REF connector. Connect a 75 Ω end-line termination to the remaining side of the EXT REF loopthrough connector.
- e. Turn the WFM601i POWER ON.
- f. Enter the CRT menu and adjust the controls for best viewing of the display. Exit the CRT menu.
- g. Set the WFM601i front-panel controls and menu selections to the factory settings by entering the PRESET menu and selecting FACTORY.

2. Power Supply Operation

REQUIREMENT – Stable operation over an AC input range of 90 – 250 V.

- a. Vary the autotransformer from low-line to high-line voltage (90 – 132 V for 110 V, or 180 – 250 V for 220 V operation).
- b. **CHECK** – for stable instrument operation over the prescribed voltage range, 90 – 132 V for 110 V, or 180 – 250 V for 220 V.
- c. Set the autotransformer to the nominal mains voltage.

3. Trace Rotation Range and Graticule Illumination

REQUIREMENT – Rotation of $> \pm 1^\circ$ from the horizontal.

- a. Enter the CRT menu and select TRACE.
- b. Position the trace to the graticule baseline.

- c. **CHECK** – that the TRACE ROTATE control moves the trace $> \pm 1^\circ$ from the graticule baseline.
- d. Adjust the TRACE ROTATE control for a level trace across the graticule baseline.
- e. From the CRT menu select DISPLAY.
- f. **CHECK** – that the SCALE control changes the graticule illumination from completely extinguished to fully illuminated.
- g. Adjust the SCALE control for the desired graticule illumination.
- h. Exit the CRT menu.

***NOTE.** Intensity, readout intensity, and focus are also controlled from the CRT menu. If they need adjusting during the performance of this procedure, select the CRT menu and adjust as necessary. The levels set will remain after the CLEAR MENU or CRT menu button is pushed.*

4. Horizontal Mag Registration and Position Range

REQUIREMENT – Any portion of the synchronized sweep can be positioned on-screen in all sweep modes.

- a. Horizontally center the display, and then turn on the MAG SWEEP.
- b. **CHECK** – that the center of the trace is displayed.
- c. **CHECK** – by adjusting the HORIZ POS control, that both ends of the display can be positioned past the center of the CRT.
- d. Turn Off the MAG SWEEP.

5. Calibrator Timing Frequency

REQUIREMENT – Frequency: 100 kHz \pm 0.1%.

- a. Set the frequency counter Timing to 1 μ s.
- b. Connect a X1 probe from the frequency counter to the ribbon cable side of A3R274 (Main board). See the Main board illustration in the Adjustment Procedure section.
- c. Connect the probe ground to the metal shield adjacent to A3L5.
- d. Adjust the frequency counter controls for a stable readout.
- e. **CHECK** – that the counter reading is 100 kHz \pm 0.1 kHz.

- f. Remove the ground connection and the frequency counter probe from A3R274.

6. Timing and Linearity

REQUIREMENT – Sweep Timing Accuracy: 5 $\mu\text{s}/\text{div}$ (1 Line), 10 $\mu\text{s}/\text{div}$ (2 Line), 0.2 $\mu\text{s}/\text{div}$ (1 Line + MAG), 1.0 $\mu\text{s}/\text{div}$ (2 Line + MAG), $\pm 1\%$. Sweep Linearity: 1 Line and 2 Line sweeps unmagnified or magnified, $\pm 1\%$.

- a. Enter the CONFIG menu and select CALIBRATE.
- b. Select CAL SIG ON.
- c. Push the SWEEP button several times, or until the LINE indicator comes on and there is a display of approximately one full cycle per major division (2-Line Sweep).
- d. **CHECK** – for one cycle of calibrator signal per major division ± 0.5 minor division over the center 10 divisions.
- e. Turn On the MAG SWEEP.
- f. **CHECK** – for one cycle of calibrator signal per 10 major divisions ± 0.5 minor division over the center 10 divisions.
- g. **CHECK** – both ends of the magnified sweep for one cycle of calibrator signal per 10 major divisions ± 0.5 minor division over the center 10 divisions.
- h. Turn Off the MAG SWEEP and select 1 LINE SWEEP (5 $\mu\text{s}/\text{div}$), Line indicator on and approximately 1 cycle/2 divisions.
- i. **CHECK** – for one cycle of calibrator signal per two major divisions ± 1 minor division over the center 10 divisions.
- j. Press CONFIG menu to turn the calibrator signal off.
- k. Select the high frequency timing signal (2.5 MHz) from the serial component test generator.
- l. Turn On the MAG SWEEP.
- m. **CHECK** – for one cycle per two divisions ± 0.5 minor division.
- n. Turn Off the MAG SWEEP.

7. Vertical Gain, Calibrator Amplitude, and Variable Gain Range

REQUIREMENT – 700 mV input = 700 mV \pm 2%. Calibrator Amplitude: 700 mV \pm 1%. Variable Gain Range: 0.2X to 1.4X. Serial Output Level = 800 mV \pm 10%.

- a. Select the Color Bar signal from the serial component test generator.
- b. **CHECK** – that the signal display is 700 mV \pm 14 mV (1 minor division equals 20 mV).
- c. Select Serial B.
- d. **CHECK** – that the signal display is 700 mV \pm 14 mV (1 minor division equals 20 mV).
- e. Connect a 75 Ω coaxial cable, through a 75 Ω feedthrough termination, from the WFM 601i rear-panel SERIAL OUT to the test scope vertical input.
- f. **CHECK** – the vertical amplitude on the scope display is from 0.72 to 0.88 volts.
- g. Remove the cable from the SERIAL OUT.
- h. Enter the GAIN menu and turn on VARIABLE.
- i. Select X5 and adjust VAR GAIN to make the last step of the color bar staircase 4 divisions high.
- j. Select X10.
- k. **CHECK** – that the last step of the color bar staircase is now eight divisions in amplitude.
- l. Select X5.
- m. **ADJUST** – the VAR GAIN control for a seven division signal amplitude (Variable gain should still be turned on from step g).
- n. Select X1.
- o. Adjust the VAR GAIN for maximum signal amplitude.
- p. Position the bottom of the display to the -0.3 graticule line.
- q. **CHECK** – for a display amplitude of ≥ 9.8 divisions (-0.3 to $+6.8$).
- r. Turn VARIABLE OFF and exit the GAIN menu.
- s. Enter the CONFIG menu and select CALIBRATE. Turn CAL SIG ON. Press the CLEAR MENU button to turn off the readout.

- t. **CHECK** – for a calibrator signal display of 700 mV \pm 7 mV.
 - u. Press the CONFIG button, and turn CAL SIG OFF.
 - v. Press the CLEAR MENU button.
8. Voltage and Timing Cursors
- REQUIREMENT** – Voltage Accuracy: \pm 0.5%. Timing Accuracy \pm 1%.
- a. Select the factory preset: press the PRESET button, use the bezel control to pick the FACTORY setting, and then press the RECALL bezel button.
 - b. Set the signal blanking level to the CRT graticule baseline.
 - c. Enter the CURSOR menu (VOLT should be selected). Press the CLEAR MENU button if desired to remove the menu readout.
 - d. Set the VOLT1 cursor to the 0.7 V line on the graticule.
 - e. Set the VOLT2 cursor to the graticule baseline (0 V).
 - f. **CHECK** – that the cursor reading is 697 to 703 mV.
 - g. Go to the CURSOR MENU and select TIME.
 - h. Set the Time1 cursor to the graticule left cardinal mark, and set the Time2 cursor to the graticule right cardinal mark. See Figure 4–1.

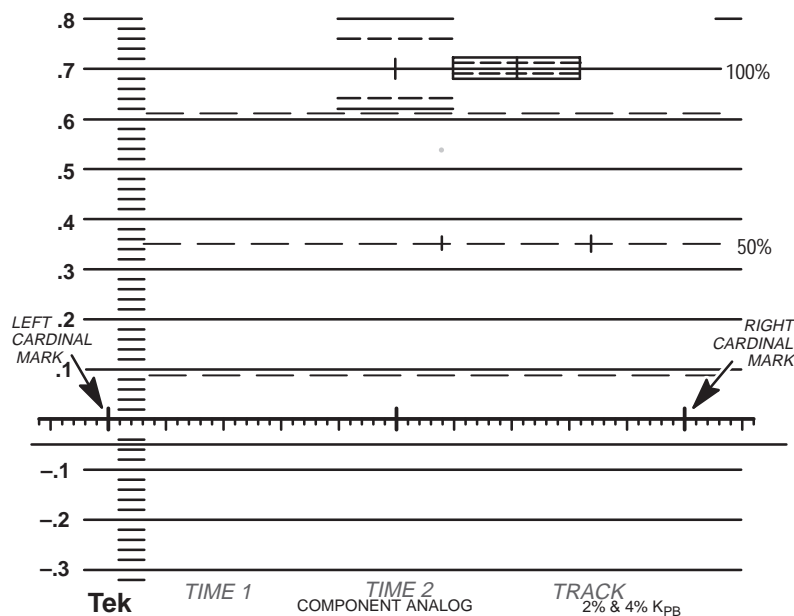


Figure 4–1: Timing Cursor Check

- i. **CHECK** – that the cursor reading of 99 to 101 μ s.
- j. Exit the CURSOR menu.

9. Low-pass Filter Gain

REQUIREMENT – Gain: $1 \pm 1\%$.

- a. Select the factory preset: press the PRESET button, use the bezel control to pick the FACTORY setting, and then press the RECALL bezel button.
- b. Turn off CH2 and CH3 on the WFM 601i.
- c. Select the multiburst signal from the serial component test generator.
- d. Select the LPASS filter; press the FILTER button, and then press the LPASS bezel button.
- e. Select a one line display.
- f. Check that the second packet from the left is > 300 mV.
- g. Go to the GAIN menu and set the gain for X5.
- h. Check that packets five & six (from the left) are < 4 mV (1 minor division).
- i. Select the FLAT filter.
- j. Select the pulse and bar signal.
- k. With the vertical position control, center the baseline of the signal over a horizontal CRT line.
- l. Press the CURSOR menu button.
- m. Use the VOLT2 control to place the cursor over the baseline of the signal.
- n. Rotate the VERT POS control counterclockwise to bring the top of the signal onto the CRT. Place the signal over a horizontal CRT line.
- o. Use the VOLT1 control to place the cursor over the signal.
- p. Record the cursor voltage reading.
- q. Select the LPASS filter.
- r. Repeat steps **m** through **p**.
- s. **CHECK** – that the LPASS voltage is within $\pm 1\%$ of the FLAT filter voltage reading.

10. PIX OUT Gain Accuracy

REQUIREMENT – Active Video Gain Accuracy: $700 \text{ mV} \pm 3\%$.

- a. Select the factory preset: press the PRESET button, use the bezel control to pick the FACTORY setting, and then press the RECALL bezel button.
- b. Select the 100% color bars signal from the serial digital component generator.
- c. Connect the output from the MON OUT Y/G to the test oscilloscope, through a 75Ω feedthrough termination.
- d. Obtain a stable, triggered display on the test oscilloscope.
- e. Go to the CONFIG menu (FORMAT) and set the MON OUT AS to GBR.
- f. **CHECK** – the test oscilloscope for a signal amplitude of 679 to 721 mV, excluding sync.
- g. **CHECK** – the test oscilloscope for a sync amplitude of 270 to 330 mV.
- h. Go to the CONFIG menu (FORMAT) and set the MON OUT AS to YPBPR.
- i. **CHECK** – the test oscilloscope for a signal amplitude of 679 to 721 mV, excluding sync.
- j. **CHECK** – the test oscilloscope for a sync amplitude of 270 to 330 mV.
- k. Move the 75Ω cable, that leads to the test oscilloscope, to the WFM 601i MON OUT Pb/B.
- l. **CHECK** – the test oscilloscope overall maximum signal peak-to-peak amplitude of 679 to 721 mV_{p-p} (no single pulse $> 350 \text{ mV} \pm 15.5 \text{ mV}$).
- m. Go to the CONFIG (FORMAT) menu and set the MON OUT AS to GBR.
- n. **CHECK** – the amplitude of the signal on the test oscilloscope, for 679 to 721 mV_{p-p}.
- o. Move the 75Ω cable, that leads to the test oscilloscope to the WFM601i MON OUT Pr/R.
- p. **CHECK** – the amplitude of the signal on the test oscilloscope for 679 to 721 mV_{p-p}.
- q. Go to the CONFIG (FORMAT) menu and set the MON OUT AS to YPBPR.

- r. **CHECK** – for an overall maximum signal peak-to-peak amplitude of 679 to 721 mV_{p-p}.
- s. Disconnect test oscilloscope cable from MON OUT Pr/R.
- t. Turn off the CONFIG menu.

11. Vector Horizontal and Vertical Gain Accuracy

REQUIREMENT – Vertical: 700 mV = 10 divisions of deflection $\pm 1\%$;
Horizontal: 700 mV = 8 divisions of deflection $\pm 1\%$.

- a. Turn off CH 2 and CH 3.
- b. Select the color bar signal from the serial digital component generator.
- c. Select VECTOR VIDEO DISPLAY.
- d. Turn off generator B–Y.
- e. Vertically position the display between the – 0.3 and 0.7 graticule lines.
- f. **CHECK** – for 10 divisions of deflection ± 0.5 minor divisions.
- g. Turn on generator B–Y.
- h. Turn off generator R–Y.
- i. Horizontally and vertically position the display over the center eight divisions of the graticule 0 line.
- j. **CHECK** – for 8 divisions of deflection ± 0.4 minor divisions.

12. Vector Mode Bandwidth Matching

REQUIREMENT – Horizontal-to-Vertical Bandwidth Matching: $\leq 2^\circ$ loop opening at 500 kHz or 2 MHz.

- a. Select the multiburst signal from the serial digital component generator. (It is located under the multipulse signal graphic; it toggles with the multipulse signal when the button is pushed.)
- b. Turn on generator R–Y.
- c. **CHECK** – that there is less than a trace width of loop opening.

13. Vector Registration

REQUIREMENT – ≤ 0.25 box width with the X1 color black dot centered in box.

- a. Select the factory preset: press the PRESET button, use the bezel control to pick the FACTORY setting, and then press the RECALL bezel button.
- b. Select the 100% color bars signal from the serial digital component generator.
- c. Select VECTOR VIDEO DISPLAY.
- d. **CHECK** – that all dots are within $\frac{1}{4}$ box-width of the center of its box.
- e. Enter the GAIN menu and select X5.
- f. **CHECK** – that the color black dot is within $\frac{1}{4}$ box-width of the center of its box.
- g. Change the vertical gain (GAIN menu) to X10.
- h. **CHECK** – that the color black dot is within $\frac{1}{4}$ box-width of the center of its box.

14. Lightning Mode

REQUIREMENT – Y displayed on vertical axis, B–Y displayed horizontally on top half of the display, R–Y displayed horizontally on the bottom half of the display. Vertical Gain Accuracy: $\pm 2\%$.

- a. Select the factory preset: press the PRESET button, use the bezel control to pick the FACTORY setting, and then press the RECALL bezel button.
- b. Select the color bar signal from the serial digital component generator.
- c. Turn on the Lightning display.
- d. **CHECK** – that there are dots in all targets.

15. Bowtie Interchannel Matching

REQUIREMENT – Null must occur within ± 2.0 ns of center marker.

- a. Select the high frequency (2.5 MHz) bowtie signal from the serial digital component generator.
- b. Turn on the WFM 601i Bowtie display.
- c. Turn on SWEEP MAG.

- d. Position display to place the null and center marker of the Bowtie display onto the graticule area. See Figure 4–2.

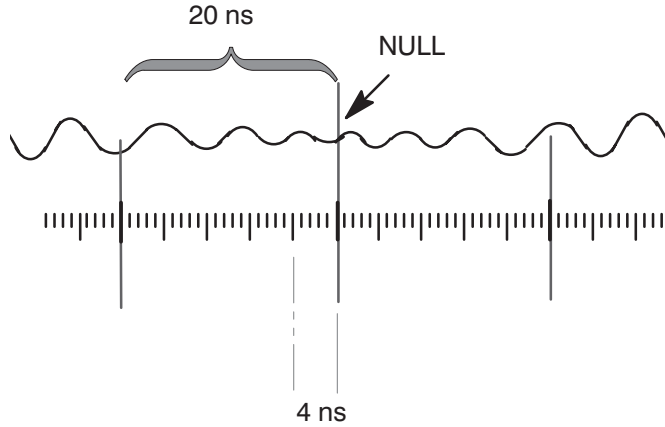


Figure 4–2: HF Bowtie Magnified to Measure Null Offset

- e. **CHECK** – that the Bowtie null point occurs within 0.5 divisions (2.0 ns) of the Bowtie center marker. See Figure 4–2.

16. Eye Gain

REQUIREMENT – 800 mV \pm 5% with an 800 mV_{p-p} input signal.

NOTE. This step requires a serial signal source with an output amplitude known to within 2%. Most serial signal sources are only accurate to \pm 10%. It is therefore critical to verify signal amplitude before performing this step.

Most oscilloscopes are incapable of 2% accurate amplitude measurements. One exception is the calibrated vertical offset capability in the Tektronix 11403A, which allows the scope to operate as a 0.6% accurate comparator. Best results will be obtained with the 11A72 amplifier with a 75/50 Ω min-loss pad. The pad should be verified to within 0.5%.

If you do not have the equipment or the capability to verify serial signal level accuracy to 2%, it is recommended that Tektronix Service perform this step.

- a. Select the factory preset: press the PRESET button, use the bezel control to pick the FACTORY setting, and then press the RECALL bezel button.
- b. Put the WFM 601i into the Eye display mode.
- c. **CHECK** – for an 800 mV \pm 5% (760 to 840 mV.)

17. Eye Bandwidth

REQUIREMENT – 50 kHz to 450 MHz: –3 dB to +1 dB.

- a. Connect the SG 5030 Leveling Head to a 50 to 75 Ω minimum loss pad. Connect the remaining side of the pad to the SER B input of the WFM 601i.
- b. Terminate the channel B loopthrough with a high frequency terminator.
- c. Recall the WFM 601i factory preset (press PRESET, then select FACTORY, and press RECALL). Select the Eye display mode and the SERIAL B input.
- d. Set the following on the SG 5030:

OUTPUT HEAD:	ON
Frequency:	to 10 MHz
Amplitude:	632 mV
- e. Adjust the SG 5030 amplitude for a 400 mV display on the WFM 601i.
- f. Set the SG 5030 frequency to 50 kHz.
- g. **CHECK** – that the amplitude on the WFM 601i is greater than 280 mV and less than 450 mV.
- h. Set the SG 5030 frequency to 270 MHz.
- i. **CHECK** – that the amplitude on the WFM 601i is greater than 280 mV and less than 450 mV.
- j. Set the SG 5030 frequency to 450 MHz.
- k. **CHECK** – that the amplitude on the WFM 601i is greater than 280 mV and less than 450 mV.
- l. Disconnect the Leveling Head from the WFM 601i.

18. Eye Timing (Horizontal Deflection Factor)

REQUIREMENT – Overlay Mode: 1 ns/div \pm 3%. 10-Eye Mode: 3 ns/div \pm 3%. Mag On: 500 ps/div \pm 3%.

- a. Connect the serial digital component generator to the WFM 601i SER A input; the loopthrough should still be terminated.
- b. Recall the WFM 601i factory preset (press PRESET, select FACTORY, and press RECALL).
- c. Select the EYE display.

- d. Enter the CURSOR menu and select the TIME cursors.
- e. **CHECK** – with the timing cursors, that two cycles of eye pattern are within 7.178 to 7.622 ns.
- f. Press the MAG button.
- g. **CHECK** – with the timing cursors, that 1 cycle of eye pattern is $3.7 \text{ ns} \pm 3\%$ (3.663 to 3.737).
- h. Press the MAG button.
- i. Enter the CONFIG menu, select EYE PATTERN, then DISPLAY—10 EYE. Press the CONFIG button.
- j. **CHECK** – with the timing cursors, that six cycles of eye pattern are $22.22 \text{ ns} \pm 3\%$ (21.534 to 22.866).

19. Serial Receiver Equalization Range

REQUIREMENT – Proper operation with up to 14.5 dB loss at 135 MHz using coaxial cable having $1/\sqrt{F}$ loss characteristics (800 mV launch amplitude).

- a. Recall the WFM 601i factory preset (press PRESET, select FACTORY, and press RECALL).
- b. Connect 150 meters (492 feet) of Belden 8281 coaxial cable from the serial digital signal generator output to the WFM 601i SER A INPUT. Terminate the remaining side of the loopthrough with a high frequency terminator.
- c. Select color bars from the serial digital signal generator.
- d. **CHECK** – that a video waveform appears.
- e. Press the WFM 601i SERIAL button.
- f. **CHECK** – that the EDH readout appears on screen.
- g. Push the menu-designated RESET button.
- h. Allow the instrument to run for at least 2.5 minutes.
- i. **CHECK** – that the Errored Seconds, on screen, is zero.
- j. Press the CLEAR MENU button.
- k. Move the Belden cable and terminator to the SER B INPUT.
- l. Select SERIAL B.
- m. Repeat steps d. through j. for the SERIAL B INPUT.

20. EXT REF Return Loss

REQUIREMENT – ≥ 40 dB to 6 MHz. Power on or off.

NOTE. *Return Loss Checks:*

Perform the Return Loss Checks only if repairs have been made on the Input circuitry.

- a. Recall the factory preset.
- b. Connect a precision 50 Ω cable from the spectrum analyzer RF Input to the RF Output on the lower frequency RF Bridge.
- c. Connect a precision 50 Ω cable from the spectrum analyzer TG Output to the RF Input on the RF Bridge.
- d. Select Demod/TG on the spectrum analyzer. Turn on the tracking generator and set the Fixed Level to 0.00 dBm.
- e. Set the spectrum analyzer Span/Div to 1 MHz and the Resolution Bandwidth to 3 kHz.
- f. Set the spectrum analyzer Reference Level to the first major division down from the top on the analyzer display.
- g. Set the Vertical Scale to 10 dB.
- h. Remove one of the cables from the RF Bridge.
- i. Set the spectrum analyzer Frequency Cursor to 5 MHz, and then set the Marker to 6 MHz.
- j. Reconnect the cable to the RF Bridge.
- k. **NOTE** – the Reference Level Readout.
- l. Adjust the spectrum analyzer External Attenuation Amplitude by the amount noted in the previous step.
- m. On the spectrum analyzer select the Input menu — External Atten/Ampl.
Note: The Reference Level Readout should now be 0.00 dBm.
- n. Connect the precision high-frequency terminator to the Device Under Test connector on the RF Bridge.
- o. **CHECK** – that the frequency response from 0 MHz to 6 MHz is ≥ 40 dBu.
- p. Return the spectrum analyzer Frequency Marker to 6 MHz if it was moved.

- q. Remove the precision high-frequency terminator from the RF Bridge.
- r. Connect the Device Under Test connector on the RF Bridge to one side of the WFM 601i EXT REF loopthrough input. Terminate the remaining side of the loopthrough with the precision high-frequency terminator used in step p.
- s. **CHECK** – that the Reference Level Readout on the spectrum analyzer is ≥ 40 dBm.

21. Serial Video Return Loss

REQUIREMENT – Serial Video Inputs: ≥ 25 dB to 1 – 270 MHz. Power on. Serial Video Inputs: ≥ 15 dB to 1 – 270 MHz. Power off. Serial Out: ≥ 15 dB 1 – 270 MHz. Power on.

- a. Remove the lower frequency RF Bridge and replace it with the higher frequency bridge. Reconnect the cables.
- b. Set the spectrum analyzer Span/Div to 50 MHz and the Resolution Bandwidth to 300 kHz.
- c. Set the spectrum analyzer Reference Level to the first major division down from the top on the analyzer display.
- d. Remove one of the cables from the RF Bridge.
- e. Set the spectrum analyzer Frequency Cursor to 250 MHz, and then set the Marker to 270 MHz.
- f. Reconnect the cable to the RF Bridge.
- g. **NOTE** – the Reference Level Readout.
- h. Adjust the spectrum analyzer External Attenuation Amplitude by the amount noted in the previous step. Note: The Reference Level Readout should now be 0.00 dBm.
- i. Connect the precision high-frequency terminator to the Device Under Test connector on the RF Bridge.
- j. **CHECK** – that the frequency response from 0 MHz to 270 MHz is ≥ 25 dBm.
- k. Return the spectrum analyzer Frequency Marker to 270 MHz if it was moved.
- l. Remove the precision high-frequency terminator from the RF Bridge.
- m. Connect the Device Under Test connector on the RF Bridge to one side of the WFM 601i SER A loopthrough input. Terminate the remaining

side of the loophrough with the precision high-frequency terminator used in step **l**.

- n. CHECK** – that the Reference Level Readout on the spectrum analyzer is ≥ 25 dBm.
- o.** Turn WFM 601i POWER to STANDBY.
- p. CHECK** – that the Reference Level Readout on the spectrum analyzer is ≥ 15 dBm.
- q.** Turn WFM 601i POWER ON.
- r.** Connect the Device Under Test connector on the RF Bridge to one side of the WFM 601i SER B loop through-input. Terminate the remaining side of the loop through with the precision high-frequency terminator used in step **l**.
- s. CHECK** – that the Reference Level Readout on the spectrum analyzer is ≥ 25 dBm.
- t.** Turn the WFM 601i POWER to STANDBY.
- u. CHECK** – that the Reference Level Readout on the spectrum analyzer is ≥ 15 dBm.
- v.** Turn the WFM 601i POWER ON.
- w.** Connect the Device Under Test connector on the RF Bridge to one side of the WFM 601i SERIAL OUT.
- x. CHECK** – that the Reference Level Readout on the spectrum analyzer is ≥ 15 dBm.
- y.** Remove all cables and terminators from the WFM 601i Serial Component Monitor.

22. Transmission Bandwidth

REQUIREMENT – 50 kHz – 300 MHz \pm 1.0 dB.

- a.** Connect a precision 50 Ω cable from the spectrum analyzer TG Output to a 50 Ω -to-75 Ω minimum loss attenuator.
- b.** Connect a precision 50 Ω cable from the spectrum analyzer RF Input to the 50 Ω -to-75 Ω minimum loss attenuator.
- c.** Connect the two 50 Ω -to-75 Ω minimum loss attenuators together with a BNC female-to-female connector.
- d.** Set the following spectrum analyzer controls:

Frequency	150 MHz
Span	30 MHz
R BW Filter	5 MHz
Reference Level	6 dB
Vertical Scale	1 dB/division

- e. Select Demod/TG on the spectrum analyzer. Turn on the tracking generator and set the tracking generator Fixed Level to 0.00 dBm.
- f. Select Save Enable on the spectrum analyzer.
- g. Select spectrum analyzer CH A.
- h. Select spectrum analyzer Display menu and B, C minus A.
- i. Turn on the CH B display.
- j. Adjust the Reference Level for a screen display.
- k. Turn off the spectrum analyzer CH A and CH D display.
- l. Note the reference level of the straight trace.
- m. Remove the BNC female-to-female connector coupling the 50 Ω -to-75 Ω minimum loss attenuators together.
- n. Connect the two cables, with the 50 Ω -to-75 Ω minimum loss attenuators to the WFM 601i SER A INPUT.
- o. **CHECK** – that the spectrum analyzer trace is within 1 major division (1 dB) of the reference level established in step l. (Channel selected or not.)
- p. Move the cables and the 50 Ω -to-75 Ω minimum loss attenuators to the WFM 601i SER B INPUT.
- q. **CHECK** – that the spectrum analyzer trace is within 1 major division (1 dB) of the reference level established in step l. (Channel selected or not.)
- r. Reverse cable to the WFM 601i SER B INPUT.
- s. **CHECK** – that the spectrum analyzer trace is within 1 major division (1 dB) of the reference level established in step l. (Channel selected or not.)

This completes the Performance Check procedure.



Adjustment Procedures

Adjustment Procedures

The Adjustment Procedures for the WFM601i are loaded on the 3.5 inch high-density disk (Tektronix Part No. 063-XXXX-00) included in this manual.

The information contained in this section includes the following:

- | | |
|--|-----------|
| ■ Recommended Equipment List | Page 5-1 |
| ■ Getting Started | Page 5-5 |
| ■ Functional Description of the PC Display | Page 5-6 |
| ■ Circuit Board Adjustment Locations | Page 5-8 |
| ■ Waveform Illustrations | Page 5-11 |
| ■ TSG422 Signal Illustrations | Page 5-16 |

Recommended Equipment List

The following equipment and accessory items are required to perform the Adjustment Procedures. Broad specifications are followed by an example of specific equipment that meet these specifications.

Electrical Instruments

1. IBM Compatible PC

System requirements:

DOS 3.3 or higher.

640K bytes of random-access memory (RAM).

High-density floppy drive (3.5 inch/144 MB).

Available RS-232 Port (COM 1, 2, 3, or 4).

2. Test Oscilloscope

Vertical Amplifier:

300 MHz Bandwidth, 2 mV Sensitivity.

Time Base:

10 ns/div to 5 ms/div sweep speeds, Triggering to 150 MHz.

For example: A Tektronix 2465B Oscilloscope. Also 10X probe, P6109B, and 1X probe, P6119B.

3. Digital Component Television Signal Generator

For example: Tektronix TSG-422 Digital Component Generator, Option 1S.

4. Leveled Sine Wave Generator

Output Level Range: -11.55 dBm (200 mV) to 0.43 dBm (800 mV).
Frequency: 50 kHz to 10 MHz.

For Example: Tektronix SG5030 installed in a TM500-Series Power Module.

5. Voltmeter

Range: 0 to > 100 V_{DC}. Accuracy: $\pm 0.1\%$.

For example: Tektronix DM504A installed in a TM500-Series Power Module.

6. Power Module

For powering and housing Tektronix SG5030, FG 501A and DM504A.

For example: Tektronix TM500-Series Power Module.

Auxiliary Equipment

7. 75 Ω Terminators

Six required; two should be end-line, and four should be feedthrough type.

For example:

High frequency, 0.025% 75 Ω terminator (Tektronix Part No. 011-0163-00).
Feedthrough, 75 Ω terminator (Tektronix Part No. 011-0103-02).

8. Coaxial Cable

Two 75 Ω cables and one 50 Ω cable required.

For example:

75 Ω – 42-inch (Tektronix Part No. 012-0074-00).
50 Ω – 42-inch (Tektronix Part No. 012-0057-01).

9. Jumper Cable Adapter

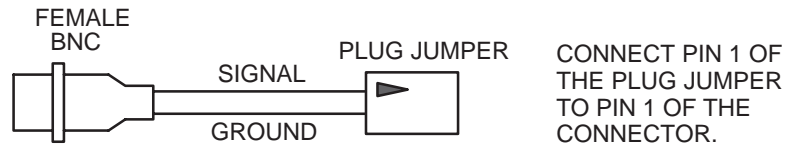


Figure 5-1: Jumper Cable Adapter

10. RS-232 Cable

Connector or adapter which allows hookup between the PC and the waveform monitor. Figure 5-2 shows the cable connections for a 9-pin PC connector. For a 25-pin to 9-pin adapter, construct one as shown in Figure 5-3 or purchase an RS-232 DTE cable or adapter. Do not use a DCE or modem cable.

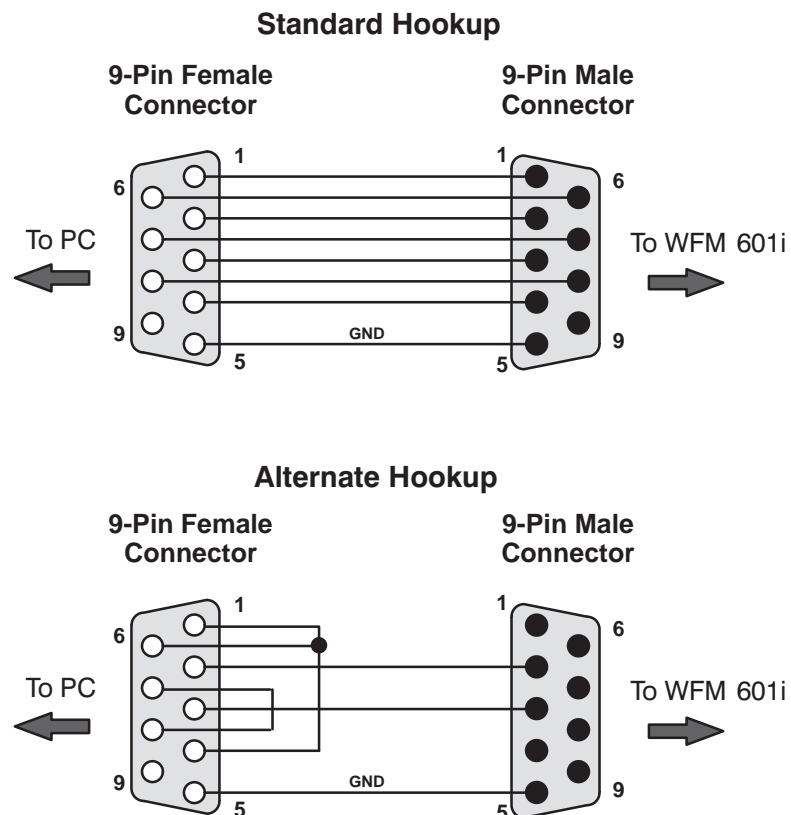


Figure 5-2: RS-232 Cable Hookups for 9-pin PC Connector

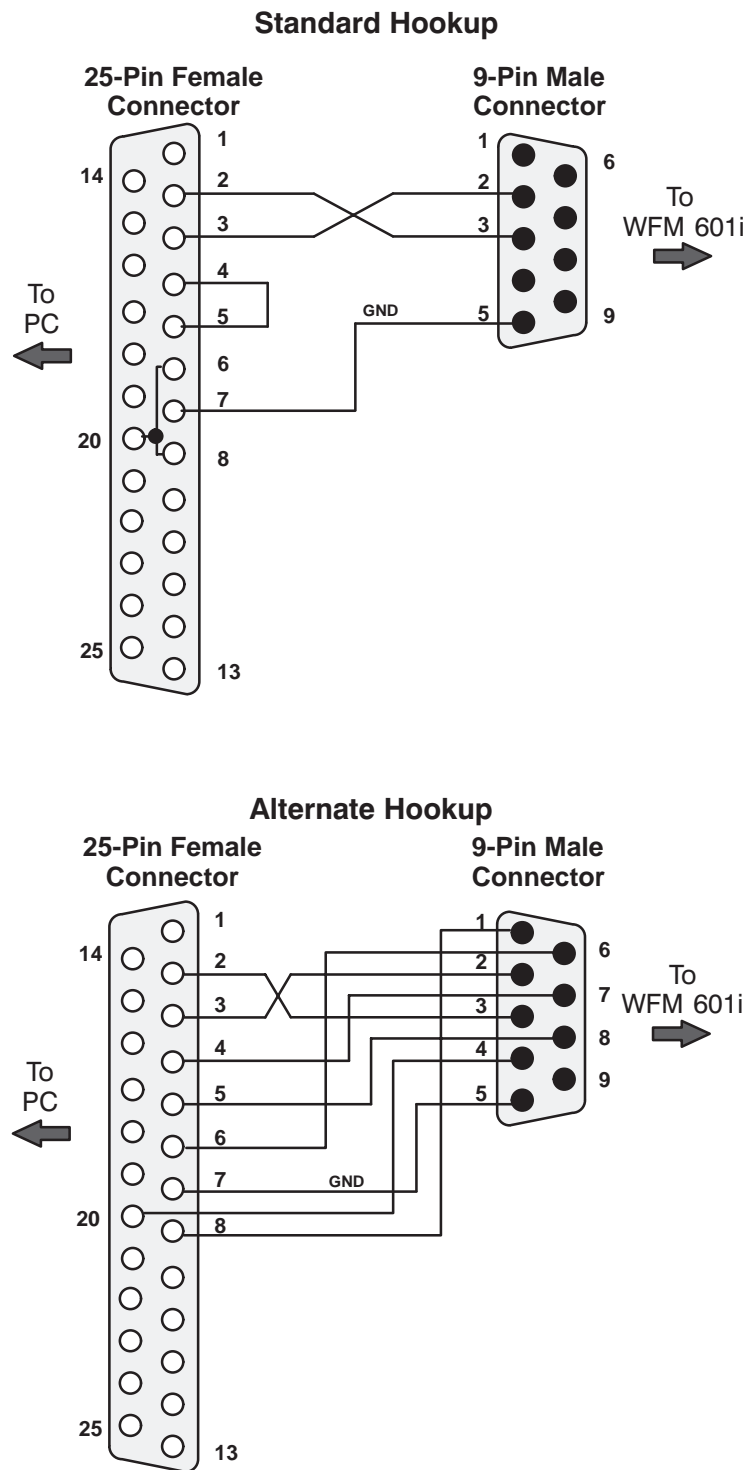


Figure 5-3: RS232 Cable Hookups for 25-pin PC Connector

Getting Started

1. Initial Equipment Connections

- a. Connect an RS-232 cable from the WFM 601i rear-panel RS-232 connector to the COM 1, 2, 3, or 4 connector on the PC. See the Required Equipment List for the cable wiring illustrations.

NOTE. *Cable Wiring*

If the RXD and TXD pins are swapped, as in some modem connections, the Adjustment Procedures program will not operate.

- b. Connect the WFM 601i to power and turn on the instrument.

NOTE. *Instrument Power*

The WFM 601i power switch must be set to ON before the Adjustment Procedures program is started. If the instrument is not turned on, the PC will not be able to establish communications with the instrument. Turning the instrument power ON after the Adjustment Procedures program is started can cause the PC to lock up, requiring a system reset.

2. Load the Adjustment Procedures Program

- a. Insert the Adjustment Procedures disk into the PC floppy drive.

NOTE. *PC Floppy Drive*

On PCs the drive letter for the floppy drive may be A or B. Enter the appropriate letter for your floppy drive in the following step.

- b. At the PC DOS prompt, type the drive letter for the floppy drive to be used followed by a colon, and then press the Return key.
For example, A: <RETURN>

NOTE. *PC Hard Drive*

The Adjustment Procedures program will run faster if loaded on the PC hard drive. To load the program on the PC hard drive, create a directory on the PC hard drive and copy the contents of the floppy disk into the directory.

- c. Type **CAL** and then press the Return key.

- d. The program will prompt the user for a few parameters before the actual adjustment steps start.

Functional Description of the PC Display

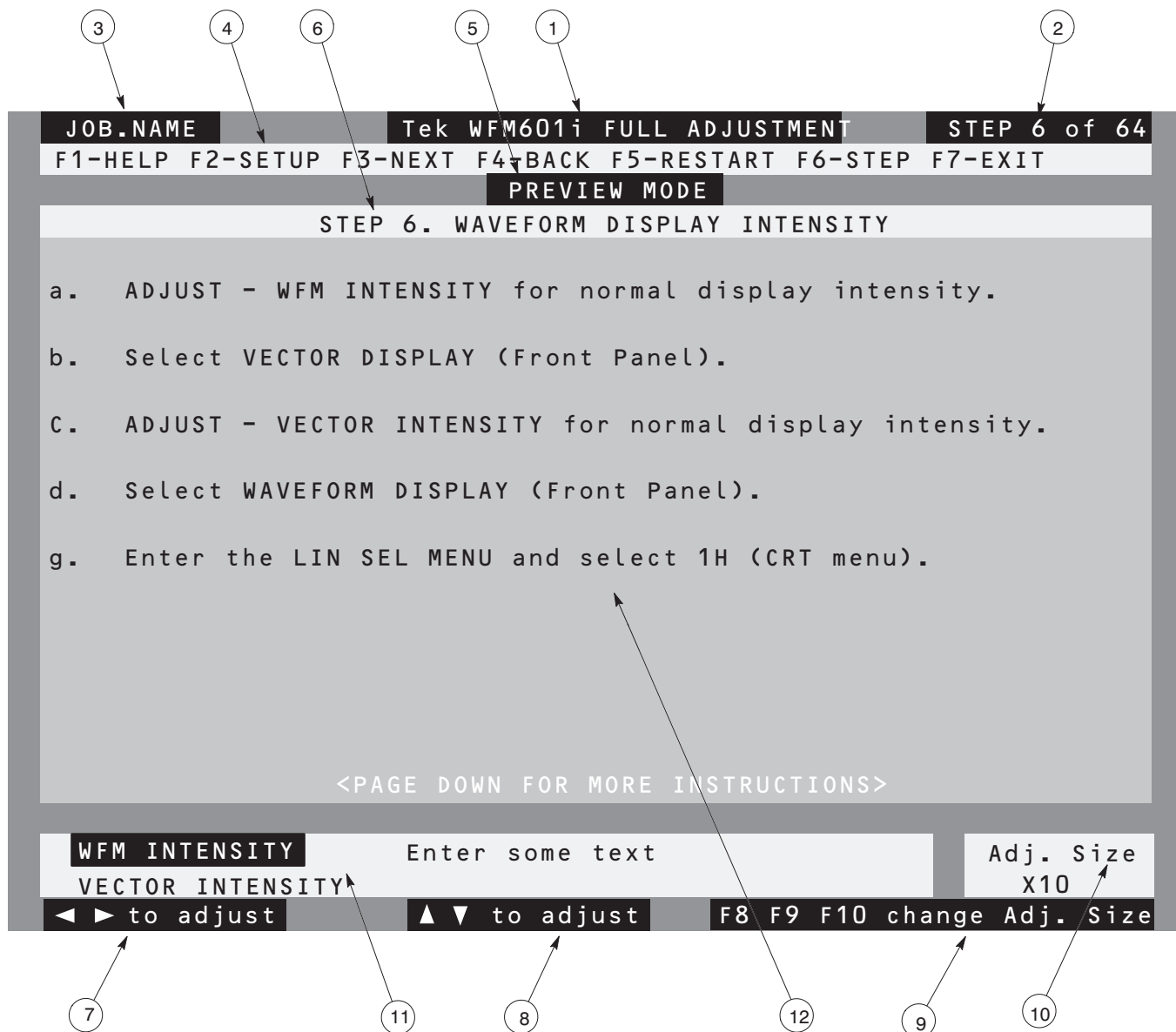


Figure 5-4: Typical Adjustment Procedures PC Screen Display

Display Description

- 1 This box lists the instrument type and which procedure is being performed.
- 2 This box lists the current step number and how many steps there are in the procedure being performed.
- 3 This box only appears when the procedure being performed is a saved job. The name of the job is displayed in the box.
- 4 This box lists the active function keys which can be pressed during the program. They function as follows:
 - F1 Pressing this key brings up the Help Menu.
 - F2 Pressing this key brings up the Setup Window which details the initial equipment connections for that particular step. Only those connections listed in the Setup Window should be in place when the step is started. All other connections from previous steps should be removed.
 - F3 Pressing this key sends the Adjustment Procedures program to the next step.
 - F4 Pressing this key sends the Adjustment Procedures program to the previous step.
 - F5 Pressing this key returns the Adjustment Procedures program to the beginning of the current step. All front-panel settings and internal instrument settings are returned to their former state (the same state they were in when the current step was started).
 - F6 Pressing this key brings up the Select Step window which allows the user to select any step in the procedure. The current step is highlighted when the window opens. Selections are made by pressing the PAGE UP or PAGE DOWN keys on the PC. Pressing the ESC key will close the window and return the user to the current step.
 - F7 Pressing this key brings up the Exit Menu which allows the user to change procedure types, save the current Adjustment job, or to exit to DOS.
- 5 This box appears only when the procedure is in the Preview Mode.
- 6 This box displays the current step number and title.
- 7 This box appears when the current step has more than one PC adjustment. Pressing the PC Left/Right arrow keys will select which adjustment is currently controlled by the PC Up/Down arrow keys. The box serves as a reminder for which arrow keys control the adjustment selection.

- 8 This box appears when the current step has an adjustment controlled by the PC Up/Down arrow keys. The box serves as a reminder for which arrow keys control the adjustment.
- 9 This box appears when the current step has an adjustment controlled by the PC Up/Down arrow keys. Pressing the F8, F9, or F10 function key selects the amount of change each press of an Up or Down arrow key has on the adjustment. The current adjustment size is displayed above the box.
 - F8 Selects X1 as the adjustment size. The X1 setting provides the smallest adjustment size and is used for fine tuning an adjustment to exact position.
 - F9 Selects X10 as the adjustment size. X10 is the default adjustment size and is used to bring an adjustment close to proper position.
 - F10 Selects X100 as the adjustment size. X100 is the largest adjustment size and is used to rough in adjustments that are far out of position.
- 10 This box displays the current arrow key adjustment size.
- 11 This window list the names of the adjustments for the current step. The active adjustment (the one currently assigned to be controlled by the PC Up/Down arrow keys) is highlighted. The Left/Right PC arrow keys control the adjustment selection.
- 12 This window displays the actual procedure steps to be performed. The message <PAGE DOWN FOR MORE INSTRUCTIONS> refers to the PAGE DOWN key on the PC and appears at the bottom of the procedure steps window when there are additional steps to be performed.

Circuit Board Adjustment Locations

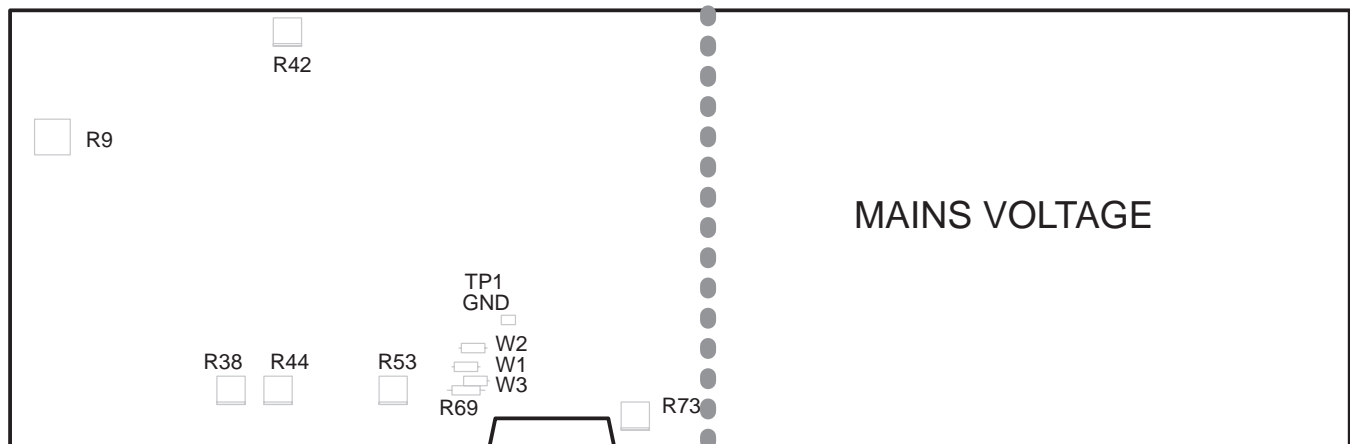


Figure 5-5: A1 Power Supply Board

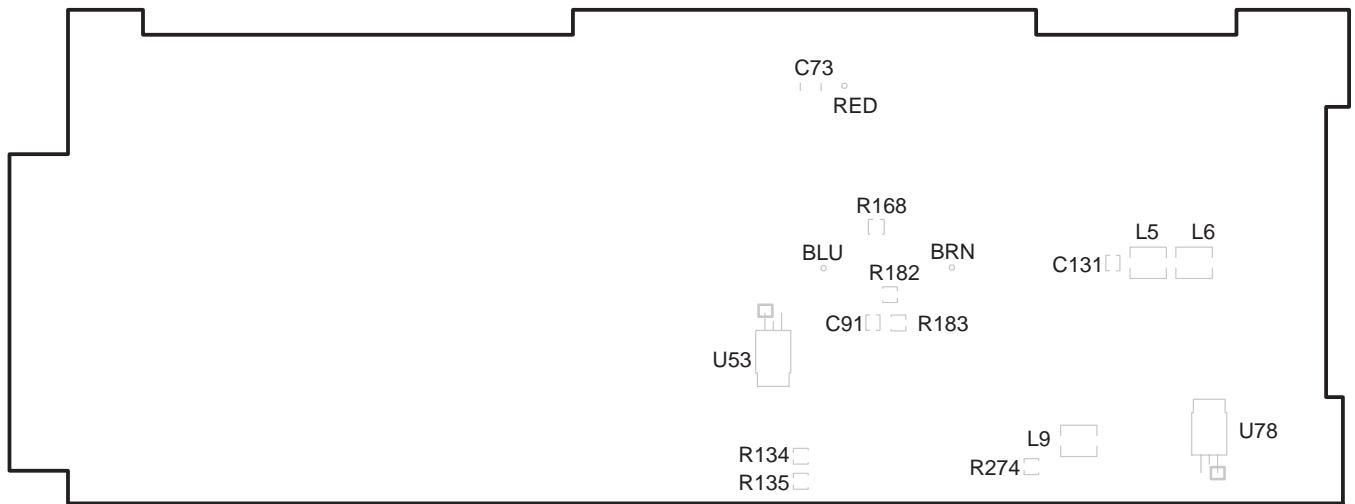


Figure 5-6: A3 Main Board

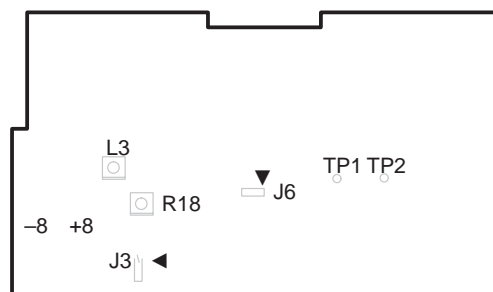


Figure 5-7: A5 Deserializer Board

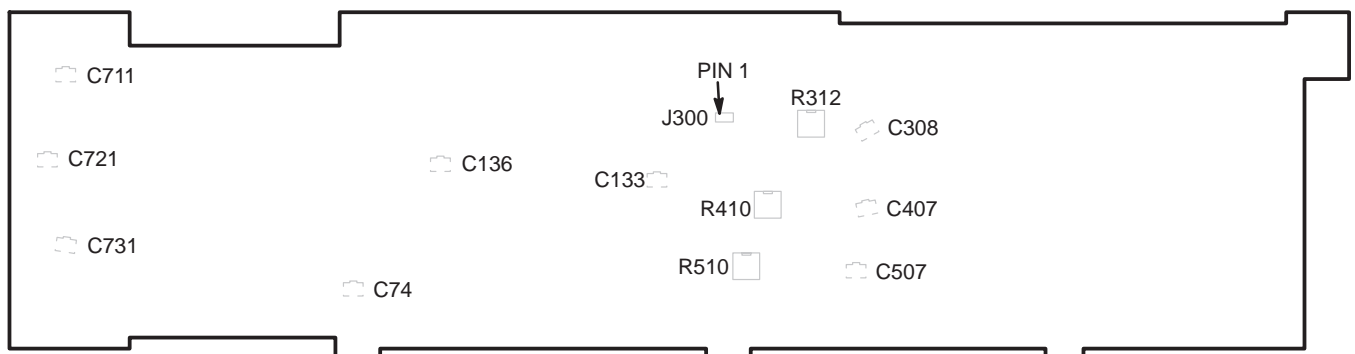


Figure 5-8: A7 Component Board

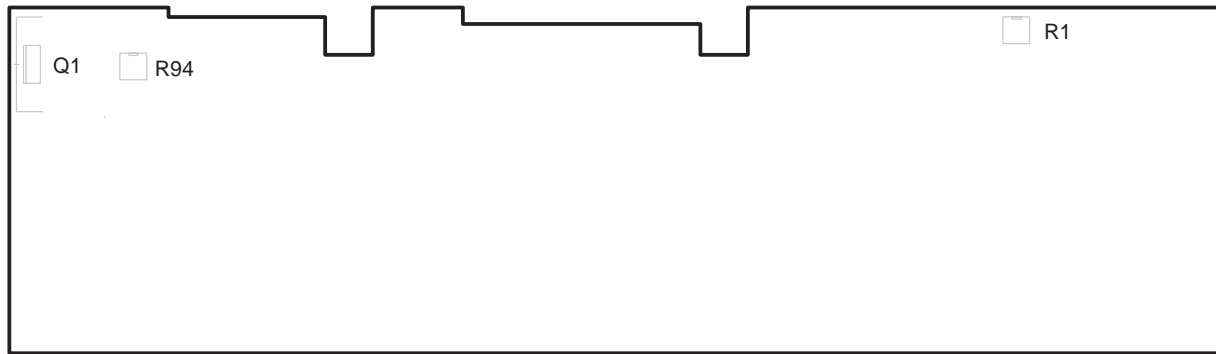


Figure 5-9: A8 DAC Board

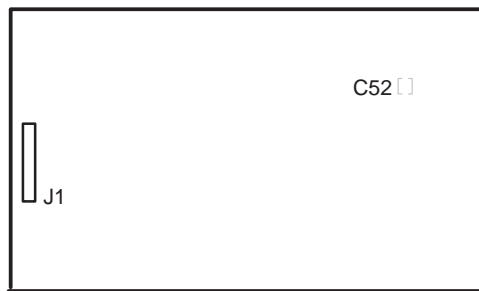


Figure 5-10: A9 Eye Pattern Board

Waveform Illustrations

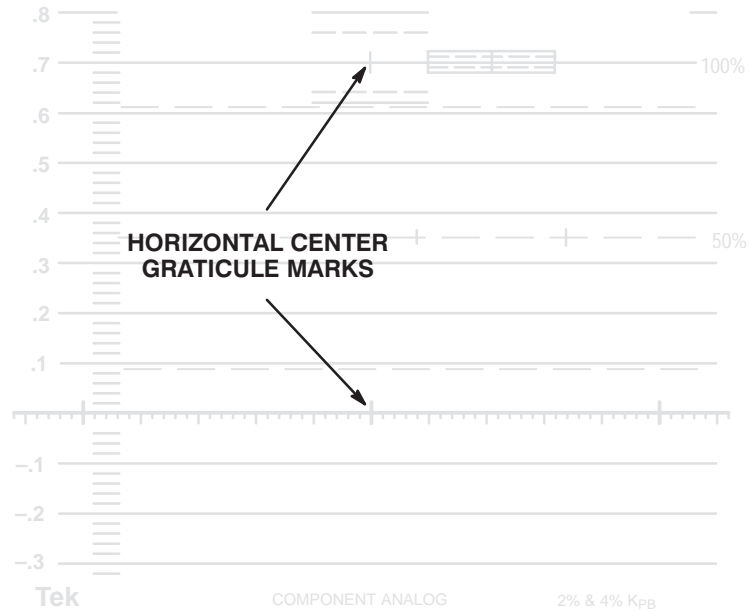


Figure 5-11: Graticule Horizontal Center Marks

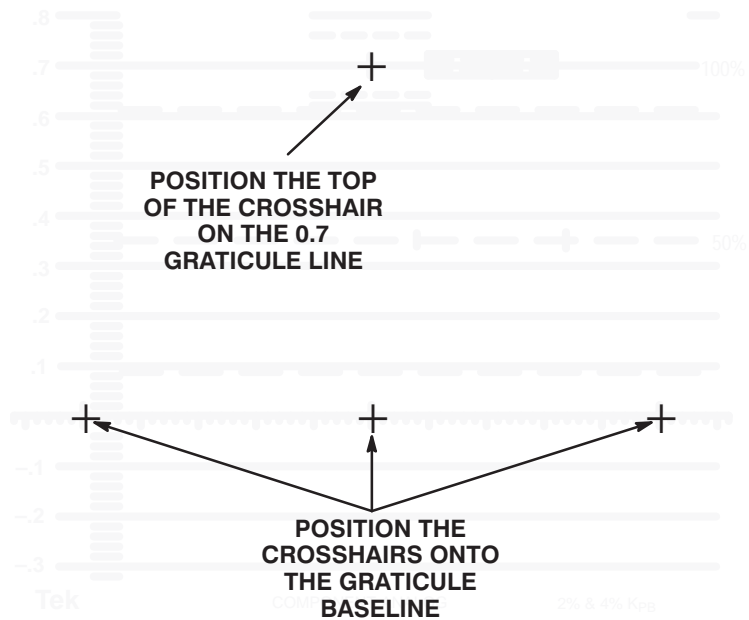


Figure 5-12: Adjusting Post Readout and Gain

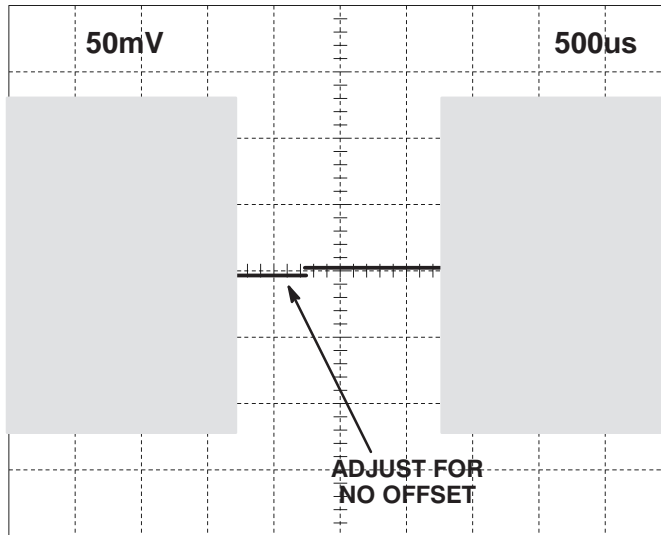


Figure 5-13: Adjusting the Vertical Interval Blanking Level Offset

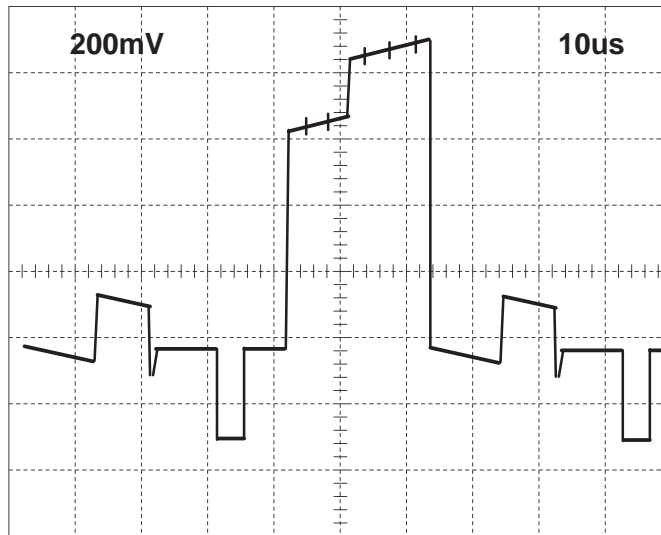


Figure 5-14: Gamut Limit Pulses for TSG-422 Software Versions 2.2 or Greater

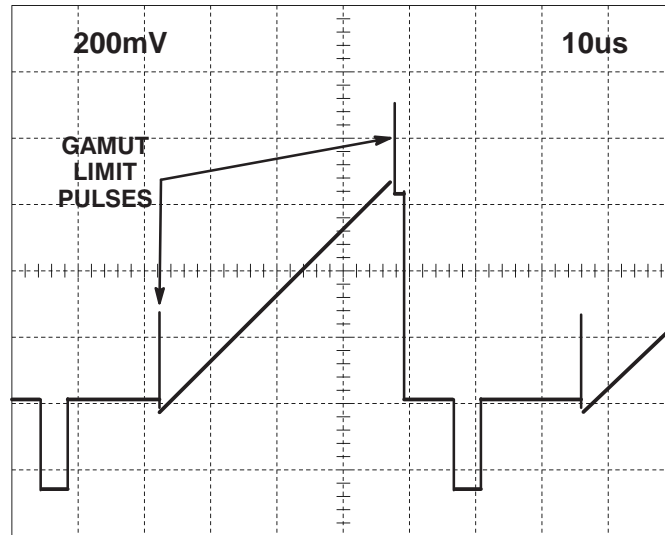


Figure 5-15: Gamut Limit Pulses for TSG-422 Software Version Less Than 2.2

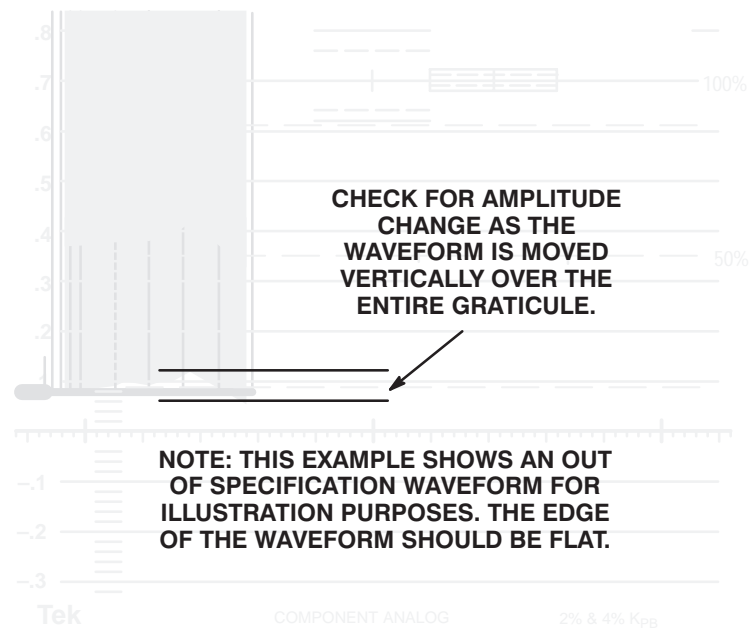


Figure 5-16: Checking the On-screen Frequency Response

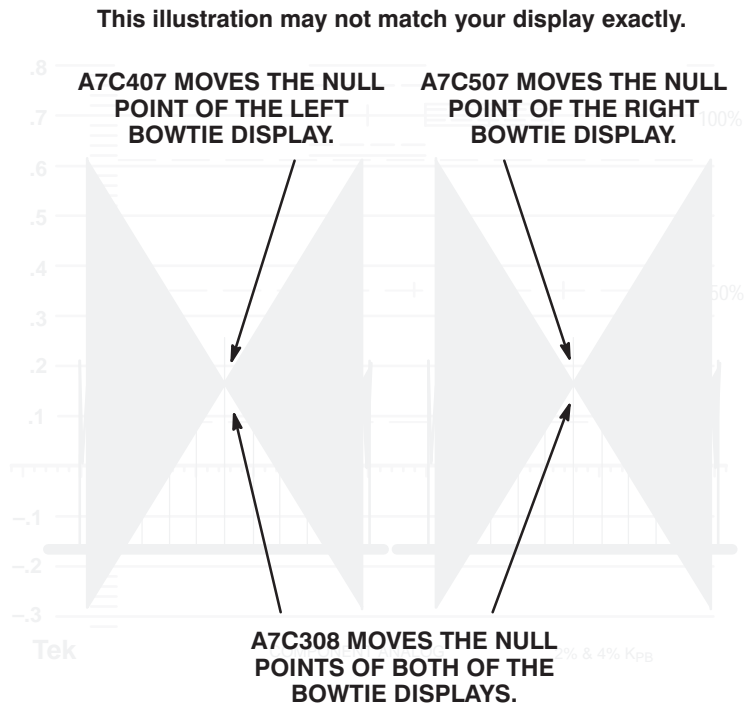


Figure 5-17: Adjusting the Bowtie Display

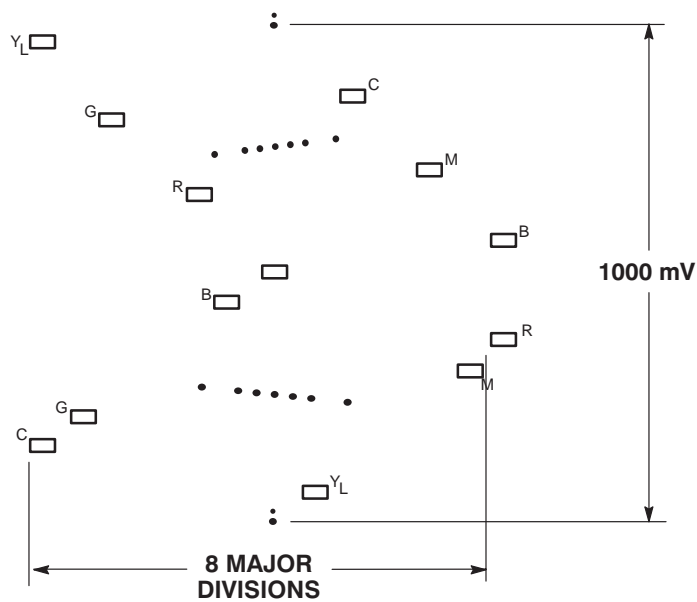


Figure 5-18: Adjusting the Lightning Display Electronic Graticule

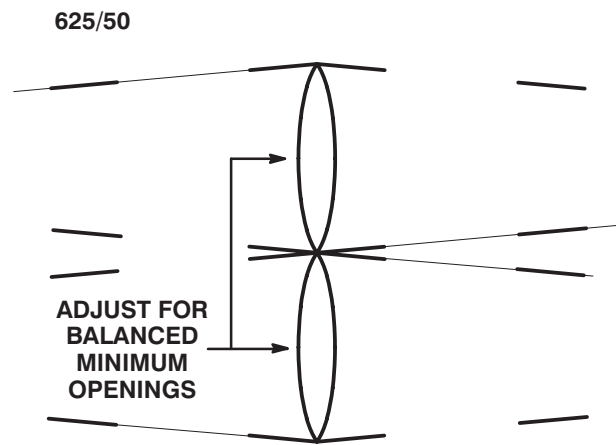


Figure 5-19: Adjusting Diamond Display Phase

TSG422 Signal Illustrations

The TSG-422 signal illustrations on the following pages are provided as a reference. They are shown in a three channel parade as they would appear on the WFM 601i in the Waveform display mode.

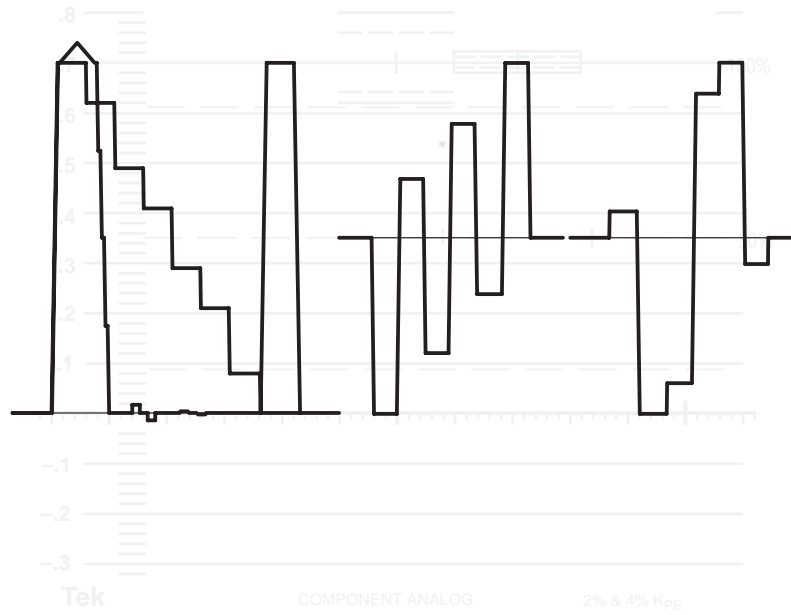


Figure 5-20: 100% Color Bars With Level Reference

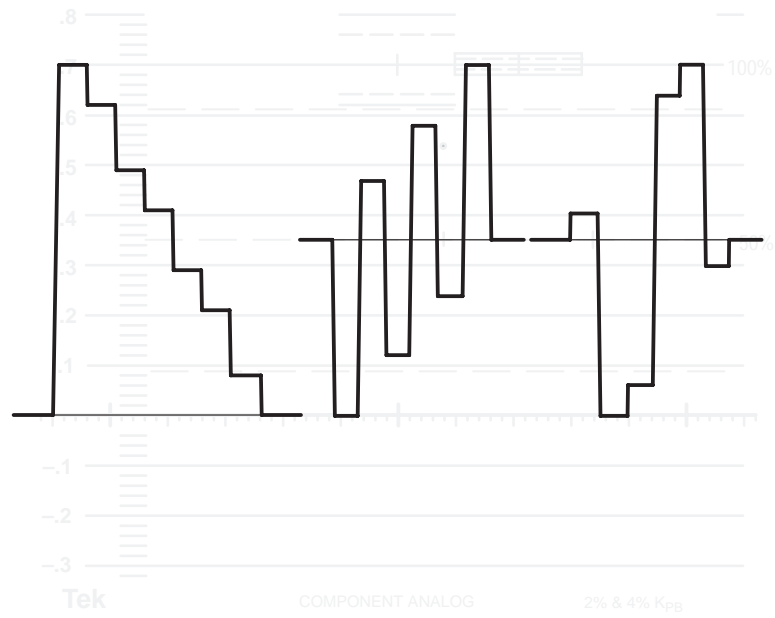


Figure 5-21: 100% Color Bars Without Level Reference Signal

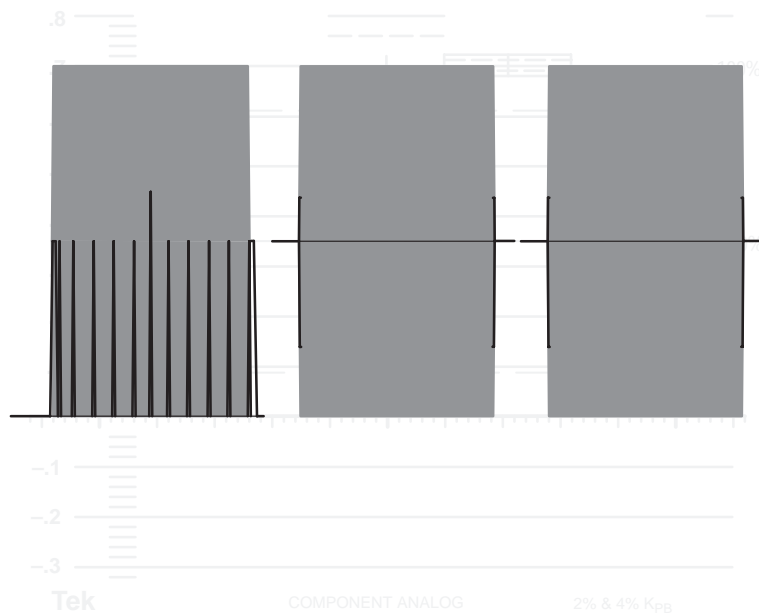


Figure 5-22: 2.5 MHz Bowtie Signal

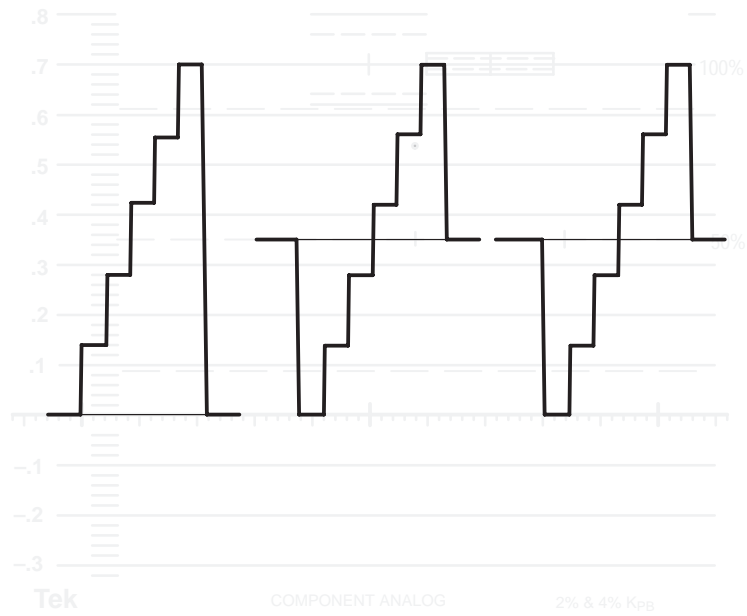


Figure 5-23: 5-step Staircase Signal

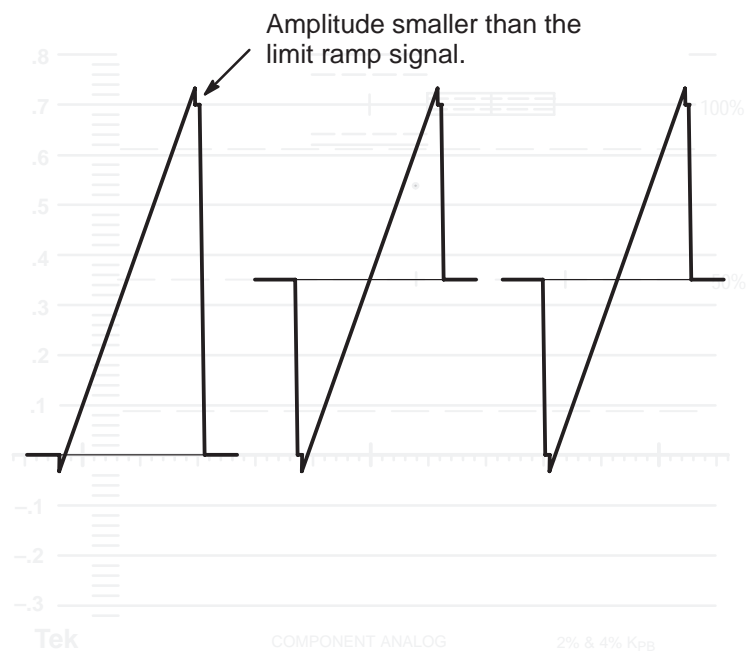


Figure 5-24: Oversized Ramp Signal

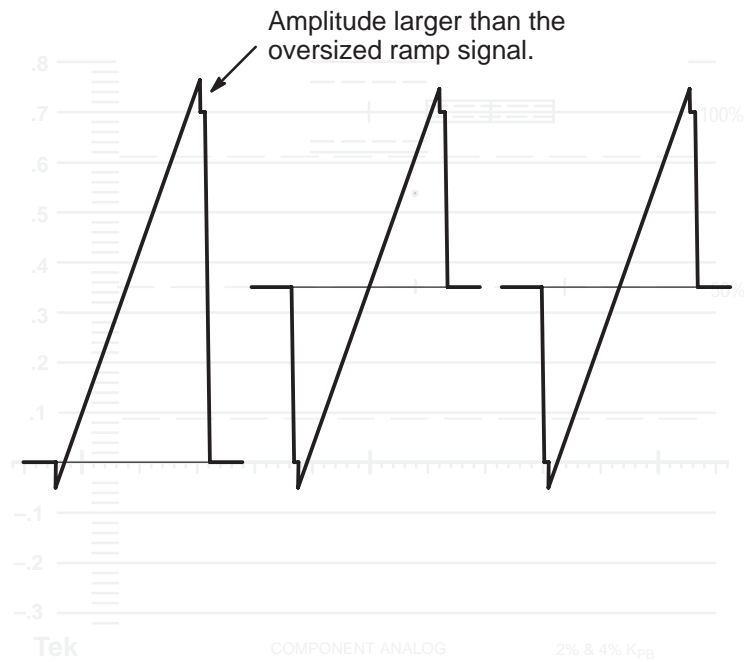


Figure 5-25: Limit Ramp Signal

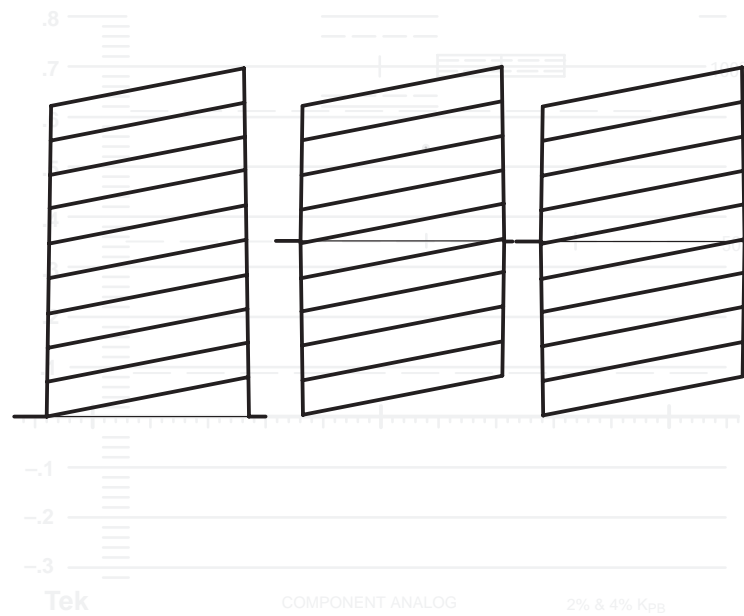


Figure 5-26: Shallow Ramp Signal

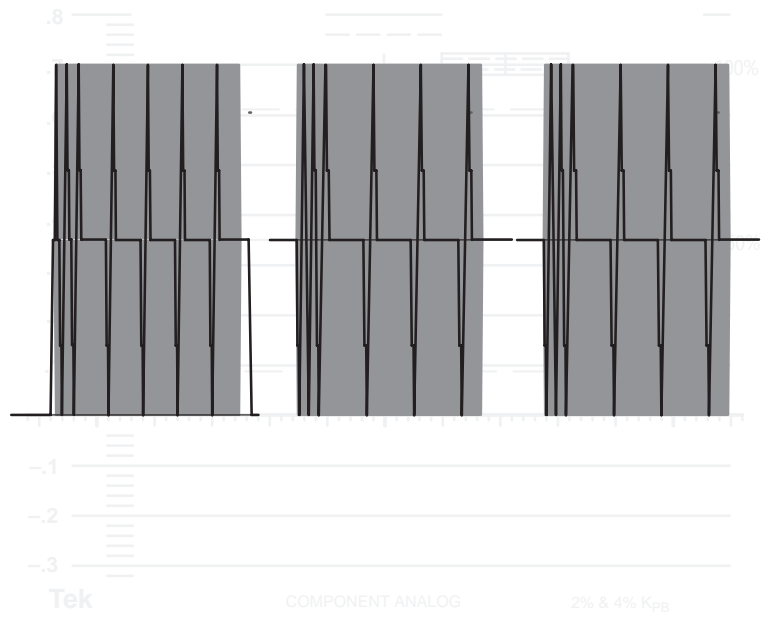


Figure 5-27: 100% Line Sweep Signal

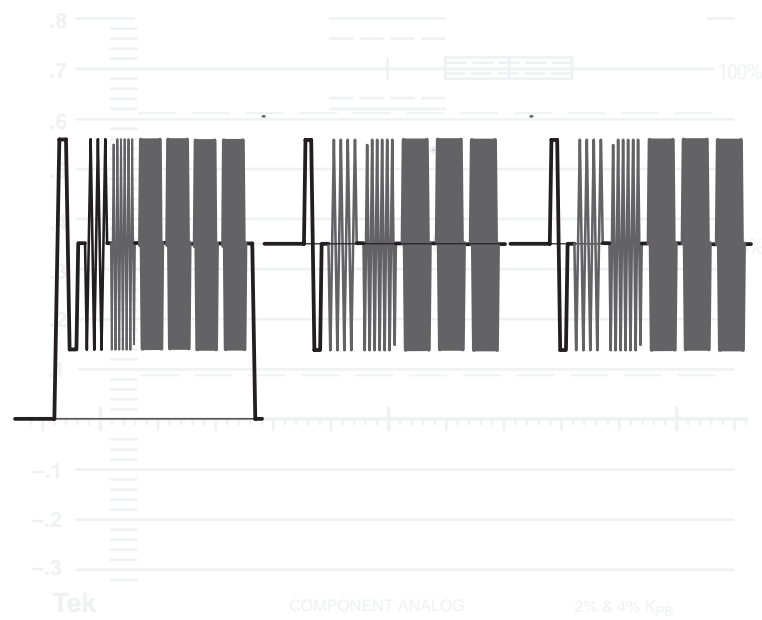


Figure 5-28: Multiburst Signal



Maintenance

Maintenance

This section discusses the various options available for servicing the Tektronix WFM 601i Serial Digital Component Monitor. It also contains instructions for preventive maintenance, general troubleshooting, and corrective maintenance. If the instrument does not function properly, troubleshooting and corrective measures should be taken immediately to circumvent additional problems.

Service Options

A number of servicing options are available. They range from returning the instrument to Tektronix for repair and/or calibration, to a major assembly exchange, to full component level servicing by the customer (at the installation site). Each of these options should be investigated as to which will be the most time efficient and cost effective.

Tektronix Service

Tektronix maintains service centers around the world to provide quick turnaround repair and calibration services. When this service is used, even during the warranty period, the instrument should be tagged and repackaged according to the instructions at the end of this section.

Preventive Maintenance

Preventive maintenance consists of cleaning, visual inspection, performance checking, and if needed, readjustment. The preventive maintenance schedule established for the instrument should be based on the environment in which it is operated and the amount of use. Under average conditions, scheduled preventive maintenance should be performed every 2000 hours of operation.

Cleaning

The instrument should be cleaned often enough to prevent dust or dirt from accumulating. Dirt acts as a thermal insulating blanket that prevents effective heat dissipation, and can provide high-resistance electrical leakage paths between conductors or components in a humid environment.

Exterior. Clean the dust from the outside of the instrument by wiping with a soft cloth or small brush. A brush is especially useful to remove dust from around the selector buttons, knobs, and connectors. Hardened dirt may be removed with a cloth dampened in water that contains a mild detergent. Abrasive cleaners should not be used.

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

Interior. Clean the interior of the instrument by loosening the accumulated dust with a dry, soft brush. Once the dirt is loosened remove it with low-pressure air (high-velocity air can damage some parts). Hardened dirt or grease may be removed with a cotton-tipped applicator dampened with a solution of mild detergent and water. Abrasive cleaners should not be used. If the circuit board assemblies must be removed for cleaning, follow the instructions for removal/replacement under the heading of Corrective Maintenance.

After cleaning, allow the interior to thoroughly dry before applying power to the instrument.



CAUTION. Do not allow water to get inside any enclosed assembly or component. Do not clean any plastic materials with organic cleaning solvents, such as benzene, toluene, xylene, acetone, or similar compounds, because they may damage the plastic.

Replacing and Cleaning the Air Filter

In order to operate in all environmental conditions these instruments require clean unrestricted internal air flow. The air filter is located on the rear panel and should be checked frequently for dust and grime buildup. A supply of replacement filters was shipped with this instrument.

Filter Replacement. Replacement consists of removing two screws from the fan cover, lifting out the old filter and replacing it. The cover is remounted with the two mounting screws. Do not over tighten the screws.

Filter Cleaning. The air filters supplied with this instrument can easily be cleaned and used again. All that is required is to wash them in warm water and mild detergent.

Additional Air Filters. Additional air filters can be ordered directly from Tektronix. The part number for the air filters is listed with the optional accessories at the rear of the Replaceable Mechanical Parts list, at the back of the book.

Visual Inspection

After cleaning, carefully check the instrument for defective connections, damaged parts, and improperly seated transistors or integrated circuits. The remedy for most visible defects is obvious; however, if heat-damaged parts are discovered, determine the cause of overheating before replacing the damaged part, to prevent additional damage.

Periodic checks of the transistors and integrated circuits are not recommended. The best measure of performance is the actual operation of the component in the circuit.

Static-Sensitive Components

This instrument contains electrical components that are susceptible to damage from static discharge. Static voltages 1 kV to 30 kV are common in unprotected environments. Table 6–1 shows the relative static discharge susceptibility of various semiconductor classes.

Table 6–1: Static Susceptibility

Relative Susceptibility Levels		Voltage
2	ECL	200 V – 500 V
3	SCHOTTKY SIGNAL DIODES	250 V
4	SCHOTTKY TTL	500 V
5	HF BIPOLAR TRANSISTORS	400 to 600 V
6	JFETS	600 to 800 V
7	LINEAR μ CIRCUITS	400 to 1000 V est.
8	LOW POWER SCHOTTKY TTL	900 V
9	TTL	1200 V

Observe the following precautions to avoid damage:

1. Minimize handling of static-sensitive components.
2. Transport and store static-sensitive components or assemblies in their original containers, on a metal rail, or on conductive foam. Label any package that contains static-sensitive components or assemblies.
3. Discharge the static voltage from your body, by wearing a wrist grounding strap, while handling these components. Servicing static-sensitive assemblies or components should be done only at a static-free workstation by qualified personnel.
4. Nothing capable of generating or holding a static charge should be allowed on the workstation surface.
5. Keep the component leads shorted together whenever possible.
6. Pick up the components by the body, never by the leads.
7. Do not slide the components 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.

NOTE. A 2% RMA flux content solder is recommended for making repairs in this instrument. Cleaning of rosin residue is not recommended. Most cleaning solvents tend to reactivate the rosin and spread it under components where it may cause corrosion under humid conditions. The rosin residue, if left alone, does not exhibit these corrosive properties.

10. Use only special antistatic, suction, or wick-type desoldering tools.

Determining the Software Version

Operation of this instrument is dependent on the operating software loaded in the Flash EPROM. New software versions may be created at any time as features are added. It is possible that an instrument may contain older software and therefore not be performing up to the level expected. It may save considerable time and troubleshooting effort to determine which software version the instrument contains.

Finding the Version Number. The version number for the software contained in the instrument's Flash EPROM can be displayed on the CRT. The number appears in the lower right-hand corner of the CRT when the REMOTE submenu is entered from the main CONFIG menu. The number, which is preceded by the letter V, will contain a whole number followed by a decimal.

Updating Software. To update the operating software loaded in the instrument, see the instructions in the Installation section of this manual. Both the software disk and the Adjustment software disk are included in this manual.

Performance Checks and Readjustments

Instrument performance should be checked after each 2000 hours of operation, or every 12 months. This will help to ensure maximum performance and assist in locating defects that may not be apparent during regular operation. The Performance Check and the Adjustment Procedures are included in this manual.

Corrective Maintenance

General Troubleshooting Techniques

The following procedure is designed to assist in isolating problems, which in turn expedites repairs and minimizes down time.

1. Ensure that the malfunction exists in the instrument. This is done by making sure that the instrument is operating as intended by Tektronix (see Operating Instructions), and by checking that a malfunction has not occurred upstream from the waveform monitor.
2. Determine and evaluate all trouble symptoms. This is accomplished by isolating the problem to a general area such as an assembly. The block diagram is a valuable aid in signal tracing and circuit isolation.



CAUTION. Use extreme care when probing with meter leads or probes, because of the high component density and limited access within the instrument. The inadvertent movement of leads or a probe could cause a short circuit or transient voltages capable of destroying components.

3. Determine the nature of the problem. Attempt to make the determination of whether the instrument is out of calibration or if there has been a component failure. Once the type of failure has been determined, proceed on to identify the functional area most likely at fault.
4. Visually inspect the suspect assembly for obvious defects. Most commonly these will be broken or loose components, improperly seated components, overheated or burned components, chafed insulation, etc. Repair or replace all obvious defects. In the case of overheated components, determine the cause of overheating and correct the cause before re-applying power.
5. Use successive electrical checks to locate the source of the problem. The primary tool for problem isolation is the oscilloscope. Use the Performance Check Procedure to determine if a circuit is operating within specifications. At times it may be necessary to change a calibration adjustment to determine if a circuit is operational, but since this can destroy instrument calibration, care should be exercised. Before changing an adjustment, note its position so that it can be returned to its original setting.
6. Determine the extent of the repair. If the necessary repair is complex, it may be advisable to contact your local Tektronix field office or representative before continuing. If the repair is minor, such as replacing a component, see the parts list for replacement information. Removal and replacement procedures for the assemblies can be found under Corrective Maintenance.



CAUTION. Always remove the assembly from the instrument prior to attempting to replace a soldered-in component. See *Corrective Maintenance for the correct procedure.*

Line Fuse Replacement

This instrument is protected with an F-type cartridge fuse, located internally on the Power Supply (A1) circuit board. See Figure 6-1. The fuse should only be replaced with the correct type and value. Using a higher rated or slo blo fuse could cause circuit damage. The correct value and type is silk screened on the circuit board, adjacent to the fuse holder.

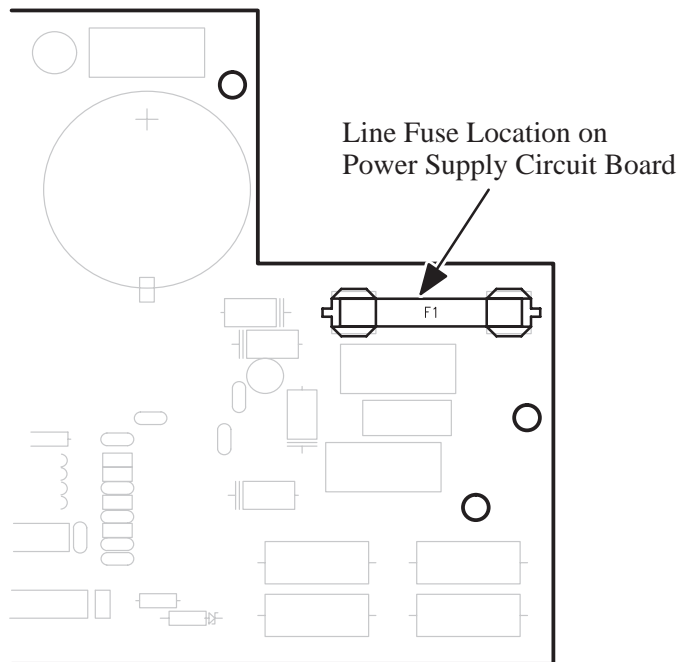


Figure 6-1: Location of Line Fuse on Power Supply Board

Specific Troubleshooting Techniques

Power Supply

The Power Supply is a switching type and requires a specific troubleshooting procedure to avoid personal danger or instrument damage.



WARNING. Read Instructions! Do not attempt to troubleshoot this Power Supply without reading the following instructions.

This Power Supply presents special troubleshooting problems, if a fault occurs. The Troubleshooting Procedure that follows will help to isolate a problem to a specific circuit. The circuit can then be analyzed to find the defective component(s), or part substitution can be tried.

Troubleshooting Procedure

The equipment needed to troubleshoot the Power Supply:

- Digital Multimeter (DMM), with a diode check function
- Oscilloscope
- 20 V_{DC} Variable Power Supply
- 5 V_{DC} Power Supply
- High Voltage Probe, $\geq 1 \text{ G}\Omega$ input resistance

NOTE. Reading the Power Supply Theory of Operation is recommended before attempting repairs.

Introduction

The Troubleshooting Procedure for the Power Supply (Assembly A1) is split into two sections, the Low Volts and High Volts Supplies. Start the procedure by determining which section of the Power Supply the problem is in. With the Power Supply installed in the instrument, apply AC power and turn on the front-panel POWER switch. From Table 6–2, determine which symptom the Power Supply exhibits and refer to the corresponding procedure.

Table 6–2: Power Supply Fault Symptoms

Symptom	Procedure
Line fuse open	Rectifier/Switcher/Snubber Check
Power Supply cycles OFF/ON Note: Check instrument for shorts.	Output Check Error Amplifier Check Shut Down Logic Check
Does not power up	Controller/Gate Drive Check Transformer Driver Check Error Amplifier Check Shut Down Logic Check Rectifier/Switcher/Snubber Check

Table 6-2: Power Supply Fault Symptoms (Cont.)

Symptom	Procedure
+5 V not regulating	Error Amplifier Check
Improper CRT display	High Volts Supply Checks

Low Volts Supply

1. Preliminary Checks

- a. A properly functioning and loaded Low Volts Supply will output the voltages listed in Table 6-3. Use the DMM to measure the voltages between TP1 and the voltage test points. If the supply is not regulating properly, continue with the procedure.

Table 6-3: Low Volts Supply Voltages

Test Point	Voltage Range
W1 (+5 V)	+5.0 V
W3 (+11 V)	+10.5 to +12.0 V
W2 (-11 V)	-10.5 to -12.0 V
R69 (+40 V)	+39.0 to +41.0 V

NOTE. The Low Volts Power Supply troubleshooting is performed without applying ac power.

- b. Disconnect AC power from the instrument. Disconnect the instrument from the Power Supply by removing the jumper from J4.
- c. Use the digital multimeter to measure the voltage between TP2 and the tab (drain) of Q14. Check that the voltage is near 0 V.



WARNING. Do not proceed until the drain of Q14 is near 0 V. Dangerous voltage potentials are present in the circuit until the capacitors discharge.

2. Rectifier/Switcher/Snubber Check

- a. Use the digital multimeter to measure the voltage between TP2 and TP3. Be sure the voltage is near 0 V before proceeding.
- b. Remove jumper P7.
- c. With the negative lead of the digital multimeter connected to TP3 and the positive lead connected to TP2, measure the circuit resistance. A resistance of less than 20 k Ω indicates a shorted MOSFET (Q14). If the MOSFET is shorted, replace it and perform the Control Circuit Check.
- d. Using the digital multimeter diode test function, test CR32, CR33, CR34, and CR35 for shorts. Diode replacements must be fast reverse recovery (300 ns) types to reduce conducted noise.
- e. Using the digital multimeter diode test function, test the snubber diodes CR23 and CR25 for shorts.
- f. Replace P7.

3. Output Check

- a. Connect the negative output from the 20 V_{DC} Power Supply to TP1 and its positive output to W3 (+11 V). The circuit should draw less than 20 mA. Excessive current draw can be caused by CR16 or U2 (High Volts Power Supply).

NOTE. The variable power supply used in the following checks must have a current limit of 1 ampere or less.

- b. Connect the negative output from the 20 V_{DC} Power Supply to TP1 and the positive output to R69 (+40 V). The circuit should draw less than 20 mA. Excessive current draw can be caused by CR19 or Q7 (High Volts Power Supply).
- c. Connect the positive output from the 20 V_{DC} Power Supply to TP1 and the negative output to W2 (-11 V). The circuit should draw less than 20 mA. Excessive current draw can be caused by CR18.
- d. Connect the negative output from the 5 Vdc Power Supply to TP1 and the positive output to W1 (+5 V). The circuit should draw less than 20 mA. Excessive current draw can be caused by CR17 or Q1 and Q2 (High Volts Power Supply).

4. Controller/Gate Drive Check

- a. Connect the negative 20 V_{DC} Power Supply output to TP3. Connect the positive output to the cathode of CR22. Short the emitter and base of Q15 together. Connect the oscilloscope probe ground to TP3.

- b. Table 6–4 shows the signals present when the control circuit functions properly.

Table 6–4: Control Circuit Test Points

Circuit Location	Signal
U6, pin 1	Approximately 5 V _{DC}
U6, pin 2	Approximately 1 to 2 V _{DC}
U6, pin 3	0 V
U6, pin 4	80 kHz triangle wave, 2 V p-p
U6, pin 6	80 kHz square wave, 18 V p-p

- c. Use the oscilloscope to observe the signal at the anode of CR26. It should be an 80 kHz square wave, switching between –1 V and 12 V. The fall time is 0.2 μs and the rise time is 1 μs.
- d. Remove the short from across Q15.

5. Transformer Driver Check

- a. Connect the negative output from the 20 V_{DC} Power Supply to TP3. Connect the positive output to the cathode of CR22.
- b. Connect the negative output from the 5 V_{DC} Power Supply to TP3. Connect the positive output to the cathode of VR3.
- c. Connect the oscilloscope probe ground to TP3.
- d. Using the oscilloscope, observe the signal at U8, pin 5. It should toggle between 0 and 5 V_{DC} when J3 is shorted and unshorted. If the pulse is not present, continue with the check.
- e. Using the oscilloscope, observe the signal at U8, pin 3. A positive-going, 100 ms pulse should occur when J3 is shorted and unshorted. If the pulse is not present, continue with the check.
- f. Using the oscilloscope, observe the signal at U5, pin 1. It should be a logical high when J3 is unshorted and a logical low when it is shorted. If the signal is not present, continue with the check.
- g. Using the oscilloscope, observe the signal at the collector of Q13. With J3 unshorted this point should have a 1 V, 170 kHz sine wave riding on 5 V_{DC}. With J3 shorted this point should be at 5 V_{DC}.

6. Error Amplifier/Voltage Reference/Over Voltage Check

- a. Set the variable Power Supply to 4.6 V_{DC}. Connect the negative lead to TP1 and the positive output to W1 (+5 V).
- b. Connect the digital multimeter common lead to TP1.
- c. Using the digital multimeter measure the voltage at U3, pin 6. It should be 0 V.
- d. Using the digital multimeter measure the voltage at U3, pin 1. It should be 2.5 V.
- e. Set the variable Power Supply to 5.4 V.
- f. Using the digital multimeter measure the voltage at U3, pin 6. It should be 5 V.
- g. Slowly increase the voltage of the variable Power Supply. Before 6 V is reached the over voltage protection circuit should fire and pull the voltage below 1 V.

7. Shut Down Logic Check

- a. Connect the negative output of the 20 V_{DC} Power Supply to TP3. Connect the positive output to the cathode of CR22.
- b. Connect the digital multimeter common lead to TP3.
- c. Measure the voltages according to Table 6–5 to see if the Shut Down logic circuit is functioning properly.

Table 6–5: Shut Down Logic Levels

Circuit Location	Approximate Voltage
U7, pin 1	0 V
U7, pin 4	2 V _{DC}
U7, pin 6	3 V _{DC}
U7, pin 7	4.15 V _{DC}
U7, pin 9	0.3 V _{DC}

- d. Using the digital multimeter, measure the voltage at U6, pin 3. It should be approximately 5 V_{DC}. Short the base to the emitter of Q15. Pin 3 should now measure 0 V.

High Volts Supply



WARNING. Dangerous potentials exist on this circuit board. Extreme care should be exercised in troubleshooting these circuits.

1. Preliminary Checks

- a. Table 6–6 lists the High Volts Supply fault symptoms and procedures.

Table 6–6: High Volts Supply Fault Symptoms

Symptom	Procedure
Unable to focus CRT using the front-panel control	Focus Amplifier Check
Unable to adjust CRT intensity using the front-panel control	Z-Axis Amplifier Check Grid Drive Check
No CRT display	High Voltage Oscillator Check CRT Voltage Check

2. Focus Amplifier Check

- a. Using the digital multimeter, measure the voltage between TP1 and the collector of Q2.
- b. It should vary from 0 to $-300 V_{DC}$ when the front-panel FOCUS control is rotated.

3. Z-Axis Amplifier Check

- a. Use the digital multimeter to measure the voltage between TP1 and the collector of Q6.
- b. Short together the base and emitter of Q3. The collector of Q6 should be near 0 V.
- c. Short together the base and emitter of Q4. The collector of Q6 should be near 0 V.

4. Grid Drive Check

- a. Turn off the Power to Standby. Use the diode check on the digital multimeter to test CR2, CR5, CR6, CR8, and CR9 for shorts.
- b. Turn the Power On.

- c. Using the digital multimeter, measure the voltage between TP1 and the cathode of CR8. It should vary between approximately +40 and +170 V as R58 (CRT Bias) is adjusted.

5. High Voltage Oscillator Check

- a. Connect the oscilloscope probe to T1 pin 3 (Q6 collector) and the probe ground to TP1. The signal should be a +70 V p-p, 22 kHz sine wave.
- b. Check the voltages listed in Table 6–7 using the digital multimeter:

Table 6–7: High Voltage Oscillator Test Points

Circuit Location	Voltage
T1, pin 4	Approximately +40 V
T1, pin 13	Less than +2 V
U2, pin 2	Approximately +4.8 V
U2, pin 6	+4 to +11 V
CR9, cathode	Approximately +100 V

6. CRT Voltage Check

NOTE. This check requires a high-voltage probe having an input resistance of 1 G Ω or more.

- a. Connect the high-voltage probe ground to TP1.
- b. Use the high-voltage probe to measure the voltage at the anode of CR4. It should be approximately –2750 V.
- c. Measure the voltage at the anode end of CR3. It should be 50 - 150 V more negative than the reading from the anode of CR4.

Tektronix Service Offerings

Tektronix maintains a service organization that can provide a number of services to assist in maintaining instrument operation at its specified levels. They range from complete repair and adjustment, at a convenient location, to supplying replacement parts. In addition, there are training programs that are available for service technicians.

NOTE. *When considering which service offerings best suit the current need, remember that Tektronix provides a limited parts and service warranty for all its products. No customer repairs should be attempted during the warranty period for this instrument.*

Service Training

Tektronix provides service training in a number of programs. In addition to classes held at our Beaverton campus, special classes at convenient locations can be arranged. To find out more about service training programs contact your local Tektronix field office or representative. U.S. customers can call our service organization directly using 1 (800) TEK WIDE [835-9433]; ask for “Service Training.” The 800 number is a 24-hour service, but service training specialists are only available between 8 a.m. and 4 p.m. pacific coast time.

Field Service Centers

Tektronix maintains service centers worldwide. These centers provide repair and calibration services for Tektronix instruments. They can be contacted through your Tektronix field office or representative. In addition, U.S. and Canadian customers can call 1 (800) TEK WIDE [835-9433] for assistance in contacting their nearest service center. Not all service centers are equipped to repair or calibrate all of our instruments; be ready to give the operator the instrument type and operating options when calling for assistance.

Module Exchange

The module exchange program provides an easily accessible means of returning an instrument to operational status. The defective module is exchanged for a calibrated module at a cost less than the new module price. The process begins by contacting one of the module exchange centers. They can be contacted through your Tektronix field office or representative. In addition, U.S. customers can call 1 (800) TEK WIDE [835-9433] for assistance in contacting the Television Board Exchange Center. The center will provide information on the cost of the module and returning the failed module.

NOTE. *Circuit boards that are damaged due to mishandling or containing modifications not originated by Tektronix are not acceptable for the exchange program.*

When calling to arrange for a circuit board exchange it is essential that you have some key information ready to relay to our technician. The instrument type and serial number, along with installed options are absolutely essential. In addition the Assembly number (AX) and the 9-digit circuit board part number (67X-XXXX-XX) will help to ensure that you are getting a direct replacement. Finally, if you know or are able to provide the software version number it will further ensure that the circuit board you receive will return instrument performance to what it was before the failure occurred.

The following paragraphs and Table 6–8 are intended to assist in ordering the exact circuit board replacement. Note that this information is important whether you are ordering a circuit board from the Module Exchange Center or as a new replacement part from Tektronix.

Table 6–8: WFM 601i Replacement Circuit Boards

Circuit Board Assembly Number	Assembly Name	First Seven Digits of the Part Number
A1	Power Supply	671-2939-XX
A2	Front Panel	671-3164-XX
A3	Main	671-3155-XX
A4	Input	671-3159-XX
A4A1	BNC	671-2940-XX
A5	Deserializer	671-3161-XX
A6	Coprocessor	671-3235-XX
A7	Component	671-3156-XX
A8	Digital-to-Analog Converter	671-2676-XX
A9	Eye Pattern	671-3160-XX

Circuit Board Assembly Number. This is the number used in the Replaceable Electrical Parts list, Circuit Board Illustrations, and on the schematic diagrams to identify the assembly.

Assembly Name. The actual name applied to the circuit board. It will usually be related to the function of the assembly.

First Seven Digits of the Part Number. These digits make up the general part number. They are often the same for several members of the same instrument family. Always look up this number in the parts list. Be sure that it is for the serial number of your instrument. See the Replaceable Electrical Parts list Serial Number/Assembly Effective/Discontinued column for the range in which your instrument serial number falls.

Part Number Suffix. This portion of the part number often varies between members of the same family to denote various types or because the circuit board contains factory-modified circuitry. Always look up this number in the parts list. Be sure that it is for the serial number of your instrument. See the Replaceable Electrical Parts list Serial Number/Assembly Effective/Discontinued column for the range in which your instrument serial number falls.

Having the three pieces of information from Table 6–8 plus the instrument type, serial number, and software version number (if known) ensures that you will receive the module required to return the instrument to complete operation.

Factory Replacement Parts

Replacement parts are available through the local Tektronix field office or representative. However, many common electronic parts are available through local sources. Using a local source, where possible, will eliminate shipping delays.

Changes to Tektronix instruments are sometimes made to accommodate improved components, as they become available, and to improve circuit performance. Therefore, it is important to include the following information when ordering parts:

1. Part Number.
2. Instrument Type or Number.
3. Serial Number.
4. Modification or Option Number (if applicable).

If a part has been replaced with a new or improved part, the new part will be shipped, if it is a direct replacement. If not directly replaceable the local Tektronix field office or representative will contact the customer concerning any changes. After any repair, circuit readjustment may be required.

Etched Circuit Boards

The instrument consists of etched circuit boards. All of the circuit boards are designated as assemblies. Each assembly has an alphanumeric designation (A1 through A9). These assemblies are listed at the beginning of the Replaceable Electrical Parts list of this manual.

NOTE. A 2% RMA flux content solder is recommended for making repairs in this instrument. Cleaning of rosin residue is not recommended. Most cleaning solvents tend to reactivate the rosin and spread it under components where it may cause corrosion under humid conditions. The rosin residue, if left alone, does not exhibit these corrosive properties.

Figure 6–2 shows the locations of all circuit board assemblies for the WFM 601i Serial Digital Component Monitor.

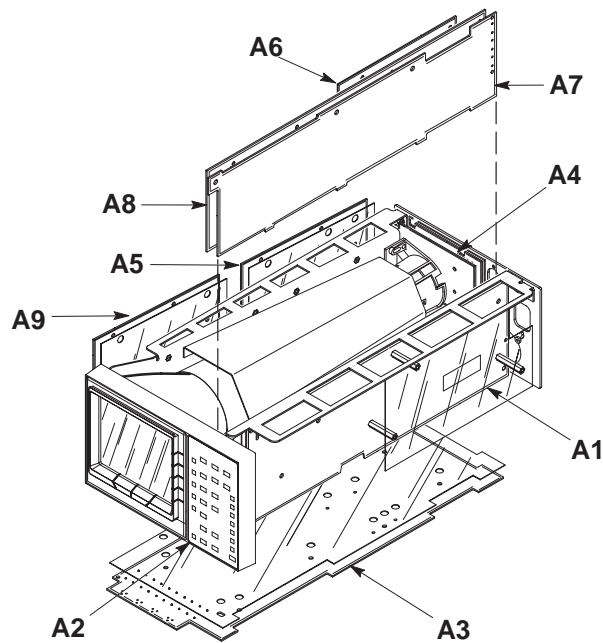


Figure 6–2: Instrument Etched Circuit Board Assemblies

Major Assembly Interconnection

Signals and power supply voltages are passed through the instrument with a system of interconnecting cables. The connector holders, on these cables, have numbers that identify terminal connectors; numerals are used from pin 2 up. A triangular key symbol is used to identify pin 1 on the circuit board to assist in aligning connector with correct square pins. Figure 6–3 shows the numbering scheme (and the triangular marking) on the etched circuit board.

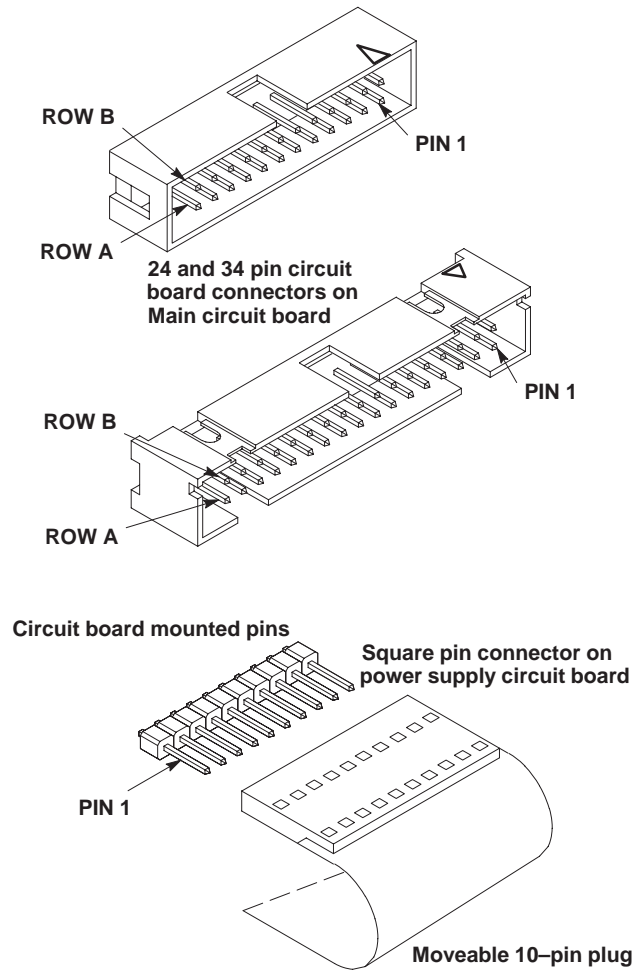


Figure 6–3: Multiple Pin Connectors

Mechanical Disassembly/Assembly

The instructions contained here are for disassembly. Reassembly is performed by reversing the order of the steps used to disassemble the instrument.



WARNING. Before attempting any disassembly of the instrument be sure to disconnect the power cord and wait until DS7 on the Power Supply circuit board (A1) extinguishes.



CAUTION. Do not reinsert screws in the rear panel when the instrument is removed from the cabinet.

Bezel Removal

1. Remove the five knobs located below the CRT, using a $\frac{1}{16}$ -inch Allen wrench. See Figure 6-4.

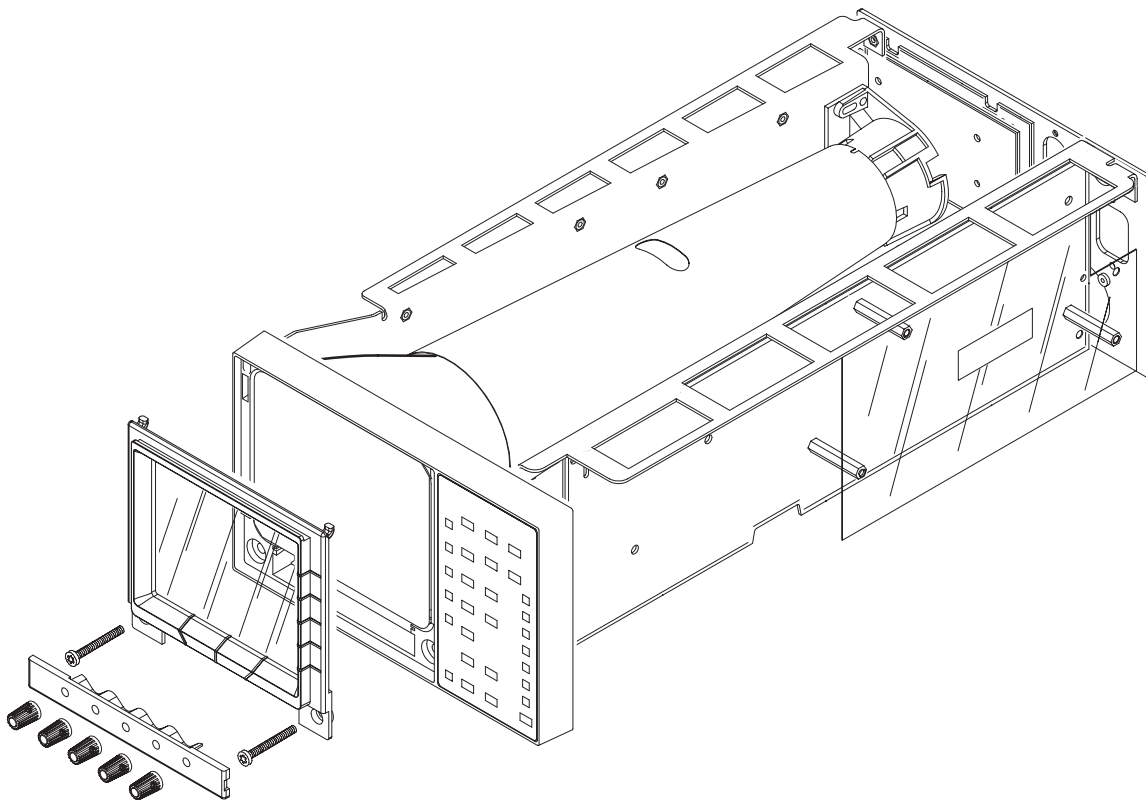


Figure 6-4: CRT Bezel Removal

2. Use the screwdriver tip to push out on the inside of the center of the small panel located immediately below the CRT. This exposes the two bezel mounting screws.

NOTE. All screws, unless otherwise noted, are TORX screws and can be removed with a T15 screwdriver tip (Tektronix part number 003-0966-00). The exception is #2 Pozidrive screws which can be removed with a #1 Pozidrive tip (Tektronix part number 003-0443-00).

3. Remove the two bezel screws.
4. Grasping the bottom of the bezel, pull straight out and upward. There are two hinges at the top of the bezel that hold it in place; once the bezel is at an approximate 45° angle with the front panel they will disengage.
5. To replace, reverse the procedure, pushing in on the small panel instead of out.

Graticule Light Removal and Replacement

For graticule light removal and replacement, tweezers with curved, serrated tips are recommended. For example, Miltex PL312, 6-100 (equivalent to PL312) or PL317 (longer than PL312).

Replacement bulbs are supplied with this instrument as Standard Accessories. Additional bulbs can be purchased from Tektronix (see Replaceable Electrical Parts list) or from local electronics distribution sources.



CAUTION. Needle-nosed pliers are not recommended for bulb replacement.

Procedure

1. Remove the bezel according to the preceding instructions.
2. To remove a bulb, position the tweezer tips or grasp the thin, flat portion of the bulb (close to the plastic socket). Carefully pull the bulb straight out. See Figure 6-5.

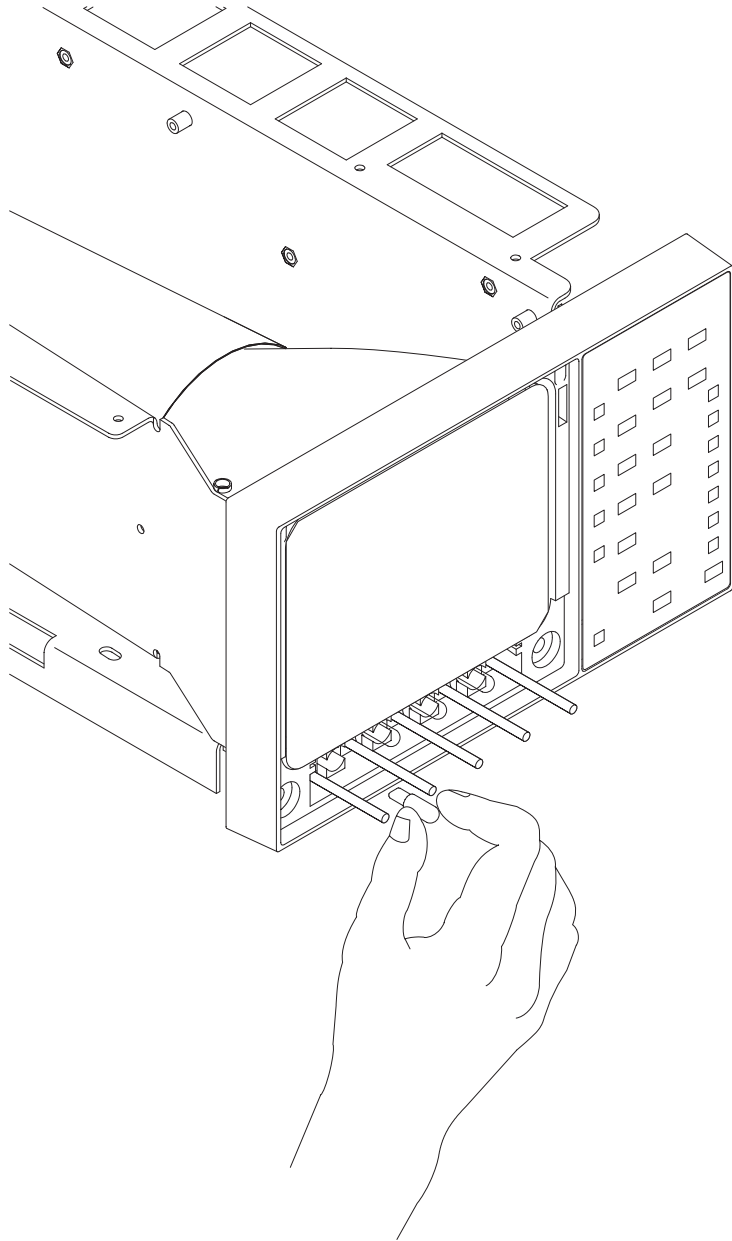


Figure 6-5: Replacing Graticule Light Bulbs

- 3.** To install a bulb, hold it with the tweezers or fingers as described in step two, position it in front of the socket, and push the bulb until it snaps into place.
- 4.** Replace the bezel.

CRT Removal

1. Remove the bezel.



WARNING. The CRT may retain a dangerous charge. Ground the conductor of the anode to discharge the CRT. Do not allow the conductor to touch your body or any circuitry.

2. Disconnect the anode, by separating the connector. Do not touch the exposed tip of the connector. Discharge the connector tip to the chassis. See Figure 6-6.

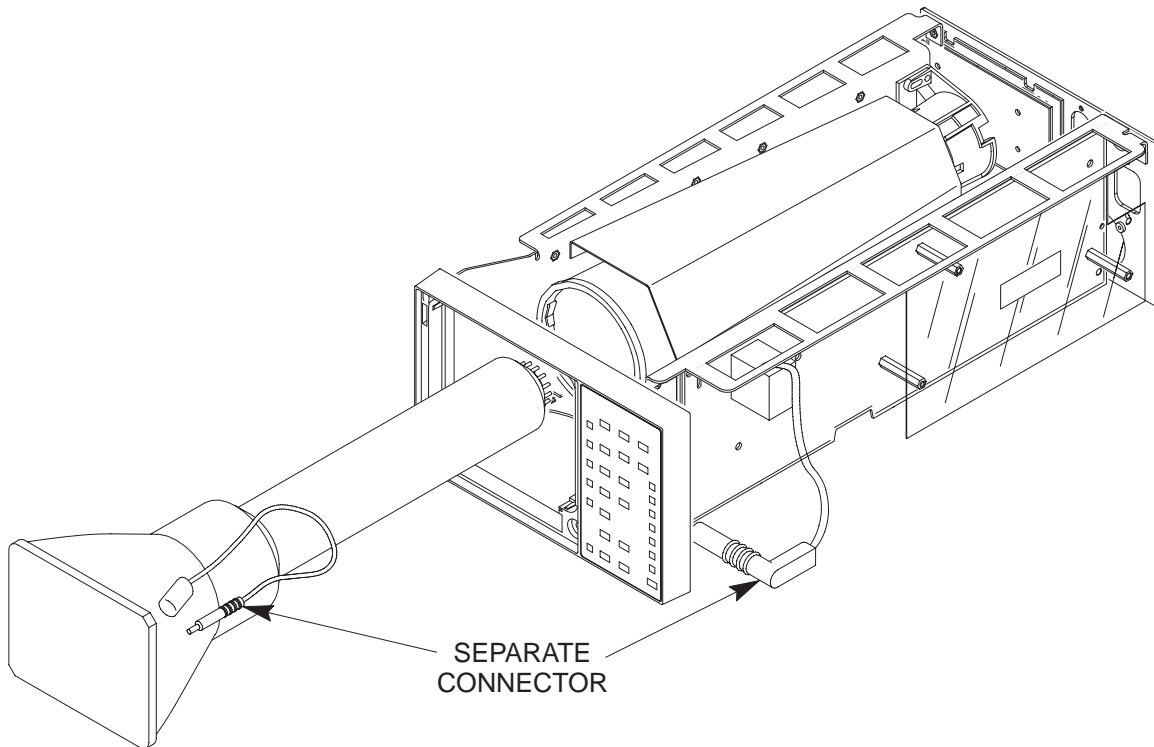


Figure 6-6: Removing the CRT

3. Disconnect the plug from A3J3 (trace rotation connector) on the Main board and push the connector through the hole in the board.



WARNING. *The CRT is a high vacuum device and must be handled with care. Safety glasses, gloves, and protective clothing should always be worn when handling CRTs.*

Replacement of the CRT

4. Hold one hand in front of the CRT. Grasp the CRT just behind the anode cap and push the CRT straight out (some pressure is needed).
1. Reposition the metal CRT shield on the CRT base mounting.
2. Remove the clear plastic cover from the back of the CRT holder. This will make it easier to line up the connections on the CRT holder.
3. Slip the CRT part way back into position, so that the wires (and plug) from the trace rotation coil can be fed back through the hole in the Main board.
4. Slide the CRT back into the rear CRT socket. Align the socket and CRT base. The screws holding the rear mount down may be loosened slightly, if necessary. The CRT should fit securely in place.
5. Press the CRT the rest of the way in by pressing straight back on the corners of the faceplate.
6. Replace the clear rear cover on the CRT holder and screw the holder screws back down (if they were loosened).
7. Wipe off the faceplate of the CRT to remove fingerprints.
8. Reconnect the anode connector and the trace rotation (A3J3 Main board) plug. (To ensure the correct orientation of J3, the red lead is toward the front of the instrument.)
9. Replace the bezel.

Removing the Rear-panel and the Input and BNC Circuit Boards

1. Remove the ten rear-panel screws. See Figure 6–7.

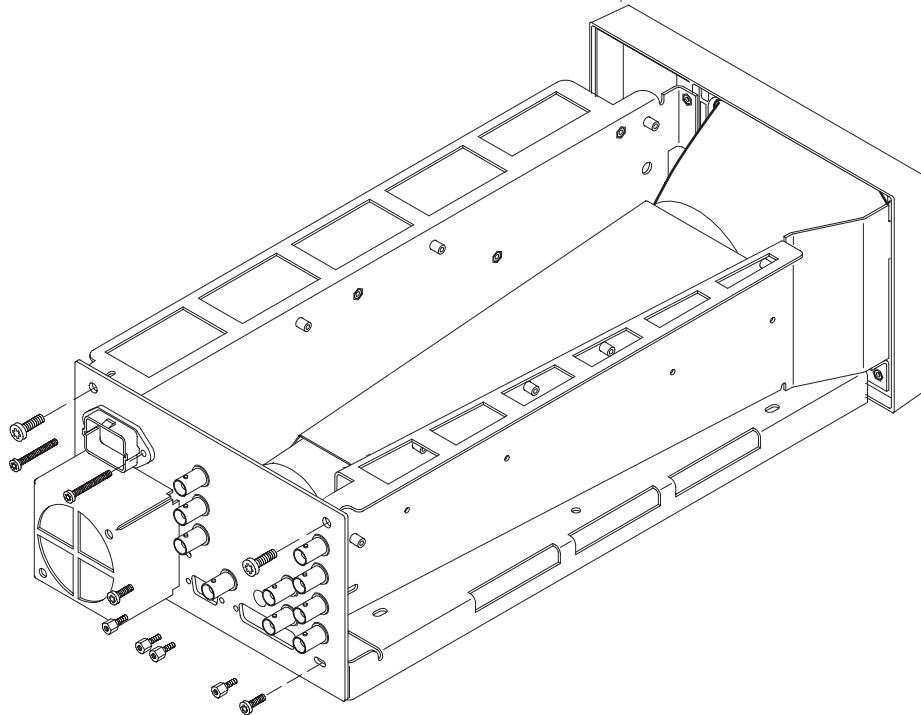
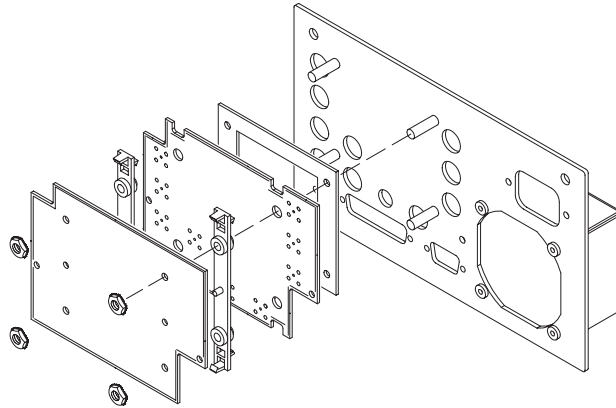


Figure 6–7: Removing the Rear Panel and Input/BNC Assembly

2. Unplug A3J13 and A3J12 on the Main circuit board.
3. Unplug A4J3 and A4J2 on the Input circuit board.
4. Unplug A7J84 on the Component circuit board.
5. Pull the rear panel free from the main chassis enough to be able to slip P12 through the notch in the chassis.
6. Unplug the fan leads, A1J5 on the Power Supply circuit board assembly, and carefully slip the fan cable free.
7. Once A3P12 is free from the chassis notch, the rear panel can be removed to gain access to the Input (A4) assembly.

To Remove Input/BNC Assembly

8. Use a $\frac{5}{16}$ -inch nut driver or box end wrench to remove the four securing screws. See Figure 6-8.

**Figure 6-8: Disassembling Input/BNC Assembly A4/A4-A1**

CAUTION. The Input circuit board assembly uses surface mount components. Do not attempt to solder on this board unless you have been trained in micro soldering and have the proper tools available.

9. To replace the rear panel and Input assembly, reverse the procedure.

Removing the Front Panel and the Front Panel Circuit Board

1. Remove the blue multiwire connector from A3J1.
2. Push down on the clip located on the top of the front-panel assembly and push outward on the upper part of the assembly. See Figure 6-9.

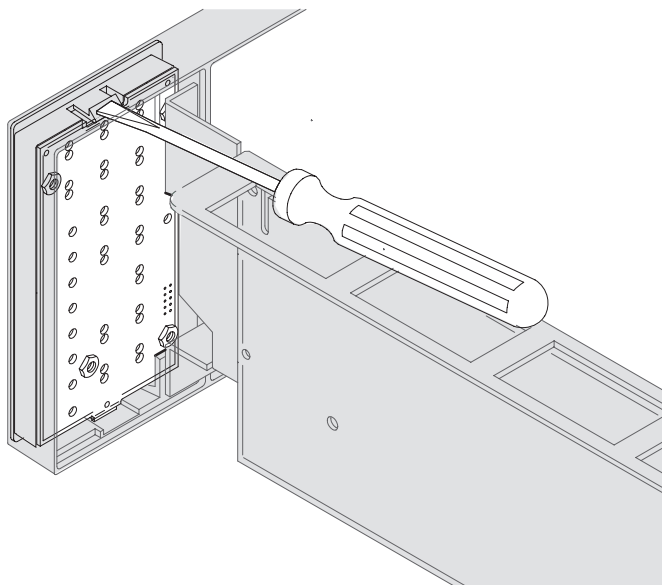


Figure 6-9: Removing the Front-panel Assembly

3. Remove the board by slipping it through the front-panel opening.
4. To access the Front Panel board components:
 - a. Use a $\frac{1}{4}$ inch nut driver or box end wrench to remove the four nuts holding the assembly together. See Figure 6-10.

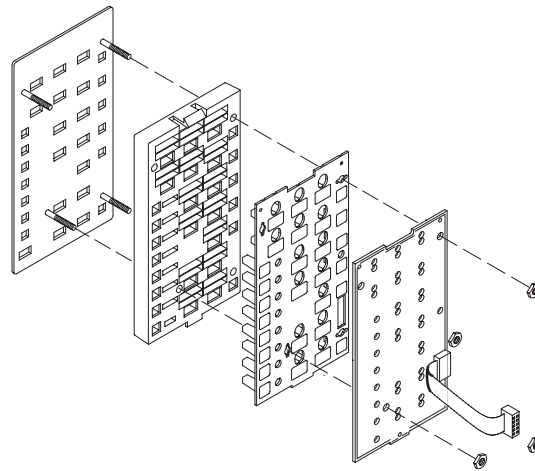


Figure 6-10: Front Panel Circuit Board Assembly

- b. The board should now separate from the front panel, spacer, and the keypad.
5. To re-assemble, reverse the procedure.

Removing the Main Board

1. Disconnect the cables from the connectors as shown in Table 6-9.

Table 6-9: Main Board Plug Connections

Plug Number	Location	From
A3J1	Main Circuit Board	Front Panel Circuit Board
A3J2	Main Circuit Board	Component Circuit Board
A3J3	Main Circuit Board	Trace Rotation Coil (CRT)
A3J5	Main Circuit Board	Component Circuit Board
A3J9	Main Circuit Board	Deserializer Circuit Board
A3J12	Main Circuit Board	Input Circuit Board
A3J13	Main Circuit Board	Component Circuit Board
A1J4	Power Supply Circuit Board	Main Circuit Board

2. Use a $\frac{1}{16}$ -inch Allen wrench to remove the five front-panel knobs immediately below the CRT. Remove the small panel from immediately below the CRT bezel. See Bezel Removal instructions.
3. Unsolder the four (red, green, blue, and brown) CRT deflection leads.

4. Slip the CRT and trace rotation leads through the appropriate holes in the Main board.
5. Use a $\frac{3}{16}$ -inch nut driver or box end wrench to remove the mounting studs for the rear-panel RS-232 and REMOTE connectors.
6. Remove the eight screws that are holding the board in place. See Figure 6-11 for their locations.

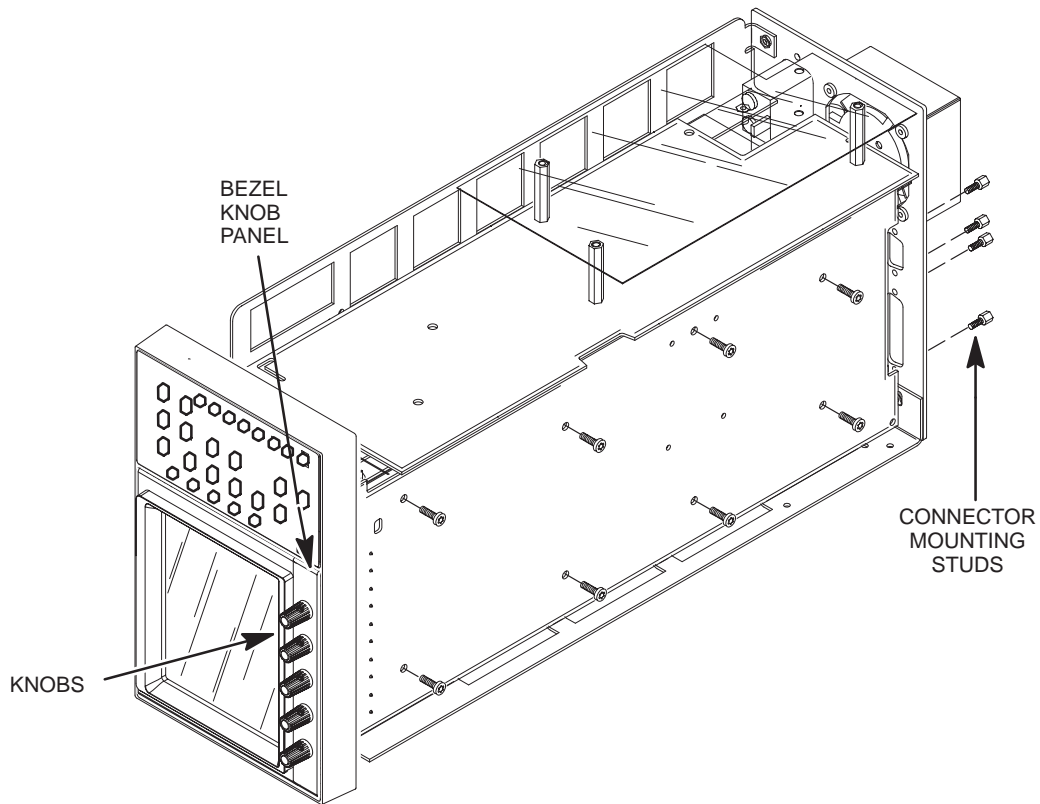


Figure 6-11: Screws Holding the Main Circuit Board in Place

7. Slide the Main circuit board as far forward as space allows to remove the REMOTE and RS-232 connectors from the rear panel.
8. Remove the board by sliding it slightly upward and toward the rear panel until the control shafts on the front of the board clear the front, then lift out.
9. To replace the Main board, lay the board flat and slide it back into place.
10. To complete the replacement of the board, reverse the rest of the steps.

Removing the Power Supply Board



1. Be sure that the instrument is unplugged from the mains and that DS7 on the Power Supply is extinguished.

WARNING. *Circuitry beneath the plastic shield is at line potential. Do not remove this shield when instrument is plugged into the mains source. DS7 can be used as an indicator. If it is lighted or flashing, dangerous potentials exist beneath the plastic shield.*

2. Remove the plug from A1J4 on the Power Supply board.
3. Disconnect the CRT anode connection at its disconnect point and discharge it to ground. See Figure 6-12.

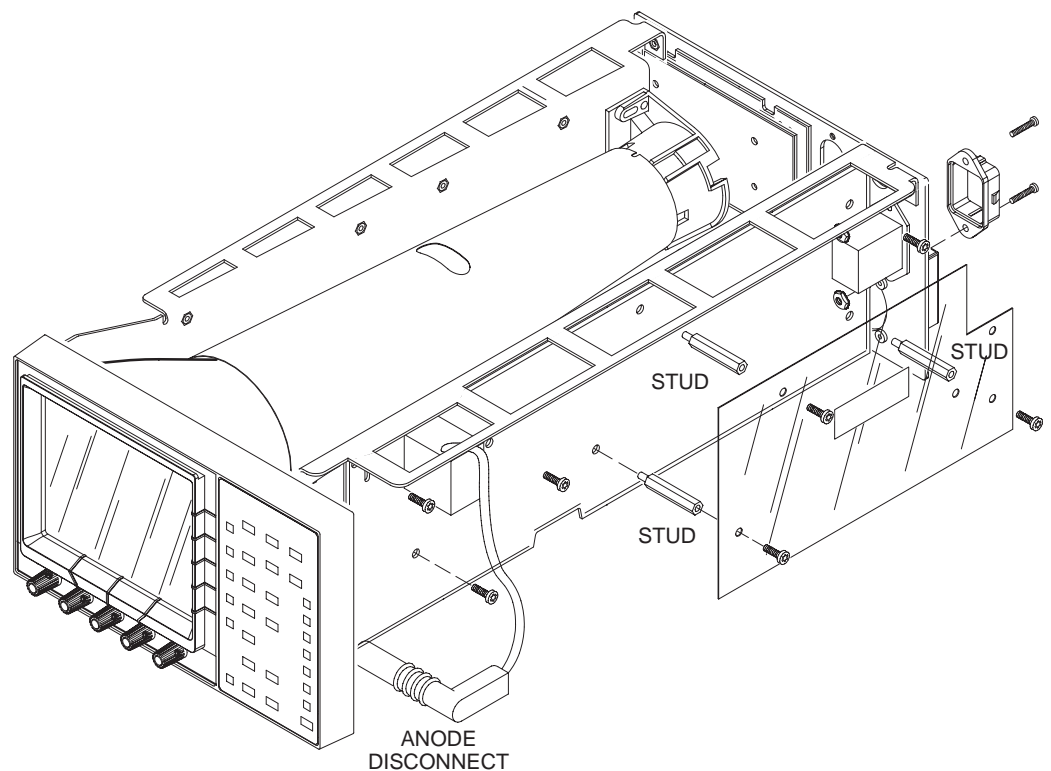


Figure 6-12: Removing the Power Supply Circuit Board



WARNING. *The CRT may retain a dangerous charge. Ground the conductor of the anode to discharge the CRT. Do not allow the conductor to touch your body or any circuitry.*

4. Unplug A1J1, A1J2, and A1J5 on the Power Supply board.

5. Remove the four screws that hold the Power Supply board down, and the three screws that hold the plastic shield in place. See Figure 6–12.
6. Use a 1/4-inch nut driver or box end wrench to remove the three studs that support the plastic shield.
7. Remove the board by sliding it forward and lifting it up.
8. To replace the board, reverse this procedure.

Removing the Deserializer Board

1. Unplug the cable to A3J9 (Main circuit board) and feed the cable and plug through the chassis.
2. Unplug the cable from A5J5.
3. Unplug the cable from A5J8.
4. Unplug the cable from the Input board A4J1.
5. Unplug the cable from A5J1.
6. Remove the screws holding the circuit board in place. See Figure 6–13.

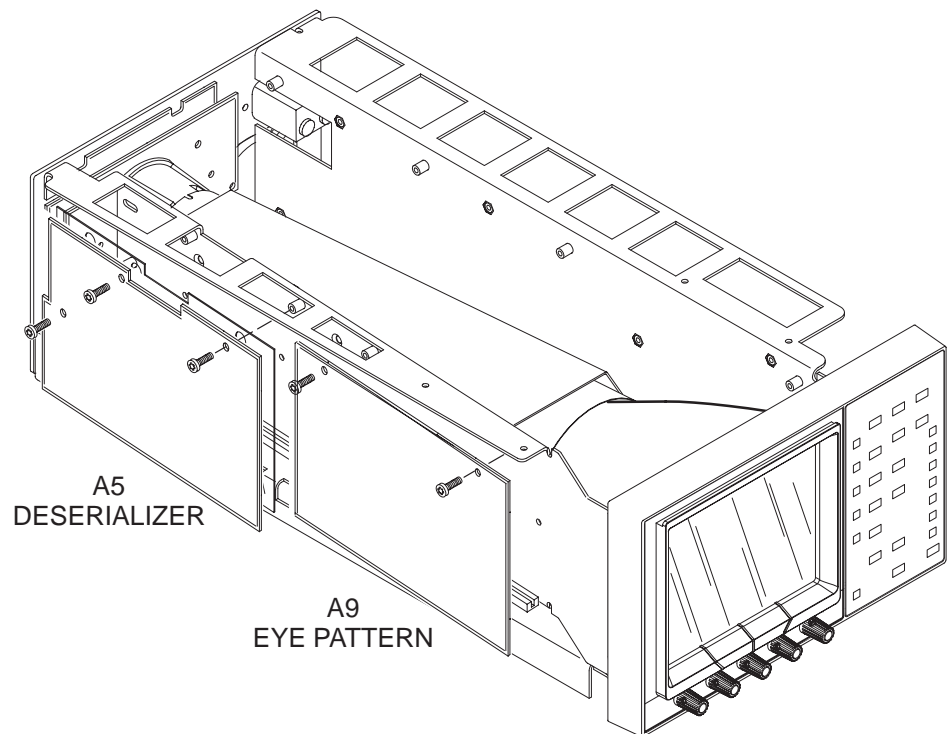


Figure 6–13: Removing the Deserializer and Eye Pattern Boards

7. Remove the circuit board.
8. To reinstall the circuit board reverse the procedure.

Removing the Eye Pattern Board

1. Unplug the cable to A5J9 (Deserializer circuit board).
2. Unplug the cables at A9J9 and A9J10.
3. Remove the two screws holding the circuit board in place. See Figure 6–13.
4. Remove the circuit board.
5. To reinstall the circuit board reverse the procedure.

Removing the Coprocessor, Component, and DAC Boards

1. Unplug the cable to A4J5 (Input circuit board).
2. Use a pair of long nose pliers to loosen and remove the plugs from A7J9, A7J14, A7J12, and A7J13. See Figure 6–14.

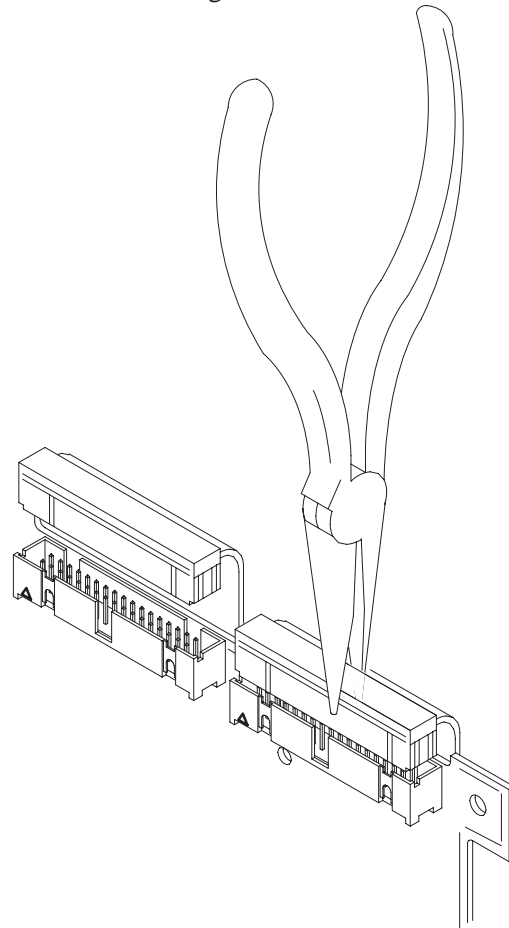


Figure 6–14: Pulling the Plugs from the Component Board Jacks

3. Remove the four screws that hold the Component board (and Coprocessor, and Digital-to-Analog Converter [DAC] boards) See Figure 6–15.

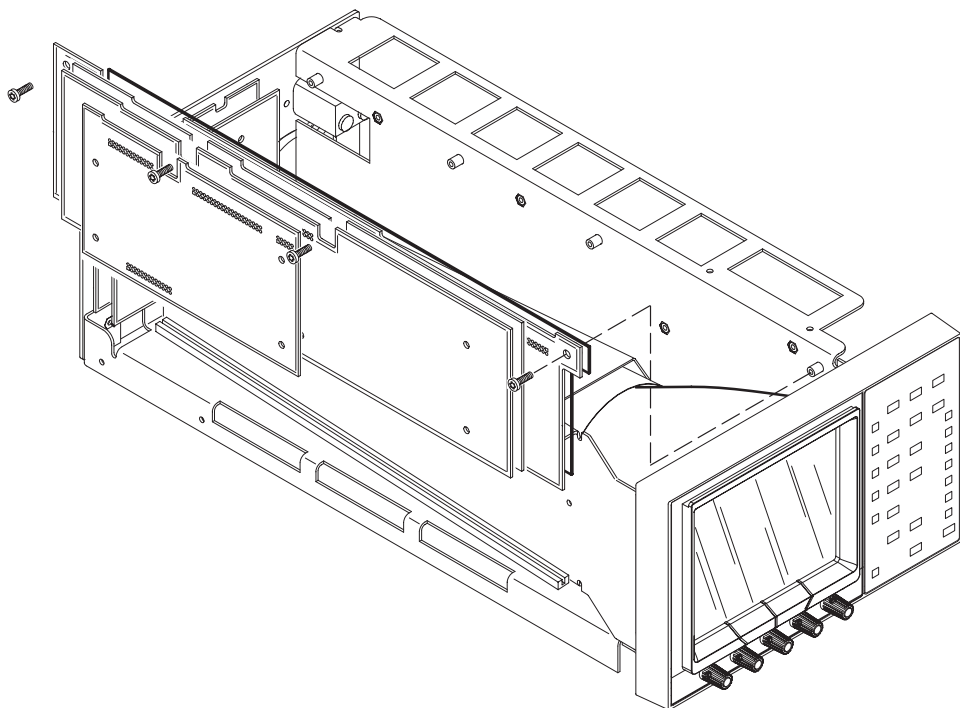


Figure 6–15: Securing the Component, Coprocessor, and DAC Board

4. Pull out the three-circuit-board module.
5. Separate the Component, Coprocessor, and Digital-to-Analog (DAC) circuit boards:
 - a. Remove the plugs from A8J11, A6J1, A6J2, A6J7, and A6J8. See Figure 6–14.
 - b. Use a $\frac{5}{16}$ -inch nut driver or box end wrench to remove the four nuts securing the Coprocessor board to the Component and DAC circuit boards. See Figure 6–16.

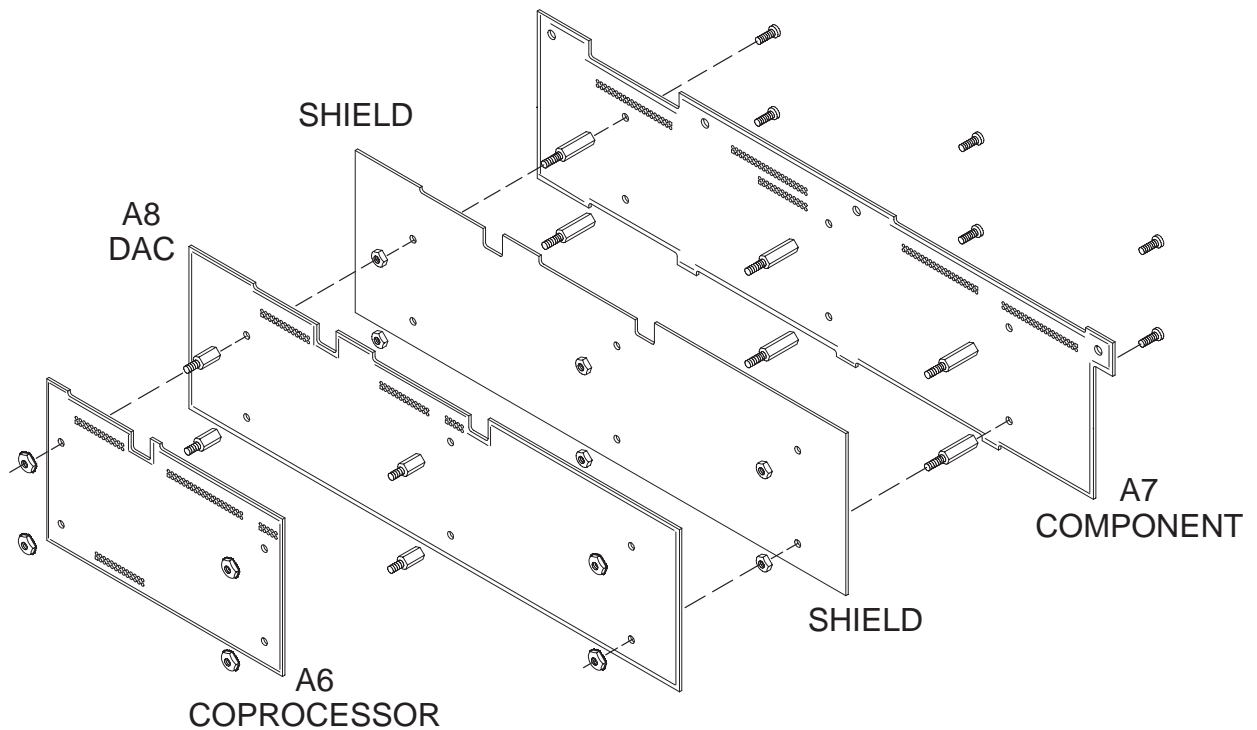


Figure 6-16: Separating the Component, Coprocessor, and DAC Boards

- c. Remove the plug from A8J10.
 - d. Use a $\frac{5}{16}$ -inch nut driver or box end wrench to remove the four stand offs and two nuts securing the DAC circuit board.
 - e. Use a $\frac{5}{16}$ -inch nut driver or box end wrench to remove the six nuts securing the shield to the Component circuit board.
 - f. To reassemble reverse the procedure by performing steps e. through a. in reverse order, substituting replace for remove.
6. To reinstall the circuit boards reverse steps 4 through 1.

Installing Software

The versatility of these monitors allows them to be upgraded to perform additional measurements or to revise operations. Software code is contained in Flash EPROM that can be written over when upgrades become available.

In addition, if the Flash EPROM is replaced, it becomes essential to reinstall the software from the software floppy disk accompanying this manual.

If an upgrade is anticipated, it is essential to know the version of software resident in the instrument. The current version of software can be found by entering the CONFIG menu and going to the CALIBRATE submenu. The version number, preceded by the letter V, is displayed in the lower right corner of the screen.

Software Disk

The software disk is a 3.5" (1.44MB) high-density disk. It contains all programs necessary to reload the operating software in the Tektronix WFM 601i to its current software version. If a disk drive other than 3.5" is to be used, have the contents of the disk copied to the desired size disk or to a hard disk directory. The disk contents are:

- NVSAVE.EXE Saves calibration constants and user presets.
- UPGRADE.EXE Performs software upgrade.
- NVRESTOR.EXE Restores calibration constants and user presets.
- SOFTWARE.BIN Data file used by UPGRADE.EXE.

Equipment Required to Perform Software Installation

IBM Compatible PC with the following:
DOS 3.3 or higher operating system.
640 K Bytes Random-Access Memory (RAM).
High-density Floppy Drive (3.5"/1.44 MB).
Available RS-232 Port (COM 1, 2, 3, or 4).

RS-232 cable to connect PC to the WFM 601i RS-232 connector.

Instrument Reset

Certain conditions, such as removing the power source while a program is running, may cause the WFM 601i front-panel controls to become locked.

Reset as follows:

Turn off instrument power, then depress CLEAR MENU and WAVEFORM, holding in both buttons until you have turned instrument power on again and the instrument has returned to its normal operating state.



CAUTION. Loading new software will result in loss of instrument calibration constants and user presets. Therefore, the program **NVSAVE** must be run before executing **UPGRADE**.



CAUTION. If a disk is used to upgrade more than one instrument, finish one upgrade, including the **NVRESTOR** program, before running **NVSAVE** on the next instrument. **NVSAVE** will overwrite the temporary files on the disk every time it is run; any previous files will be lost.



CAUTION. The programs are designed to read or create their respective files in the current DOS directory. If you choose to copy these files to a hard drive, be sure to run them from the directory in which they are contained.



CAUTION. The instrument cannot be used during execution of any of the programs on this disk. If the operation of any of these programs is interrupted, that program must be rerun from the beginning to ensure a proper upgrade.

Procedure for Loading Software

PC Hookup Connect the WFM 601i rear-panel RS-232 connector to the COM 1, 2, 3, or 4 connector on the PC, as shown in Figure 6–17, Figure 6–18, or Figure 6–19. If pins two and three (RXD and TXD) are swapped, as in some MODEM connections, the upgrade will not operate.

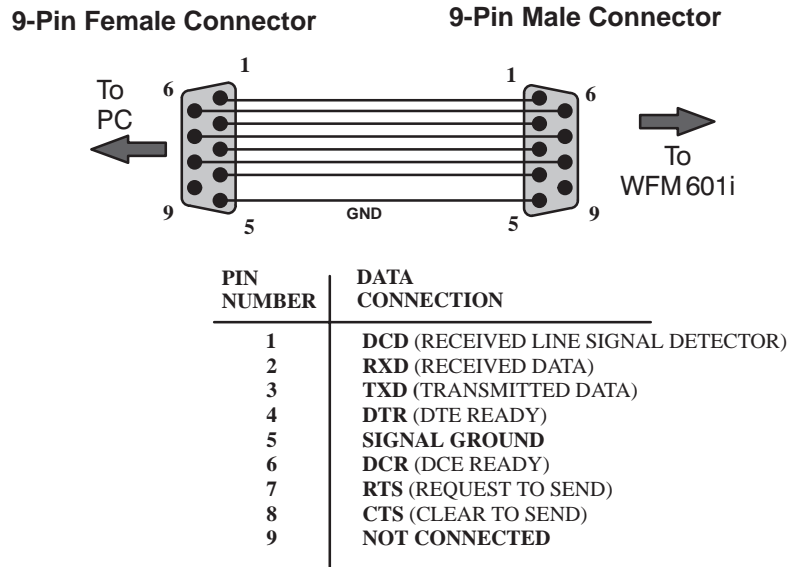


Figure 6-17: Hookup for 9-Pin PC Connector

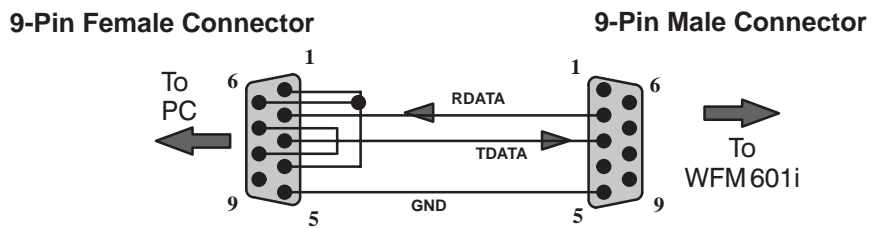


Figure 6-18: Alternate Hookup for 9-Pin PC Connector

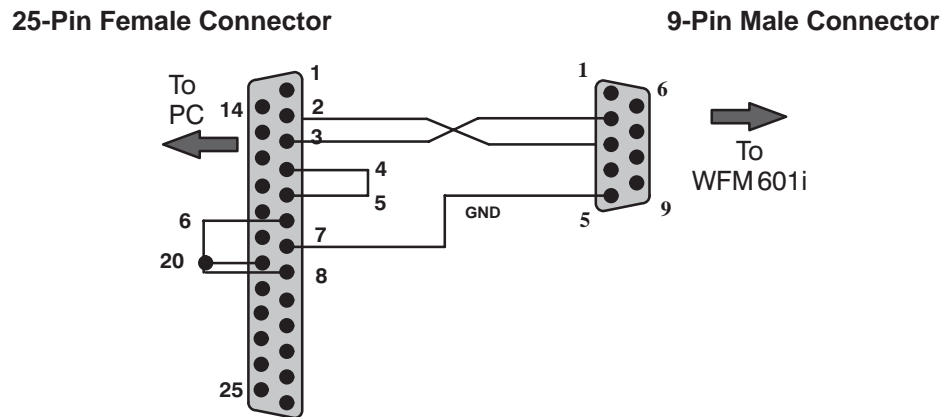


Figure 6–19: Wiring Adapter for PC with 25-Pin Connector

**1. Run NVSAVE
(Execution time <1 minute)**

- a. Turn on the WFM601i.

NOTE. *PC Floppy Drive or Hard Disk*

On PCs the drive letter for the floppy, or hard disk drive, may be A, B, etc. Enter the appropriate letter for your floppy drive in the following steps. If the disk contents were copied to a hard disk directory, run the programs from that directory.

- b. Insert disk into PC 3.5 inch floppy drive.



CAUTION. *The disk is not write protected in order to execute “NV SAVE”.
Do not place in write protect mode.*

- c. At the DOS prompt, type “**B:**” and ENTER.
- d. Type “**NVSAVE**” and ENTER. When asked for the COM port, respond with the number of the port you are using. (If you enter an incorrect port number, you will be prompted to try again.)
- e. Wait for the message that the program execution is completed.
- f. Note: This program stores the following temporary files on the floppy disk: **CALS.TMP** (calibration constants), **PRESET.CUR** (instrument’s

current front-panel setup), **PRESET.001–009** (user-defined presets), and **PRESET.FCT** (factory-defined preset).

2. Prepare Waveform Monitor for Upgrade

- a. Turn instrument power to STANDBY.



WARNING. When power is supplied, line voltage will be present in the instrument, even if the POWER switch is set to STANDBY.

- b. Move the plug jumper on J4 (Main board) to pins 1 and 2 (the pins closest to U14).
- c. Set switch 4 of SW1 to the open position. (SW1 is the red switch on the Main board, near the front of the instrument.)
- d. Turn on the instrument and allow it to boot (wait a few moments until the WFM 601i CRT and front-panel LEDs are illuminated as for normal operation).

3. Run UPGRADE (Execution time ≈12 minutes)

NOTE. If a power loss to either the PC or the WFM 601i occurs during execution of the software loading, the instrument may lock up and not restart normally. A special recovery procedure can be found on page 6–39, should this problem occur.

- a. Be sure that **NVSAVE** was executed (step 1).
- b. At the DOS prompt, type “**A:**” and ENTER.
- c. Type “**UPGRADE**” and ENTER. When asked for the COM port, respond with the number of the connector you are using.
- d. Wait for the message that the program execution is completed.
- e. Turn off the WFM 601i instrument power.
- f. Return the plug jumper to pins 2 and 3, and return #4 of SW1 to the closed state.
- g. Turn on instrument power to enable the new software.

4. Run NVRESTOR (Execution time <1 minute)

- a. At the DOS prompt, type “**A:**” and ENTER.

- b. Type “**NVRESTOR**” and ENTER. When asked for the COM port, respond with the number of the port you are using.
- c. Wait for the message that the program execution is completed.
- d. Verify that step 3f has been performed.
- e. This completes the Software Upgrade Procedure.

Recovery Procedure for Power Loss During Software Loading

If there is a power failure to either the instrument or the PC during the loading of the software, the following recovery procedure is necessary.

1. Turn the WFM 601i front-panel POWER switch to STANDBY.
2. Start the PC upgrade procedure program and proceed through the menus until the SELECT COM PORT menu is on the screen.
3. Type in the number of the COM PORT, but ***do not*** press the RETURN.
4. Turn the WFM 601i front-panel POWER switch to ON.
5. Within six seconds, press RETURN on the PC.

Repackaging

Identification Tag

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

- Owner (with complete address) and the name of the person at your firm that can be contacted.
- Instrument serial number and a description of the service required.

Repackaging for Shipment

Repackage the instrument in the original manner to provide adequate protection (see Figure 6–20). If the original packaging is not available or is unfit for use, repackage the instrument as follows:

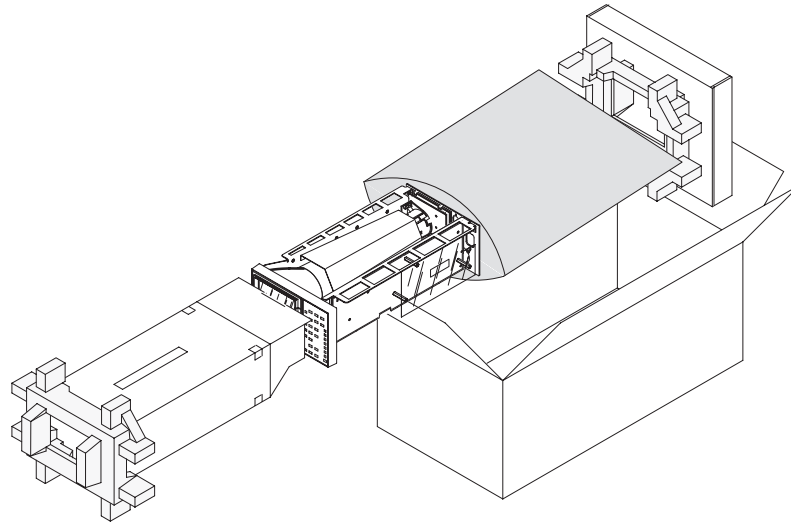


Figure 6–20: Repackaging a WFM 601i

- 1.** Obtain a corrugated cardboard carton whose inside dimensions are at least six inches greater than the dimensions of the instrument to allow room for cushioning. The shipping carton should have a test strength of at least 275 pounds.
- 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. Allow three inches on all sides for cushioning.
- 4.** Seal the carton with shipping tape or an industrial stapler.



Options

Options

Orderable Options

All three instruments of this series are orderable with an A option to accommodate the various national electrical power connections. A number of field upgrade kits, to add cabinets, are available also. See “Cabinets” for more information.

Applicable Options

Options and Field Upgrades for this instrument include:

- Option A1 through A5 (Power Cords)
- 1700F00 Cabinet
- 1700F02 Portable Cabinet
- 1700F05 19-inch rack adapter
- 1700F06 Blank Panel for use with 1700F05
- 1700F07 Utility Drawer for use with 1700F05

Power Cord Options

Any of the following power cord options can be ordered for the WFM 601i. If no power cord option is ordered, instruments are shipped with a North American 125 V power cord.

Table 7-1: Power Plugs Available for These Instruments

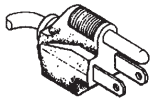
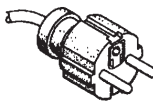
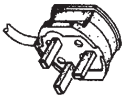

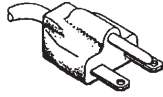
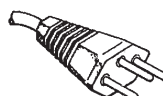
Power Plug	Description
	Standard 120 V Three-prong power plug, on a 2.5 meter long power cord, for use with common ground systems in North America.
	Option A1 Universal Europe 220 V/16 A Locking Power Plug, on a 2.5 meter long power cord.

Table 7-1: Power Plugs Available for These Instruments (Cont.)

Power Plug	Description
	Option A2 United Kingdom 240 V/15 A Power Plug, on a 2.5 meter long power cord.
	Option A3 Australian 240 V/10 A Power Plug, on a 2.5 meter long power cord.
	Option A4 North American 250 V/18 A Power Plug, on a 2.5 meter long power cord.
	Option A5 Swiss 240 V/6 A Power Plug, on a 2.5 meter long power cord.

Unless otherwise specified, power cords for use in North America are UL listed and CSA certified. Cords for use in areas other than North America are approved by at least one test house acceptable in the country to which the product is shipped. Power cord part numbers are shown on the “Accessories” pull-out.

Cabinets

All of the Safety and EMI tests used to qualify the WFM 601i were performed in a cabinet. There are two optional cabinets and a dual rack adapter available for the installation of these instruments. Only a brief description is provided here; for more information contact a Tektronix field office or distributor.

Plain Cabinet (1700F00)

This is a plain, silver-gray cabinet that is designed for permanent mounting. See Figure 7-1. The pattern of ventilating holes in top, bottom, and sides provides adequate air circulation for any heat generated within the instrument. When being permanently mounted, care must be taken to allow the free circulation of

air to and from these ventilating holes. A dimensional drawing of this cabinet, that can be used as an installation guide is located in “Installation.”

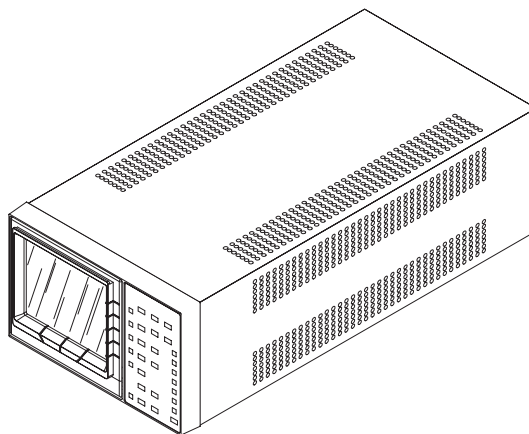


Figure 7-1: The 1700F00 Metal Cabinet

Carrying Case (1700F02)

This is a gray, metal cabinet, with feet, front elevating bail, and carrying handle designed for portable applications. See Figure 7-2.

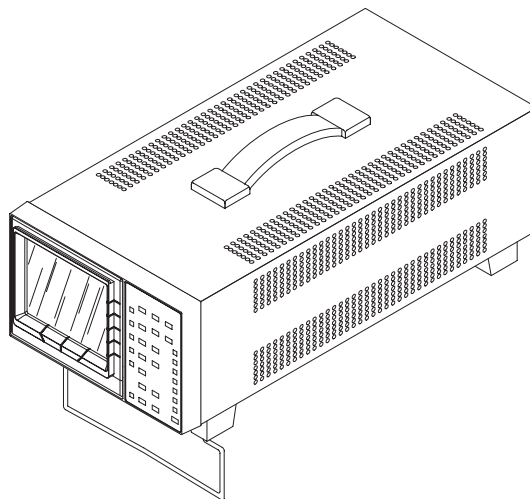


Figure 7-2: The 1700F02 Portable Carrying Case

Side-by-Side Rack Adapter (1700F05)

This is a 19-inch, rackmounting adapter that accepts two 1700-Series instruments in a side-by-side configuration. See Figure 7-3. These instrument cabinets are similar to the 1700F00 that are connected together for this installation.

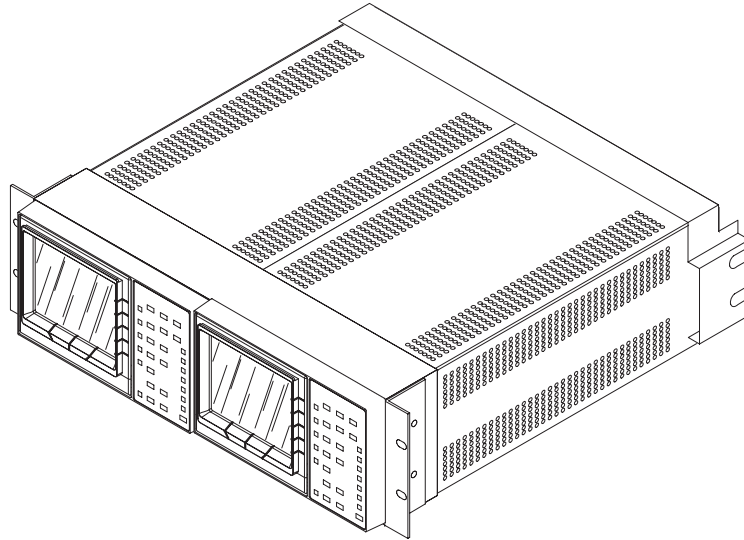


Figure 7-3: A 1700F05 with Two Half-rack Instruments

Blank Panel (1700F06)

If only one 1700-Series instrument is to be installed in the Side-by-Side Rack Adapter, a blank panel (1700F06) can be installed for air flow protection and appearance. See Figure 7-4.

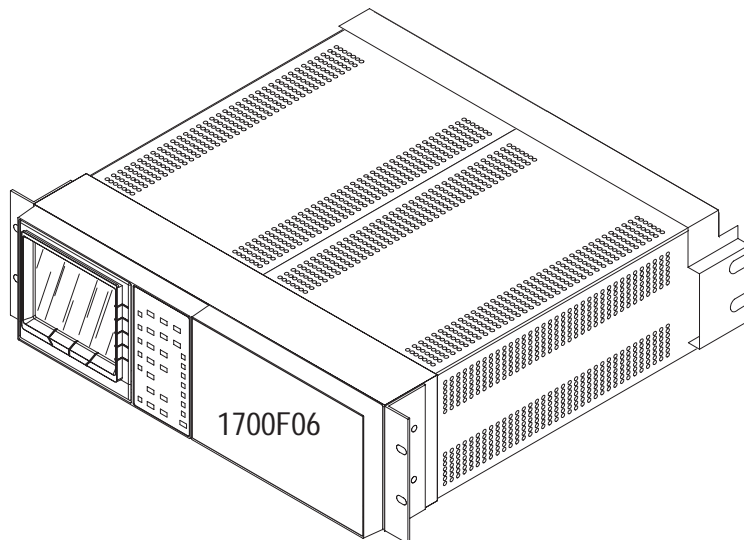


Figure 7-4: A 1700F05 with a Blank Front Panel (1700F06)

Utility Drawer (1700F07)

When only one side of a dual rack adapter is used, an alternate to the blank panel is the 1700F07 utility drawer. See Figure 7-5. This drawer provides over $\frac{1}{3}$ -cubic foot of accessory storage. The drawer kit includes a permanently mounted tray.

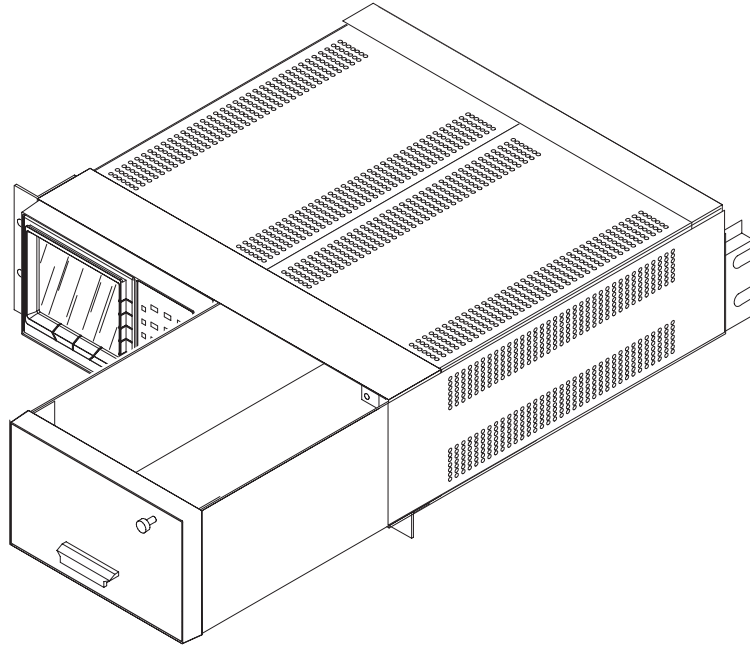


Figure 7-5: 1700F05 Rackmounting with a 1700F07 Utility Drawer

Ordering

Any of these items can be ordered with the WFM 601i Serial Component Monitor. In addition, these items are available, along with accessory items listed in this manual, from your nearest Tektronix field office or distributor. Be sure to include both the name and number of any Field Upgrade Kits ordered.



Replaceable Electrical Parts

Replaceable Electrical Parts

This section contains a list of the components that are replaceable for the WFM 601i. Use this list to identify and order replacement parts. There is a separate Replaceable Electrical Parts list for each instrument.

Parts Ordering Information

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

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest circuit improvements. Therefore, when ordering parts, it is important to include the following information in your order.

- Part number
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

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

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

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 replaceable parts.

Cross Index–Mfr. Code Number to Manufacturer

The Mfg. Code Number to Manufacturer Cross Index for the electrical parts list is located immediately after this page. The cross index provides codes, names, and addresses of manufacturers of components listed in the electrical parts list.

Abbreviations

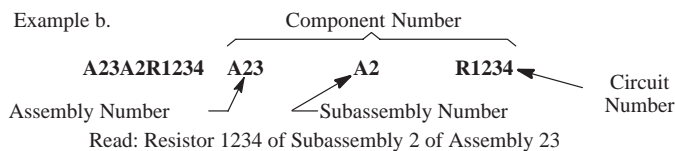
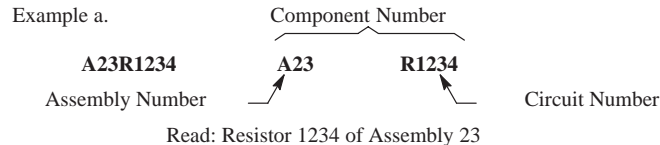
Abbreviations conform to American National Standards Institute (ANSI) standard Y1.1.

List of Assemblies

A list of assemblies can be found at the beginning of the electrical parts list. The assemblies are listed in numerical order. When the complete component number of a part is known, this list will identify the assembly in which the part is located.

Column Descriptions

Component No. (Column 1) The component circuit number appears on the diagrams and circuit board illustrations, located in the diagrams section. Assembly numbers are also marked on each diagram and circuit board illustration, in the Diagram section and on the mechanical exploded views, in the mechanical parts list. The component number is obtained by adding the assembly number prefix to the circuit number.



The electrical parts list is arranged by assemblies in numerical sequence (A1, with its subassemblies and parts, precedes A2, with its subassemblies and parts).

Mechanical subparts to the circuit boards are listed in the electrical parts list. These mechanical subparts are listed with their associated electrical part (for example, fuse holder follows fuse).

Chassis-mounted parts and cable assemblies have no assembly number prefix and are located at the end of the electrical parts list.

Tektronix Part No. (Column 2) Indicates part number to be used when ordering replacement part from Tektronix.

Serial/Assembly No. (Column 3 and 4) Column three (3) indicates the serial or assembly number at which the part was first used. Column four (4) indicates the serial or assembly number at which the part was removed. No serial or assembly number entered indicates part is good for all serial numbers.

Name and Description (Column 5) 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.

The mechanical subparts are shown as *ATTACHED PARTS* / *END ATTACHED PARTS* or *MOUNTING PARTS* / *END MOUNTING PARTS* in column five (5).

Mfr. Code (Column 6) Indicates the code number of the actual manufacturer of the part. (Code to name and address cross reference can be found immediately after this page.)

Mfr. Part No. (Column 7) Indicates actual manufacturer's part number.

Cross Index – Mfr. Code Number To Manufacturer

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
S4246	JAPAN SERVO CO LTD	7 KANDA MITOSHIRO-CHO CHIYODA-KU	TOKYO JAPAN
TK0AN	TOKO INC	18 OHAZAGOMIGAYA TSURUGASHIMA-CHO IRUMA-KGUN	SAITAMA JAPAN
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK0515	EVOX-RIFA INC	100 TRI-STATE INTERNATIONAL SUITE 290	LINCOLNSHIRE IL 60015
TK0860	LABEL GRAPHICS	6700 SW BRADBURY CT	PORTLAND OR 97224
TK0891	MICONICS	1 FAIRCHILD AVE	PLAINVIEW NY 11803
TK1146	MITSUBISHI ELECTRONICS	1050 E ARQUES AVENUE	SUNNYVALE CA 94086
TK1181	SEA-TAC INDUSTRIES INC	1217 FOURTH AVE N	KENT WA 98031
TK1386	PYRAMID ELECTRONICS SUPPLY INC	9757 JUANITA DRIVE NE	KIRKLAND WA 98034
TK1462	YAMAICHI ELECTRONICS CO LTD 2ND FLOOR NEW KYOEI BLDG 17-11	3-CHROME SHIBAURA MINATO-KU	TOKYO JAPAN
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
TK1913	WIMA THE INTER-TECHNICAL GROUP IND	2269 SAW MILL RIVER ROAD PO BOX 127	ELMSFORD NY 10523
TK2058	TDK CORPORATION OF AMERICA	1600 FEEHANVILLE DRIVE	MOUNT PROSPECT, IL 60056
TK2073	TOKYO AMERICA INC	565 W GULF ROAD	ARLINGTON HEIGHTS IL 60005
TK2096	KELVIN ASSOCIATES	14724 VENTURA BLVD SUITE 1003	SHERMAN OAKS CA 91403-3501
TK2441	INTERNATIONAL MICROELECTRONICS PROD- UCTS INC	2830 NORTH 1ST STREET	SAN JOSE CA 95134-5134
TK2453	TOKO AMERICA, INC GREG GASPAROVIC	2480 NORTH 1ST STREET, SUITE 260	SAN JOSE, CA 95131-1014
TK2469	UNITREK CORPORATION	3000 LEWIS & CLARK WAY SUITE #2	VANCOUVER WA 98601
TK2540	SONY CORPORATION OF AMERICA COMPONENT PRODUCTS DIVISION SEMICONDUCTOR DIVISION	10833 VALLEY VIEW STREET	CYPRESS CA 90630-0016
TK2598	MAXIM - ASIC	14150 SW KARL BRAUN DRIVE	BEAVERTON, OR 97077
0B0A9	DALLAS SEMICONDUCTOR CORP	4350 BELTWOOD PKWY SOUTH	DALLAS TX 75244
0GV52	SCHAFFNER EMC INC	9-B FADEM ROAD	SPRINGFIELD, NJ 07081
0GZV8	HUBER AND SUHNER INC	ONE ALLEN MARTIN DRIVE	EXXEX VT 05451
0H1N5	TOSHIBA MARCON ELECTRONICS AMERICA CORPORATION	998 FIRST EDGE DRIVE	VERNON HILLS IL 60061
0JR03	ZMAN MAGNETICS INC	7633 S 180th	KENT WA 98032
0JR04	TOSHIBA AMERICA INC ELECTRONICS COMPONENTS DIV	9775 TOLEDO WAY	IRVINE CA 92718
0J260	COMTEK MANUFACTURING OF OREGON (METALS)	PO BOX 4200	BEAVERTON OR 97076-4200
0J9R2	HARISON ELECTRIC CO LTD	ASAHIMACHI 5-CHOME IMABARI	EHIME JAPAN
0LUA3	PHILIPS COMPONENTS	100 PROVIDENCE PIKE	SLATERSVILLE, RI 02876
0MS63	QUALITY TECHNOLOGIES CORP	610 N MARY AVENUE	SUNNYVALE CA 94086

Replaceable Electrical Parts

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
00779	AMP INC	2800 FULLING MILL PO BOX 3608	HARRISBURG PA 17105
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPY PO BOX 655303	DALLAS TX 75262-5303
02113	COILCRAFT INC	1102 SILVER LAKE RD	CARY IL 60013-1658
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
05292	ITT COMPONENTS DIV		CLIFTON NJ
09023	CORNELL-DUBILIER ELECTRONICS DIV FEDERAL PACIFIC ELECTRIC CO	2652 DALRYMPLE ST	SANFORD NC 27330
09922	BURNDY CORP	1 RICHARDS AVE	NORWALK CT 06856
09969	DALE ELECTRONICS INC	EAST HIGHWAY 50 P O BOX 180	YANKTON SD 57078
1CH66	PHILIPS SEMICONDUCTORS	811 E ARQUES AVENUE PO BOX 3409	SUNNYVALE CA 94088-3409
1ES66	MAXIM INTEGRATED PRODUCTS INC	120 SAN GABRIEL DRIVE	SUNNYVALE CA 94086
11236	CTS CORPORATION RESISTOR NETWORKS DIVISION	406 PARR ROAD	BERNE IN 46711-9506
11502	IRC, INC	PO BOX 1860	BOONE NC 28607-1860
12697	CLAROSTAT MFG CO INC	LOWER WASHINGTON ST	DOVER NH 03820
12969	MICROSEMI CORPORATION WATERTOWN DIVISION	530 PLEASANT STREET	WATERTOWN MA 02172
13103	THERMALLOY CO INC	2021 W VALLEY VIEW LN PO BOX 810839	DALLAS TX 75381
14301	ANDERSON ELECTRONICS INC	PO BOX 89	HOLLIDAYSBURG PA 16648-0089
14552	MICROSEMI CORP	2830 S FAIRVIEW ST	SANTA ANA CA 92704-5948
15454	KETEMA RODAN DIVISION	2900 BLUE STAR STREET	ANAHEIM CA 92806-2591
17554	AVX/KYOCERA CORP.	69 LANDRY ST AIRPORT INDUSTRIAL PARK	BIDDEFORD ME 04005-4319
17856	SILICONIX INC	2201 LAURELWOOD RD	SANTA CLARA CA 95054-1516
18796	MURATA ELECTRONICS NORTH AMERICA INC. STATE COLLEGE OPERATIONS	1900 W COLLEGE AVE	STATE COLLEGE PA 16801-2723
2K262	BOYD CORP	6136 NE 87th AVE PO BOX 20038	PORTLAND OR 97220
22526	BERG ELECTRONICS INC (DUPONT)	857 OLD TRAIL RD	ETTERS PA 17319
24355	ANALOG DEVICES INC	1 TECHNOLOGY DRIVE	NORWOOD MA 02062
24546	DALE ELECTRONICS A VISHAY INTERTECHNOLOGY INC CO	550 HIGH ST	BRADFORD PA 16701-3737
24931	SPECIALTY CONNECTOR CO INC	2100 EARLYWOOD DR PO BOX 547	FRANKLIN IN 46131
26364	COMPONENTS CORP	6 KINSEY PLACE	DENVILLE NJ 07834-2611
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051-0606
32997	BOURNS INC TRIMPOT DIV	1200 COLUMBIA AVE	RIVERSIDE CA 92507-2114
34335	ADVANCED MICRO DEVICES	901 THOMPSON PL PO BOX 3453	SUNNYVALE CA 94086-3413
44648	SAMSUNG SEMICONDUCTOR INC	3725 N FIRST STREET	SAN JOSE CA 95134-1708

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
48726	UNITRODE INTEGRATED CIRCUITS CORP (UICC)	7 CONTINENTAL BLVD PO BOX 399	MERRIMACK NH 03054-0399
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
51406	MURATA ELECTRONICS NORTH AMERICA INC HEADQUARTERS AND GEORGIA OPERATIONS	2200 LAKE PARK DR	SMYRNA GA 30080
52769	SPRAGUE-GOODMAN ELECTRONICS INC	134 FULTON AVE	GARDEN CITY PARK NY 11040-5352
53387	3M COMPANY ELECTRONIC PRODUCTS DIV	3M AUSTIN CENTER	AUSTIN TX 78769-2963
54893	HEWLETT PACKARD MICROWAVE SEMICONDUCTOR DIVISION	350 TRIMBLE	SAN JOSE CA 95131-1008
55335	JKL COMPONENTS CORP	13343 PAXTON STREET	PACOIMA CA 91331
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
58050	TEKA PRODUCTS INC	45 SALEM ST	PROVIDENCE RI 02907
59660	TUSONIX INC	7741 N BUSINESS PARK DR PO BOX 37144	TUCSON AZ 85740-7144
60705	CERA-MITE CORPORATION	1327 6TH AVE	GRAFTON WI 53024-1831
61058	MATSUSHITA ELECTRIC CORP OF AMERICA PANASONIC INDUSTRIAL CO DIV	TWO PANASONIC WAY	SECAUCUS NJ 07094
61429	FOX ELECTRONICS DIV OF FOX ELECTRONICS INC	5842 CORPORATION CIRCLE	FOR MEYERS FL 33905
61529	AROMAT CORP	629 CENTRAL AVE	NEW PROVIDENCE NJ 07974
62104	CALIFORNIA EASTERN LABORATORIES INC	4590 PATRICK HENRY DR	SANTA CLARA CA 95054-3309
62643	UNITED CHEMICON INC	9801 W HIGGINS ST SUITE 430	ROSEMONT, IL 60018-4771
62839	COMLINEAR CORP	4800 WHEATON DR PO BOX 20600	FT COLLINS CO 80525
63058	MCKENZIE TECHNOLOGY	910 PAGE AVENUE	FREMONT CA 94538
63791	STAR MICRONICS INC	200 PARK AVE SUITE 2308	NEW YORK NY 10166-0001
64762	ELANTEC INC	1996 TAROB COURT	MILPITAS CA 95035-6824
66958	SGS THOMSON MICROELECTRONICS	1000 E BELL RD	PHOENIX AZ 85022-2649
68994	XILINX INC	2100 LOGIC DRIVE	SAN JOSE CA 95124
71400	BUSSMANN DIV OF COOPER INDUSTRIES INC	114 OLD STATE RD PO BOX 14460	ST LOUIS MO 63178
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
75042	IRC ELECTRONIC COMPONENTS PHILADELPHIA DIV TRW FIXED RESISTORS	401 N BROAD ST	PHILADELPHIA PA 19108-1001
75498	MULTICOMP INC	3005 SW 154TH TERRACE #3	BEAVERTON OR 97006
75915	LITTELFUSE TRACOR INC SUB OF TRACOR INC	800 E NORTHWEST HWY	DES PLAINES IL 60016-3049
76493	BELL INDUSTRIES INC JW MILLER DIV	306 E ALONDRA BLVD PO BOX 2859	GARDENA, CA 90247-1059

Replaceable Electrical Parts

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001
81073	GRAYHILL INC	561 HILLGROVE AVE PO BOX 10373	LA GRANGE IL 60525-5914
83701	ELECTRONIC DEVICES INC	21 GREY OAKS AVE	YONKERS NY 10710-3205
9Z527	VTC INC	2800 EAST OLD SHAKOPEE ROAD	BLOOMINGTON MN 55245
91637	DALE ELECTRONICS INC	2064 12TH AVE PO BOX 609	COLUMBUS NE 68601-3632
95263	LIGHTING COMPONENTS AND DESIGN INC.	3800 SOUTH CONGRESS AVE.	BOYNTON BEACH, FL 33426

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1	671-2939-04			CIRCUIT BD ASSY:POWER SUPPLY	80009	671293904
A2	671-3164-00			CIRCUIT BD ASSY:FRONT PANEL	80009	671316400
A3	671-3155-00	B010100	B010312	CIRCUIT BD ASSY:MAIN	80009	671315500
A3	671-3155-01	B010313		CIRCUIT BD ASSY:MAIN	80009	671315501
A4	672-0332-00			CIRCUIT BD ASSY:BNC INPUT ASSEMBLY,WFM601i	80009	672033200
AAA1	-----			CIRCUIT BD ASSY:BNC		
A5	671-3161-00			CIRCUIT BD ASSY:DESERIALIZER	80009	671316100
A6	671-3235-00			CIRCUIT BD ASSY:CPOROCESSOR	80009	671323500
A7	671-3156-00			CIRCUIT BD ASSY:COMPONENT	80009	671315600
A8	671-2676-03			CIRCUIT BD ASSY:DAC	80009	671267603
A9	671-3160-00	B010100	B010322	CIRCUIT BD ASSY:EYE PATTERN	80009	671316000
A9	671-3160-01	B010323		CIRCUIT BD ASSY:EYE PATTERN	80009	671316001
A1	671-2939-04			CIRCUIT BD ASSY:POWER SUPPLY	80009	671293904
A1C1	283-0429-00			CAP,FXD,CER DI:270PF,20%,2000V	18796	DHR12-Z5U271M-2
A1C2	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C3	283-0021-00			CAP,FXD,CER DI:0.001UF,20%,5000V	TK2058	TCK45YS3H102M-A
A1C4	283-0639-01			CAP,FXD,MICA DI:56PF,1%,500V,TAPE & AMMO PACK	09023	CDA15ED560F03
A1C5	283-0339-01			CAP,FXD,CERAMIC:MLC:0.22UF,10%,50V,X7R,0.300 X 0.300	TK2058	FK22X7R1H224K-T
A1C6	283-0261-00			CAP,FXD,CER DI:0.01UF,20%,4000V	18796	DHR28Z5U103M4KV
A1C7	283-0261-00			CAP,FXD,CER DI:0.01UF,20%,4000V	18796	DHR28Z5U103M4KV
A1C8	283-0261-00			CAP,FXD,CER DI:0.01UF,20%,4000V	18796	DHR28Z5U103M4KV
A1C9	285-1341-01			CAP,FXD,MTLZD:0.1UF,20%,100VDC,TAPE & AMMO PACK	TK1913	MKS 2 0.1UF 20%
A1C10	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C11	283-0000-04			CAP,FXD,CER DI:0.001UF,+100-OX,500V	18796	DD05-90HAY5U102
A1C12	283-0021-00			CAP,FXD,CER DI:0.001UF,20%,5000V	TK2058	TCK45YS3H102M-A
A1C13	283-0189-00			CAP,FXD,CER DI:0.1UF,20%,400V	04222	SR508C104MAA
A1C14	285-1341-01			CAP,FXD,MTLZD:0.1UF,20%,100VDC,TAPE & AMMO PACK	TK1913	MKS 2 0.1UF 20%
A1C15	290-1277-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=19.89 OHM (120HZ,20C),5MM X 11MM	0H1N5	CEUSM1H100-E
A1C16	283-0084-02			CAP,FXD,CER DI:270PF,5%,1000V,DISC,T&A	60705	562CRE102EF271J
A1C17	285-1341-01			CAP,FXD,MTLZD:0.1UF,20%,100VDC,TAPE & AMMO PACK	TK1913	MKS 2 0.1UF 20%
A1C18	283-0189-00			CAP,FXD,CER DI:0.1UF,20%,400V	04222	SR508C104MAA
A1C19	285-1341-01			CAP,FXD,MTLZD:0.1UF,20%,100VDC,TAPE & AMMO PACK	TK1913	MKS 2 0.1UF 20%
A1C20	283-0189-00			CAP,FXD,CER DI:0.1UF,20%,400V	04222	SR508C104MAA
A1C21	290-1277-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=19.89 OHM (120HZ,20C),5MM X 11MM	0H1N5	CEUSM1H100-E
A1C22	290-0939-00			CAP,FXD,ELCTL:10UF,+100-10%,100V	62643	LX100VB10RM10X2
A1C23	285-1189-00			CAP,FXD,MTLZD:0.1 UF,5%,100 V	05292	PMT 3R .1J 100
A1C24	285-1328-00			CAP,FXD,PLASTIC:METALIZED FILM;0.01UF,5%,2000V, POLYPROPYLENE, 1.25X.95	TK1913	FKP1 .01/2000/5
A1C25	290-1310-00			CAP,FXD,ALUM:10UF,20%,160V,ESR=24.9 OHM(120HZ,20C), LS=0.200 INCH,13X20MM,150C,5000HRS	0H1N5	CEJSM2C100M
A1C26	290-1277-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=19.89 OHM (120HZ,20C),5MM X 11MM	0H1N5	CEUSM1H100-E
A1C27	283-0339-01			CAP,FXD,CERAMIC:MLC:0.22UF,10%,50V,X7R,0.300 X 0.300	TK2058	FK22X7R1H224K-T
A1C28	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C29	290-1301-00			CAP,FXD,AL:2700UF,20%,10V,12.5 X 30MM(0.492 X 1.180)	0H1N5	CEEFM1A272M7
A1C30	290-1310-00			CAP,FXD,ALUM:10UF,20%,160V,ESR=24.9 OHM(120HZ,20C), LS=0.200 INCH,13X20MM,150C,5000HRS	0H1N5	CEJSM2C100M
A1C31	290-1302-00			CAP,FXD,AL:1000UF,20%,35V,12.5 X 30MM(0.492 X 1.180)	0H1N5	CEEFM1V102M7
A1C32	290-1309-00			CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,LOW Z,T&A	0H1N5	CEEFM1J101M6-T4
A1C33	290-1309-00			CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,LOW Z,T&A	0H1N5	CEEFM1J101M6-T4

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1C34	290-1309-00			CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,LOW Z,T&A	0H1N5	CEEFM1J101M6-T4
A1C35	290-1301-00			CAP,FXD,AL:2700UF,20%,10V,12.5 X 30MM(0.492 X 1.180)	0H1N5	CEEFM1A272M7
A1C36	290-1301-00			CAP,FXD,AL:2700UF,20%,10V,12.5 X 30MM(0.492 X 1.180)	0H1N5	CEEFM1A272M7
A1C37	290-1309-00			CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,LOW Z,T&A	0H1N5	CEEFM1J101M6-T4
A1C38	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C40	290-1309-00			CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,LOW Z,T&A	0H1N5	CEEFM1J101M6-T4
A1C41	290-1302-00			CAP,FXD,AL:1000UF,20%,35V,12.5 X 30MM(0.492 X 1.180)	0H1N5	CEEFM1V102M7
A1C42	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A1C43	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C44	285-1420-00			CAP,FXD,PLASTIC:FILM&FOIL:4700PF,63V,5%,POLYPROPYLENE,6X7.2MM,RDL,5 MM LS	TK1913	FKP2 4700/63/5
A1C45	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C47	281-0813-00			CAP,FXD,CERAMIC:MLC:0.047UF,20%,50V,0.100 X	04222	SA105E473MAA
A1C48	283-0111-04			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SR595C104MAAAP1
A1C49	281-0813-00			CAP,FXD,CERAMIC:MLC:0.047UF,20%,50V,0.100 X	04222	SA105E473MAA
A1C51	285-1329-00			CAP,FXD,PLASTIC:METALIZED FILM:680PF,10%,1600V,POLYPROPYLENE,.70X.43	TK1913	FKP1 680/1600/1
A1C52	285-1331-00			CAP,FXD,MTLZD:0.47UF,5%,400V	TK1913	MKS4 .47/400/5
A1C53	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A1C55	281-0786-00			CAP,FXD,CERAMIC:MLC:150PF,10%,100V,0.100 X0.170	04222	SA101A151KAA
A1C56	290-1315-00			CAP,FXD,ALUM:47UF,20%,35V,ESR=0.34 OHM(100KHZ,20C),6X11MM,LOW IMP	55680	UPL1V470MEH1TD
A1C58	290-1264-00			CAP,FXD,ELCTLT:0.047F,-20%/+80%,5.5V,0.53OD	61058	PANASONIC EECF5
A1C59	285-1470-00			CAP,FXD,PLASTIC:METALIZED FILM:330PF,1600VDC/500VAC,POLYPROPYLENE,11 X18	TK1913	FKP1 330/1600/5
A1C60	285-1420-00			CAP,FXD,PLASTIC:FILM&FOIL:4700PF,63V,5%,POLYPROPYLENE,6X7.2MM,RDL,5 MM LS	TK1913	FKP2 4700/63/5
A1C61	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C62	290-1314-00			CAP,FXD,ALUM:330UF,20%,63V,ESR=0.049 OHM(100KHZ,20C),12.5X25MM,105C,LOW IMP	55680	UPL1J331MRH1TD
A1C63	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C64	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C65	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C66	285-1246-00			CAP,FXD,PPR DI:0.022UF,20%,250VAC	TK0515	PME 289 MB 5220
A1C67	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A1C68	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A1C69	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C70	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C71	290-1275-00			CAP,FXD,ALUM:330UF,20%,400V,35X35MM,105C	55680	LGQ2G331MHSC
A1C72	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A1C74	285-1246-00			CAP,FXD,PPR DI:0.022UF,20%,250VAC	TK0515	PME 289 MB 5220
A1C75	285-1222-00			CAP,FXD,PLASTIC:0.068UF,20%,250V	TK0515	PME 271 M 568
A1C76	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A1C77	283-0339-01			CAP,FXD,CERAMIC:MLC:0.22UF,10%,50V,X7R,0.300 X 0.300	TK2058	FK22X7R1H224K-T
A1C100	285-1222-00			CAP,FXD,PLASTIC:0.068UF,20%,250V	TK0515	PME 271 M 568
A1C101	281-0812-00			CAP,FXD,CERAMIC:MLC:1000PF,10%,100V,0.100 X	04222	SA101C102KAA
A1C102	290-1301-00			CAP,FXD,AL:2700UF,20%,10V,12.5 X 30MM(0.492 X 1.180)	0H1N5	CEEFM1A272M7
A1C103	281-0813-00			CAP,FXD,CERAMIC:MLC:0.047UF,20%,50V,0.100 X	04222	SA105E473MAA
A1C104	281-0767-00			CAP,FXD,CERAMIC:MLC:330PF,20%,100V,0.100 X0.170	04222	SA102C331MAA
A1F1	159-0021-00			FUSE,CARTRIDGE:3AG,2A,250V,FAST BLOW, *MOUNTING PARTS*	71400	AGC-2
	344-0326-00			CLIP,ELECTRICAL:FUSE,BRASS (QUANTITY 2) *END MOUNTING PARTS*	75915	102071

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1J1	131-5338-00			CONN,HDR:PCB;WIREWRAP;MALE,STR,1 X7,0.15 CTR,0.230 MLG X 0.285 TAIL,30 GOLD,SIDE BY SIDE STACKABLE	22526	65561-107
A1J2	131-5337-00			CONN,HDR:PCB;WIREWRAP;MALE,STR,1 X4,0.150CTR,0.230 MLG X 0.285 TAIL,30 GOLD,SIDE BYSIDE STACKABLE	22526	65561-104
A1J3	131-4794-00			CONN,HDR:PCB;MALE,STR,1 X 2,0.1 CTR,0.235	53387	2402-6112 UB
A1J4	131-3392-00			CONN,HDR:PCB;MALE,STR,1 X 10,0.1 CTR,0.230	00779	1-102844-1
A1J5	131-4794-00			CONN,HDR:PCB;MALE,STR,1 X 2,0.1 CTR,0.235	53387	2402-6112 UB
A1J6	131-4794-00			CONN,HDR:PCB;MALE,STR,1 X 2,0.1 CTR,0.235	53387	2402-6112 UB
A1J7	131-4794-00			CONN,HDR:PCB;MALE,STR,1 X 2,0.1 CTR,0.235	53387	2402-6112 UB
A1J9	131-4794-00			CONN,HDR:PCB;MALE,STR,1 X 2,0.1 CTR,0.235	53387	2402-6112 UB
A1L1	108-1262-00			IDCTR,FXD:POWER:100UH,10%,I<0.75A,RDC<0.23 OHM,Q>15,SRF>5.4MHZ	TK2058	TSL0807-101KR75
A1L2	108-1262-00			IDCTR,FXD:POWER:100UH,10%,I<0.75A,RDC<0.23 OHM,Q>15,SRF>5.4MHZ	TK2058	TSL0807-101KR75
A1L3	108-1412-00			IDCTR,FXD:POWER:4.7UH,20%,I<3.7A,RDC<0.017 OHM,Q>10,SRF>30MHZ	TK2058	TSL0807-4R7M3R0
A1L4	108-1411-00			IDCTR,FXD:POWER:47UH,10%,I<0.96A,RDC<0.17 OHM,Q>20,SRF>7.6MHZ	TK2058	TSL0707-470KR94
A1L5	108-1411-00			IDCTR,FXD:POWER:47UH,10%,I<0.96A,RDC<0.17 OHM,Q>20,SRF>7.6MHZ	TK2058	TSL0707-470KR94
A1L6	108-1411-00			IDCTR,FXD:POWER:47UH,10%,I<0.96A,RDC<0.17 OHM,Q>20,SRF>7.6MHZ	TK2058	TSL0707-470KR94
A1L7	108-1412-00			IDCTR,FXD:POWER:4.7UH,20%,I<3.7A,RDC<0.017 OHM,Q>10,SRF>30MHZ	TK2058	TSL0807-4R7M3R0
A1L8	108-0205-00			COIL,RF:IDCTR:FXD,1MH,+/-5%,DCR 2.12 OHMS, FERRITE CORE	76493	8209
A1P6	131-3199-00			CONN,SHUNT:SHUNT;FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A1P7	131-3199-00			CONN,SHUNT:SHUNT;FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A1Q1	151-0190-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q2	151-0749-00			XSTR,SIG:BIPOLAR,PNP;400V,500MA,50MHZ,AMPL	04713	MPSA94
A1Q3	151-0188-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	2N3906
A1Q4	151-0190-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q5	151-0350-03			XSTR,SIG:BIPOLAR,PNP;150V,600MA,100MHZ,AMPL	04713	2N5401RLRP
A1Q6	151-0347-02			XSTR,SIG:BIPOLAR,NPN;160V,600MA,100MHZ,AMPL	04713	2N5551RLRP
A1Q7	151-0476-00			XSTR,PWR:BIPOLAR,NPN;100V,3.0A,3.0MHZ,AMPL	04713	TIP31C
	210-0406-00			*ATTACHED PARTS*		
	211-0008-00			NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
	214-3841-00			SCREW,MACHINE:4-40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
				HEAT SINK,SEMIC:XSTR,TO-220;VERTICALM-OUNT,(2)SOLDERABLE TABS,ALUMINUM,BLACK ANODIZE	13103	6021PB
				END ATTACHED PARTS		
A1Q8	151-0216-04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ,AMPL	04713	MPS6523RLRP
A1Q9	151-0188-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	2N3906
A1Q10	151-0190-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q11	151-0528-00			THYRISTOR,PWR:BIPOLAR,SCR;50V,16A RMS,PHASE	04713	2N6400
A1Q12	151-0188-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	2N3906
A1Q13	151-0190-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q14	151-1300-00			XSTR,PWR:MOS,N-CH;800V,8.0A,1.2 OHM	66958	STH8N80FI
				ATTACHED PARTS		
	210-0406-00			NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
	211-0008-00			SCREW,MACHINE:4-40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
	214-4197-00			HTSK:XSTR,TO=218,ALW/SOLDERABLEROLL PINS,5298B	13103	6298B MODIFIED
				END ATTACHED PARTS		
A1Q15	151-0188-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	2N3906
A1R1	301-0225-02			RES,FXD,CMPSN:2.2M OHM,5%,0.5W	50139	EB2255

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1R2	303-0155-00			RES,FXD,CMPSN:1.5M OHM,5%,1W	50139	GB1555
A1R3	303-0155-00			RES,FXD,CMPSN:1.5M OHM,5%,1W	50139	GB1555
A1R4	303-0155-00			RES,FXD,CMPSN:1.5M OHM,5%,1W	50139	GB1555
A1R5	322-3344-00			RES,FXD,FILM:37.4K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G37401F
A1R6	322-3251-00			RES,FXD,FILM:4.02K OHM,1%,0.2W,TC=T0	91637	CCF501G40200F
A1R8	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A1R9	311-1256-00			RES,VAR,TRMR:CERMET;2.5M OHM,10%,0.5W,0.375	32997	3386F-1-255
A1R10	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100PPM	91637	CCF501G10002F
A1R11	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A1R12	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A1R13	303-0155-00			RES,FXD,CMPSN:1.5M OHM,5%,1W	50139	GB1555
A1R14	322-3339-00			RES,FXD:METAL FILM:33.2K OHM,1%,0.2W,TC=100	91637	CCF50-2-G3322FT
A1R15	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A1R16	315-0101-03			RES,FXD,CMPSN:100 OHM,5%,0.25W	50139	CB1015
A1R17	322-3254-00			RES,FXD,FILM:4.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF502G4321FT
A1R18	322-3162-00			RES,FXD:METAL FILM:475 OHM,1%,0.2W,TC=100 PPM	91637	CCF50G475R0F
A1R19	315-0223-03			RES,FXD,CMPSN:22K OHM,5%,0.25 WALLEEN BRADLEY ONLY MI	50139	CB2235 ALLEN BR
A1R20	315-0102-03			RES,FXD,CMPSN:1K OHM,5%,0.25W	50139	CB1025 (CARD PA
A1R21	322-3306-00			RES,FXD:METAL FILM:15K OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1502F
A1R22	322-3105-00			RES,FXD:METAL FILM:121 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G121ROF
A1R23	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100PPM	91637	CCF501G10002F
A1R24	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R25	322-3034-00			RES,FXD:METAL FILM:22.1 OHM,1%,0.2W,TC=100PPM	91637	CCF50-2-G22R10F
A1R26	315-0470-03			RES,FXD,CMPSN:47 OHM,5%,0.25W	50139	CB4705
A1R27	322-3162-00			RES,FXD:METAL FILM:475 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G475R0F
A1R28	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R29	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R30	315-0226-01			RES,FXD,CMPSN:22 M OHM,5%,0.25WALLEEN BRADLEY ONLY	50139	CB2265
A1R31	315-0471-03			RES,FXD,CMPSN:470 OHM,5%,0.25W	50139	CB4715
A1R32	315-0471-03			RES,FXD,CMPSN:470 OHM,5%,0.25W	50139	CB4715
A1R33	322-3354-00			RES,FXD:METAL FILM:47.5K OHM,1%,0.2W,TC=100	91637	CCF501G47501F
A1R34	315-0471-03			RES,FXD,CMPSN:470 OHM,5%,0.25W	50139	CB4715
A1R35	322-3273-00			RES,FXD:METAL FILM:6.81K OHM,1%,0.2W,TC=100	91637	CCF50-2-G68100F
A1R36	315-0102-03			RES,FXD,CMPSN:1K OHM,5%,0.25W	50139	CB1025 (CARD PA
A1R37	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100PPM	91637	CCF501G10002F
A1R38	311-2239-00			RES,VAR,TRMR:CERMET;100K OHM,20%,0.5W,0.197	TK2073	GF06UT2 104 M L
A1R39	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R40	322-3239-00			RES,FXD,FILM:3.01K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G30100F
A1R41	322-3435-00			RES,FXD:METAL FILM:332K OHM,1%,0.2W,TC=100PPM	91637	CCF50-2-33202FT
A1R42	311-2240-00			RES,VAR,MONWWW:TRMR,200K OHM,20%,0.5W LINEAR	TK2073	GF06UT2 204 M L
A1R43	322-3273-00			RES,FXD:METAL FILM:6.81K OHM,1%,0.2W,TC=100	91637	CCF50-2-G68100F
A1R44	311-2239-00			RES,VAR,TRMR:CERMET;100K OHM,20%,0.5W,0.197	TK2073	GF06UT2 104 M L
A1R45	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R46	322-3322-00			RES,FXD:METAL FILM:22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A1R47	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R48	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R49	322-3024-00			RES,FXD,FILM:17.4 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50-2-G17R40F
A1R50	322-3322-00			RES,FXD:METAL FILM:22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A1R51	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R52	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R53	311-2239-00			RES,VAR,TRMR:CERMET;100K OHM,20%,0.5W,0.197	TK2073	GF06UT2 104 M L
A1R54	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R55	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A1R56	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R57	322-3235-00			RES,FXD:METAL FILM:2.74K OHM,1%,0.2W,TC=100	91637	CCF501G27400F
A1R58	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1R59	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R60	322-3260-00			RES,FXD,FILM:4.99K OHM,1%,0.2W,TC=T0TAPED &	91637	CCF501G49900F
A1R61	322-3261-00			RES,FXD,FILM:5.11K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50G5111FT
A1R62	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A1R63	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R64	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A1R65	322-3201-00			RES,FXD:METAL FILM:1.21K OHM,1%,0.2W,TC=100	91637	CCF501G12100F
A1R66	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100PPM	91637	CCF501G10002F
A1R67	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100PPM	91637	CCF501G10002F
A1R68	322-3339-00			RES,FXD:METAL FILM:33.2K OHM,1%,0.2W,TC=100	91637	CCF50-2-G3322FT
A1R69	307-0106-00			RES,FXD,CMPSN:4.7 OHM,5%,0.25W	50139	CB47G5
A1R70	308-0441-00			RES,FXD,WW:3 OHM,5%,3W	TK2096	KM 300 3 OHM +-
A1R71	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R72	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A1R73	311-2238-00			RES,VAR,TRMR:CERMET:50K OHM,20%,0.5W,0.197SQ,SIDE ADJUST	TK2073	GF06UT2 503 M L
A1R74	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A1R75	322-3306-00			RES,FXD:METAL FILM:15K OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1502F
A1R76	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R77	322-3352-00			RES,FXD,FILM:45.3K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G45301F
A1R78	322-3225-00			RES,FXD,FILM:2.15K OHM,1%,0.2W,TC=T0TAPED &	91637	CCF501G21500F
A1R79	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R80	322-3327-00			RES,FXD,FILM:24.9K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G24901F
A1R81	322-3322-00			RES,FXD:METAL FILM:22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A1R82	322-3322-00			RES,FXD:METAL FILM:22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A1R83	322-3418-00			RES,FXD:METAL FILM:221K OHM,1%,0.2W,TC=100PPM	91637	CCF501G22102F
A1R84	322-3235-00			RES,FXD:METAL FILM:2.74K OHM,1%,0.2W,TC=100	91637	CCF501G27400F
A1R85	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G10003F
A1R86	322-3254-00			RES,FXD,FILM:4.32K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF502G4321FT
A1R87	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A1R88	305-0242-00			RES,FXD,CMPSN:2.4K OHM,5%,2W	11502	GF-3 OR GS-3 24
A1R90	308-0793-00			RES,FXD:0.51 OHM,5%,1WTC=150PPM/DEG C,MI	75042	BW20 .51OHM 5PE
A1R91	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R92	322-3205-00			RES,FXD,FILM:1.33K OHM,1%,0.2W,TC=T0TAPED &	91637	CCF501G13300F
A1R94	322-3347-00			RES,FXD,FILM:40.2K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G40201F
A1R96	322-3034-00			RES,FXD:METAL FILM:22.1 OHM,1%,0.2W,TC=100PPM	91637	CCF50-2-G22R10F
A1R97	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A1R98	322-3256-00			RES,FXD,FILM:4.53K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G4531FT
A1R99	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R100	322-3431-00			RES,FXD,FILM:301K OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF501G30102F
A1R101	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R102	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R103	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A1R104	322-3435-00			RES,FXD:METAL FILM:332K OHM,1%,0.2W,TC=100PPM	91637	CCF50-2-33202FT
A1R105	322-3431-00			RES,FXD,FILM:301K OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF501G30102F
A1R106	322-3339-00			RES,FXD:METAL FILM:33.2K OHM,1%,0.2W,TC=100	91637	CCF50-2-G3322FT
A1R107	322-3239-00			RES,FXD,FILM:3.01K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G30100F
A1R108	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R109	322-3431-00			RES,FXD,FILM:301K OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF501G30102F
A1R110	322-3322-00			RES,FXD:METAL FILM:22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A1R111	322-3351-00			RES,FXD:METAL FILM:44.2K OHM,1%,0.2W,TC=100	91637	CCF501G4422FT
A1R112	322-3452-00			RES,FXD,FILM:499K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2-G4993FT
A1R113	322-3452-00			RES,FXD,FILM:499K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2-G4993FT
A1R114	322-3339-00			RES,FXD:METAL FILM:33.2K OHM,1%,0.2W,TC=100	91637	CCF50-2-G3322FT
A1R115	322-3401-00			RES,FXD,FILM:147K OHM,1%,0.2W,TC=T0MI,SMALL	57668	CRB20 FXE 147K
A1R116	308-0441-00			RES,FXD,WW:3 OHM,5%,3W	TK2096	KM 300 3 OHM +-
A1R117	322-3393-00			RES,FXD:METAL FILM:121K OHM,1%,0.2W,TC=100PPM	91637	CCF501G12102F
A1R118	322-3393-00			RES,FXD:METAL FILM:121K OHM,1%,0.2W,TC=100PPM	91637	CCF501G12102F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1R119	305-0154-00			RES,FXD,CMPSN:150K OHM,5%,2W	50139	HB1545
A1R120	306-0104-00			RES,FXD,CMPSN:100K OHM,10%,2W	24546	FP42 OR FP2 100
A1R121	305-0154-00			RES,FXD,CMPSN:150K OHM,5%,2W	50139	HB1545
A1R122	306-0104-00			RES,FXD,CMPSN:100K OHM,10%,2W	24546	FP42 OR FP2 100
A1R123	307-0746-00			RES,THERMAL:5 OHM,10%,7A/DEG C,	15454	SG200-S STRAI
A1R124	322-3322-00			RES,FXD:METAL FILM:22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A1R125	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G10003F
A1R126	322-3254-00			RES,FXD,FILM:4.32K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF502G4321FT
A1R127	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1T1	120-1695-00			TRANSFORMER,PWR:HIGH V,FEEDBACK 3V, RESONANT 231V, 100V 1MA,2750V 3.3MA, 6.3V 86MA	75498	120-1695-00
A1T2	120-1532-00			XFMR,RF:TOROID,ISOLATION,RATIO 1:1,IND 100-300 UH, DCR 1.5 OHM POTTED, PKG 0.8X 0.65,0.55 HIGH	75498	128-8036-01
A1T3	120-1953-00			TRANSFORMER,PWR:129-303G-EA	75498	129-3039-EA
A1U1	152-0900-00			MODULE,HV:7.5KVAC IN,15KVDC OUT,POTTED MODULE *ATTACHED PARTS*	51406	MSL2556
	334-2363-00			MARKER,IDENT:MKD DANGER,HIGH VOLTAGE *END ATTACHED PARTS*	TK0860	ORDER BY DESC
A1U2	156-0067-00			IC,LINEAR:BIPOLAR,OP-AMP	01295	UA741CP
A1U3	156-1719-00			IC,LINEAR:BIPOLAR,OP-AMP;LOW V OPERATION,W/V REF	27014	LM10CN
A1U4	156-0885-00			CPLR,OPTOELECTR:LED,5KV ISOLATION	OMS63	H11AX861
A1U5	156-0750-03			IC,DGTL:CMOS,MULTIVIBRATOR:DUAL MONOSTABLE	27014	MM74C221N
A1U6	156-2524-00			IC,LINEAR:BIPOLAR,SW-REGULATOR CONTROL- LER;PWM,CURRENT MODE,SINGLE TOTEM POLE OUT	48726	UC3842N
A1U7	156-0411-00			IC,LINEAR:BIPOLAR,COMPARATOR;QUAD,SGL SPLY,300NS	01295	LM339N
A1U8	156-2009-00			IC,DGTL:HC MOS,FLIP FLOP;DUAL D-TYPE	04713	MC74HC74AN
A1W1	131-0566-00			BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225L	24546	OMA0207
A1W2	131-0566-00			BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225L	24546	OMA0207
A1W3	131-0566-00			BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225L	24546	OMA0207
A1CR1	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR2	152-0061-00			DIODE,SIG:200V,0.1A,700NS,4.0PF	12969	PV122
A1CR3	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR4	152-0061-00			DIODE,SIG:200V,0.1A,700NS,4.0PF	12969	PV122
A1CR5	152-0061-00			DIODE,SIG:200V,0.1A,700NS,4.0PF	12969	PV122
A1CR6	152-0061-00			DIODE,SIG:200V,0.1A,700NS,4.0PF	12969	PV122
A1CR7	152-0409-00			DIODE,RECT:FAST RCVRY;12KV,10MA,250NS	83701	CRVT150
A1CR8	152-0061-00			DIODE,SIG:200V,0.1A,700NS,4.0PF	12969	PV122
A1CR9	152-0061-00			DIODE,SIG:200V,0.1A,700NS,4.0PF	12969	PV122
A1CR10	152-0400-00			DIODE,RECT:FAST RCVRY;400V,1A,200NS	0LUA3	1N4936
A1CR11	152-0400-00			DIODE,RECT:FAST RCVRY;400V,1A,200NS	0LUA3	1N4936
A1CR12	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR13	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR14	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR15	152-0400-00			DIODE,RECT:FAST RCVRY;400V,1A,200NS	0LUA3	1N4936
A1CR16	152-0720-00			DIODE,RECT:ULTRA FAST;200V,8A,25NS,100A IFSM *ATTACHED PARTS*	0LUA3	BYW29-200
	210-0406-00			NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
	211-0008-00			SCREW,MACHINE:4-40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
	214-3841-00			HEAT SINK,SEMIC:XSTR,TO-220;VERTICALMOUNT, (2)SOLDERABLE TABS,ALUMINUM,BLACK ANODIZE *END ATTACHED PARTS*	13103	6021PB
A1CR17	152-0884-00			DIODE,RECT:SCHTKY;35V,16A,150A IFSM,630MVF *ATTACHED PARTS*	04713	MBR1635
	210-0406-00			NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
	211-0008-00			SCREW,MACHINE:4-40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
	214-3841-00			HEAT SINK,SEMIC:XSTR,TO-220;VERTICALMOUNT, (2)SOLDERABLE TABS,ALUMINUM,BLACK ANODIZE *END ATTACHED PARTS*	13103	6021PB

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1CR18	152-0720-00			DIODE,RECT:ULTRA FAST;200V,8A,25NS,100A IFSM *ATTACHED PARTS*	0LUA3	BYW29-200
	210-0406-00			NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
	211-0008-00			SCREW,MACHINE:4-40 X 0.25,PNH,STL	TK0435	ORDER BY DESC
	214-3841-00			HEAT SINK,SEMIC:XSTR,TO-220;VERTICALMOUNT, (2)SOLDERABLE TABS,ALUMINUM,BLACK ANODIZE *END ATTACHED PARTS*	13103	6021PB
A1CR19	152-0863-00			SEMICONDC DVC,DI:RECT,SI,600V,1A,30NSBYV26C	0LUA3	BYV26C
A1CR21	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR22	152-0400-00			DIODE,RECT:FAST RCVRY;400V,1A,200NS	0LUA3	1N4936
A1CR23	152-0897-00			DIODE,RECT:FAST RCVRY;1000V,1.5A,300NS,SOFT RCVRY	0LUA3	BYV96E
A1CR24	152-0601-01			DIODE,RECT:ULTRA FAST;150V,25NS,35A IFSM	04713	MUR115RL
A1CR25	152-0897-00			DIODE,RECT:FAST RCVRY;1000V,1.5A,300NS,SOFT RCVRY	0LUA3	BYV96E
A1CR26	152-0601-01			DIODE,RECT:ULTRA FAST;150V,25NS,35A IFSM	04713	MUR115RL
A1CR27	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR29	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR30	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR31	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR32	152-1165-00			DIODE,RECT:ULTRA FAST;600V,4A,50NS	04713	MUR460RL
A1CR33	152-1165-00			DIODE,RECT:ULTRA FAST;600V,4A,50NS	04713	MUR460RL
A1CR34	152-1165-00			DIODE,RECT:ULTRA FAST;600V,4A,50NS	04713	MUR460RL
A1CR35	152-1165-00			DIODE,RECT:ULTRA FAST;600V,4A,50NS	04713	MUR460RL
A1DS1	150-0050-00			LAMP,GLOW:135V MAX,1.9MA,C2A-T,WIRE LEAD	0J9R2	NE-2Q-11R-T
A1DS2	150-0050-00			LAMP,GLOW:135V MAX,1.9MA,C2A-T,WIRE LEAD	0J9R2	NE-2Q-11R-T
A1DS3	150-0050-00			LAMP,GLOW:135V MAX,1.9MA,C2A-T,WIRE LEAD	0J9R2	NE-2Q-11R-T
A1DS4	150-0050-00			LAMP,GLOW:135V MAX,1.9MA,C2A-T,WIRE LEAD	0J9R2	NE-2Q-11R-T
A1DS5	150-0050-00			LAMP,GLOW:135V MAX,1.9MA,C2A-T,WIRE LEAD	0J9R2	NE-2Q-11R-T
A1DS6	150-1152-00			DIO,OPTO:LED;HIGH EFFIC. RED,635NM,INTEGRAL XSTR	50434	HLMP-1600-002
A1DS7	150-0050-00			LAMP,GLOW:135V MAX,1.9MA,C2A-T,WIRE LEAD	0J9R2	NE-2Q-11R-T
A1TP1	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A1TP2	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A1TP3	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A1VR1	152-0195-00			DIODE,ZENER:5.1V,5%,0.4W	14552	CD332125
A1VR3	152-0175-00			DIODE,ZENER:5.6V,5%,0.4W	04713	SZG35008 (1N752)
A2	671-3164-00			CIRCUIT BD ASSY:FRONT PANEL	80009	671316400
A2J2	174-1168-00			CA ASSY,SP,ELEC:10 PIN,4.25 L,RIBBON	TK1386	174-1168-00
A2U1	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE	01295	SN74HCT125DR
A2U2	156-5480-01			IC,DGTL:HCMOS,RGTR:8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A2U3	156-5480-01			IC,DGTL:HCMOS,RGTR:8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A2U4	156-5480-01			IC,DGTL:HCMOS,RGTR:8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A2U5	156-5480-01			IC,DGTL:HCMOS,RGTR:8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A2U6	156-5358-01			IC,DGTL:HCMOS,RGTR:8-BIT PISO SHIFTRGTR	01295	SN74HC165DR
A2U7	156-5480-01			IC,DGTL:HCMOS,RGTR:8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A2U8	156-5358-01			IC,DGTL:HCMOS,RGTR:8-BIT PISO SHIFTRGTR	01295	SN74HC165DR
A2U9	156-5480-01			IC,DGTL:HCMOS,RGTR:8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A2U10	156-5074-02			IC,DGTL:HCMOS,FLIP FLOP;DUAL D-TYPE	01295	SN74HC74DR
A2CR1	152-5038-00			DIODE,SIG:30V,1.5PF,VF = 600MV @ 10MA	04713	MMBD301LT1
A2CR2	152-5038-00			DIODE,SIG:30V,1.5PF,VF = 600MV @ 10MA	04713	MMBD301LT1
A2CR3	152-5038-00			DIODE,SIG:30V,1.5PF,VF = 600MV @ 10MA	04713	MMBD301LT1
A2CR4	152-5038-00			DIODE,SIG:30V,1.5PF,VF = 600MV @ 10MA	04713	MMBD301LT1
A2DS1	150-5009-00			DIO,OPTO:LED;HI-EFFIC RED,626NM,3.4MCD AT IF=10MA	50434	HLMP-6305-021
A2DS2	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL, YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS3	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL, YOKE LEAD BEND	50434	HLMP-P505-T21

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2DS4	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS5	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS6	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS9	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS10	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS11	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS12	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS13	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS14	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS15	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS16	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS17	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS18	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS19	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS20	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS21	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS22	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS23	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS24	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS25	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS26	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS27	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS28	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS29	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS30	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS31	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS32	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS33	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS34	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS35	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2DS36	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS37	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2DS38	150-5011-00			DIODE,OPTO:LED;HIGH EFF,GRN,569NM,1MCD AT 10MA,125 DEG VIEW ANGL,YOKE LEAD BEND	50434	HLMP-P505-T21
A2R2	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R3	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R4	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R5	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R6	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R7	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R10	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R11	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R12	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R13	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R14	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R15	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R16	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R17	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R18	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R19	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R20	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R21	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R22	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R23	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R24	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R25	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R26	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R27	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R28	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R29	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R30	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R31	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R32	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R33	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R34	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A2R35	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A2R36	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A2R37	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A2R38	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R39	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R40	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R41	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R42	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R43	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R44	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R45	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A2R47	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A2R48	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R49	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R50	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R51	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A2R52	321-5045-00			RES,FXD:THICK FILM;68.1 OHM,1%,0.125W,TC=100 PPM	50139	BCD68R1FT
A3	671-3155-00	B010100	B010312	CIRCUIT BD ASSY:MAIN	80009	671315500
A3	671-3155-01	B010313		CIRCUIT BD ASSY:MAIN *ATTACHED PARTS*	80009	671315501

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
	337-0607-00			PLATE,ELEC SHLD:CIRCUIT BOARD *END ATTACHED PARTS*	0J260	337-0607-00
A3C1	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C2	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C3	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C4	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C5	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C6	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C7	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C8	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C9	290-5024-00			CAP,FXD,TANT:3.3UF,20%,25V,0.236 X 0.126,6032	04222	TAJC335M025
A3C10	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C11	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C12	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C13	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C14	283-5107-00			CAP,FXD,CERAMIC:MLC:22PF,5%,100V,NPO,1206	04222	12061A220JAT1A
A3C15	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C16	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C17	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C18	283-5107-00			CAP,FXD,CERAMIC:MLC:22PF,5%,100V,NPO,1206	04222	12061A220JAT1A
A3C19	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C20	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C21	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C22	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C23	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C24	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C25	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C26	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C27	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C28	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C29	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C30	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C31	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C32	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C33	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C34	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C35	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C36	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C38	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C39	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C40	283-0620-01			CAP,FXD,MICA DI:470PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD471F03
A3C41	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C42	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C44	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C46	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C48	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C49	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C51	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C52	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C53	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C54	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C55	281-0775-01			CAP,FXD,CERAMIC:MLC:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C56	281-0775-01			CAP,FXD,CERAMIC:MLC:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C57	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C58	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C59	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C60	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C61	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3C62	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C63	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C64	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C65	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C66	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C67	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C68	283-5109-00			CAP,FXD,CERAMIC:MLC;680PF,5%,100V,NPO,1206	04222	12061A681JAT1A
A3C69	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C70	283-5109-00			CAP,FXD,CERAMIC:MLC;680PF,5%,100V,NPO,1206	04222	12061A681JAT1A
A3C71	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C72	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C73	283-5256-00			CAP,FXD:CER,MLC;0.1UF,CONT +/-10%,200V,0.180 X 0.250 X7R	04222	18252C104KATRA
A3C75	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C74	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C76	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C77	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C78	283-5314-00			CAP,FXD,CERAMIC:MLC;0.7PF,+/-0.1PF,100V,+20	80009	283531400
A3C79	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C80	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C81	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C82	283-5003-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A3C83	283-5001-00			CAP,FXD,CERAMIC:MLC;100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A3C84	283-5001-00			CAP,FXD,CERAMIC:MLC;100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A3C85	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C86	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C87	283-5267-00			CAP,FXD,CERAMIC:MLC;1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C88	283-5259-00			CAP,FXD,CERAMIC:MLC;6.8PF,+/-0.25PF,100V,NPO	04222	12061A6R8CAT1A
A3C89	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C90	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C91	281-0271-00			CAP,VAR,CER DI:7-50PF,50V	51406	TZBX4R500BA110T
A3C92	283-5001-00			CAP,FXD,CERAMIC:MLC;100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A3C93	283-5259-00			CAP,FXD,CERAMIC:MLC;6.8PF,+/-0.25PF,100V,NPO	04222	12061A6R8CAT1A
A3C94	283-5314-00			CAP,FXD,CERAMIC:MLC;0.7PF,+/-0.1PF,100V,+20	80009	283531400
A3C95	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C96	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C97	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C98	283-5068-00			CAP,FXD,CERAMIC:MLC;2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A3C100	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C101	285-1349-00			CAP,FXD,MTLZD:0.1UF,5%,63VDC	TK1913	MKS2.1/63/5
A3C103	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C104	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C105	283-0934-00			CAP,FXD,PLASTIC:0.0022UF,5%,100WVDC	TK1913	FKP2.2200/100/5
A3C106	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C107	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C108	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C111	283-5189-00			CAP,FXD,CERAMIC:MLC;220PF,5%,100V,NPO,1206	04222	12061A221JAT1A
A3C112	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C113	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C117	283-5001-00			CAP,FXD,CERAMIC:MLC;100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A3C118	283-5001-00			CAP,FXD,CERAMIC:MLC;100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A3C119	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C120	283-5267-00			CAP,FXD,CERAMIC:MLC;1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C121	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C122	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C123	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C124	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C125	283-0698-01			CAP,FXD,MICA DI:390PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD391F03

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3C127	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C128	283-5201-00			CAP,FXD,CERAMIC:MLC:33PF,5%,100V,NPO,1206	04222	12061A330JAT1A
A3C129	283-5195-00			CAP,FXD,CERAMIC:MLC:10PF,5%,100V,NPO,1206	04222	12061A100JAT1A
A3C130	283-5107-00			CAP,FXD,CERAMIC:MLC:22PF,5%,100V,NPO,1206	04222	12061A220JAT1A
A3C131	281-5007-00			CAP,VAR,CERAMIC:4.5-20PF,100V,N750+/-300PPM/C,4 X 4.5 X 2.7MM	52769	GKG20066-##
A3C132	283-0640-01			CAP,FXD,MICA DI:160PF,1%,100VTAPE & AMMO PACK	TK0891	ADVISE
A3C136	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C139	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A3C140	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C141	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C142	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C143	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C144	283-0639-01			CAP,FXD,MICA DI:56PF,1%,500V,TAPE & AMMO PACK	09023	CDA15ED560F03
A3C150	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C157	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C162	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C163	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C164	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C170	290-5036-01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM(0.224)	62643	MVK16VC22RME60T
A3C171	290-5036-01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM(0.224)	62643	MVK16VC22RME60T
A3C172	290-5036-01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM(0.224)	62643	MVK16VC22RME60T
A3C173	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C174	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C175	290-5036-01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM(0.224)	62643	MVK16VC22RME60T
A3C177	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C178	283-5001-00			CAP,FXD,CERAMIC:MLC:100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A3C180	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A3C181	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A3C182	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C183	283-0603-01			CAP,FXD,MICA DI:113PF,2%,500V,TAPE & AMMO PACK	09023	CDA15FD(113)G03
A3C184	283-0766-01			CAP,FXD,MICA DI:47PF,1%,500V,TAPE & AMMO PACK	09023	CDA15ED470D03
A3C185	283-5107-00			CAP,FXD,CERAMIC:MLC:22PF,5%,100V,NPO,1206	04222	12061A220JAT1A
A3C186	283-5196-00			CAP,FXD,CERAMIC:MLC:47PF,5%,100V,NPO,1206	04222	12061A470JAT1A
A3C187	283-5196-00			CAP,FXD,CERAMIC:MLC:47PF,5%,100V,NPO,1206	04222	12061A470JAT1A
A3C188	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A3C189	290-5036-01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM(0.224)	62643	MVK16VC22RME60T
A3J1	131-3718-00			CONN,HDR:PCB;MALE,STR,2 X 5,0.1 CTR,0.385H X 0.120 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.150 END DIM	TK1462	FAP-10-08-4-OAS
A3J2	131-3323-00			CONN,HDR:PCB;MALE,STR,2 X 20,0.1 CTR,0.365D	22526	66506-025
A3J3	131-4752-00			CONN,HDR:PCB;MALE,45 DEG,1 X 2,0.1CTR,0.240 MLG X 0.110 TAIL,30 GOLD	58050	082-0243-AS10
A3J4	131-4530-00			CONN,HDR:PCB;MALE,STR,1 X 3,0.1 CTR,0.230MLG X 0.120 TAIL,30GOLD,BD RETENTION	00779	104344-1
A3J5	131-3323-00			CONN,HDR:PCB;MALE,STR,2 X 20,0.1 CTR,0.365D	22526	66506-025
A3J6	175-9797-00			CA ASSY,SP:FLAT FLEX:FLX,10,27 AWG,2.5 L,1X10,BOX X STR,SLDR TAB,CONN NON PLZ	00779	487729-1
A3J9	131-3364-00			CONN,HDR:PCB;MALE,STR,2 X 17,0.1 CTR,0.365D	53387	2534-6002UB
A3J13	131-3323-00			CONN,HDR:PCB;MALE,STR,2 X 20,0.1 CTR,0.365D	22526	66506-025
A3J14	174-2743-00			CA ASSY SP:RIBBON;IDC,34,28 AWG,2X17,0.1 CTR,PCB X 25 POS,DSUB,THD INSERTS,1.2 L & 9POS,DSUB,FEM,THD INSERTS,2.2 L	53387	174-2743-00
A3J15	131-4530-00			CONN,HDR:PCB;MALE,STR,1 X 3,0.1 CTR,0.230MLG X 0.120 TAIL,30GOLD,BD RETENTION	00779	104344-1
A3J16	131-4530-00			CONN,HDR:PCB;MALE,STR,1 X 3,0.1 CTR,0.230MLG X 0.120 TAIL,30GOLD,BD RETENTION	00779	104344-1
A3L1	108-5018-00			IDCTR,FXD:POWER;4.7UH,20%,I<0.315A,RDC<1.0 OHM,Q>50,SRF>45MHZ	TK2058	NL453232T-4R7M

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3L2	108-5018-00			IDCTR,FXD:POWER:4.7UH,20%,I<0.315A,RDC<1.0 OHM,Q>50,SRF>45MHZ	TK2058	NL453232T-4R7M
A3L5	114-0482-00			COIL,RF:VAR,32.0-48.0UH,NOM 40UH,SHIELDED,ECORE,Q @ NOM 32,25MHZ,0.411 SQ,0.512 HIGH,SLOT TEN TYPE	02113	SLOT TEN-04-11
A3L6	114-0482-00			COIL,RF:VAR,32.0-48.0UH,NOM 40UH,SHIELDED,ECORE,Q @ NOM 32,25MHZ,0.411 SQ,0.512 HIGH,SLOT TEN TYPE	02113	SLOT TEN-04-11
A3L9	114-0447-00			COIL,RF:VAR,0.8-1.2UH,SHIELDED E CORE,SLOT TEN TYPE	02113	SLOT TEN-4-01
A3L10	108-5002-00			IDCTR,FXD:PWR;15UH,10%,I<0.2A,RDC<2.5OHM,Q>50,SRF >20MHZ	TK2058	NL453232T-150K
A3P4	131-3199-00			CONN,SHUNT:SHUNT:FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A3P15	131-3199-00			CONN,SHUNT:SHUNT:FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A3P16	131-3199-00			CONN,SHUNT:SHUNT:FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A3Q1	151-5021-00			XSTR,SIG:BIPOLAR,NPN;40V,600MA,300MHZ,AMPL	04713	MMBT2222ALT1
A3Q2	151-5021-00			XSTR,SIG:BIPOLAR,NPN;40V,600MA,300MHZ,AMPL	04713	MMBT2222ALT1
A3Q3	151-5001-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	MMBT3904LT1
A3Q4	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A3Q5	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A3Q6	151-5001-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	MMBT3904LT1
A3Q7	151-5001-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	MMBT3904LT1
A3Q8	151-0350-03			XSTR,SIG:BIPOLAR,PNP;150V,600MA,100MHZ,AMPL	04713	2N5401RLRP
A3Q9	151-5022-00			XSTR,SIG:BIPOLAR,NPN;15V,50MA,600MHZ,AMPL	04713	MMBT918LT1
A3Q10	151-0211-00			XSTR,SIG:BIPOLAR,NPN;30V VCEO,55V VCB-O,400MA,500MHZ,AMPL	04713	2N3866
				ATTACHED PARTS		
	214-2593-00			HEAT SINK,SEMIC:XSTR/IC,TO-5/TO-39;PRESS-ON,0.5" DIA,ALUMINUM,BLACK ANODIZE	13103	2257B
				END ATTACHED PARTS		
A3Q11	151-0347-02			XSTR,SIG:BIPOLAR,NPN;160V,600MA,100MHZ,AMPL	04713	2N5551RLRP
A3Q12	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A3Q13	151-0347-02			XSTR,SIG:BIPOLAR,NPN;160V,600MA,100MHZ,AMPL	04713	2N5551RLRP
A3Q14	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A3Q15	151-0350-03			XSTR,SIG:BIPOLAR,PNP;150V,600MA,100MHZ,AMPL	04713	2N5401RLRP
A3Q16	151-0211-00			XSTR,SIG:BIPOLAR,NPN;30V VCEO,55V VCB-O,400MA,500MHZ,AMPL	04713	2N3866
				ATTACHED PARTS		
	214-2593-00			HEAT SINK,SEMIC:XSTR/IC,TO-5/TO-39;PRESS-ON,0.5" DIA,ALUMINUM,BLACK ANODIZE	13103	2257B
				END ATTACHED PARTS		
A3Q19	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A3Q20	151-5029-00			XSTR,SIG:BIPOLAR,NPN;15V,500MA,SWITCHING	04713	MMBT2369LT1
A3Q25	151-5001-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	MMBT3904LT1
A3Q26	151-5001-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	MMBT3904LT1
A3Q28	151-5002-00			XSTR,SIG:JFET,N-CH;5V,75MA,60 OHM,SWITCH	04713	MMBF4392LT1
A3Q29	151-5001-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	MMBT3904LT1
A3R1	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R2	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R3	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R4	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R5	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R6	311-2442-02			RES,VAR,PNL:CP;10K OHM,10%,0.5W,LIN,CONT ROTATION,0.5 SQ,2.0 L SFT	12697	S-1-20629
A3R7	311-2442-02			RES,VAR,PNL:CP;10K OHM,10%,0.5W,LIN,CONT ROTATION,0.5 SQ,2.0 L SFT	12697	S-1-20629
A3R8	311-2442-02			RES,VAR,PNL:CP;10K OHM,10%,0.5W,LIN,CONT ROTATION,0.5 SQ,2.0 L SFT	12697	S-1-20629

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R9	311-2442-02			RES,VAR,PNL:CP;10K OHM,10%,0.5W,LIN,CONT ROTATION,0.5 SQ,2.0 L SFT	12697	S-1-20629
A3R10	311-2442-02			RES,VAR,PNL:CP;10K OHM,10%,0.5W,LIN,CONT ROTATION,0.5 SQ,2.0 L SFT	12697	S-1-20629
A3R11	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A3R12	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R13	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A3R14	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R15	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R16	321-5034-00			RES,FXD:THICK FILM;22.1K OHM,1%,0.125W,TC=100 PPM	50139	BCK2212FT
A3R17	321-5034-00			RES,FXD:THICK FILM;22.1K OHM,1%,0.125W,TC=100 PPM	50139	BCK2212FT
A3R18	321-5034-00			RES,FXD:THICK FILM;22.1K OHM,1%,0.125W,TC=100 PPM	50139	BCK2212FT
A3R19	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100 PPM	91637	CRCW120610R0FT
A3R20	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R21	307-5041-01			RES,NTWK FXD:FILM;(15),4.7K OHM,2%,0.08W EA,50 PPM	91637	SOMC-1601-472G-
A3R22	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R23	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A3R24	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R25	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A3R26	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A3R27	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A3R28	307-5041-01			RES,NTWK FXD:FILM;(15),4.7K OHM,2%,0.08W EA,50 PPM	91637	SOMC-1601-472G-
A3R29	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R30	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R31	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R32	321-5208-00			RES,FXD:THICK FILM;10M OHM,5%,0.125W,TC=100	91637	CRCW1206-106JT
A3R33	321-5048-00			RES,FXD:THICK FILM;332K OHM,1%,0.125W,TC=100 PPM	57668	MCR18FXEA332K
A3R34	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R35	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R36	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R37	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R38	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R39	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R40	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R41	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R42	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R43	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R44	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R45	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R46	321-5090-00			RES,FXD:THICK FILM;20K OHM,0.125W,100 PPM,1206,T&R	50139	BCK2002FT
A3R47	321-5022-00			RES,FXD:THICK FILM;2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A3R48	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R49	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R50	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R51	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R52	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R53	321-5169-00			RES,FXD:THICK FILM;475K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-47502F
A3R54	321-5035-00			RES,FXD:THICK FILM;27.4K OHM,1%,0.125W,TC=100 PPM	50139	BCK2742FT
A3R55	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R56	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R57	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A3R58	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R59	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R60	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R61	321-5169-00			RES,FXD:THICK FILM;475K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-47502F
A3R62	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R63	321-5093-00			RES,FXD:FILM;200 OHM,1%,0.125W,1206,8MM	91637	CRCW12062000FT
A3R64	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R65	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A3R66	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A3R67	321-5042-00			RES,FXD:THICK FILM;39.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA39E2
A3R68	321-5011-00			RES,FXD:THICK FILM;274 OHM,1%,0.125W,TC=100	50139	BCK2740FT
A3R69	321-5011-00			RES,FXD:THICK FILM;274 OHM,1%,0.125W,TC=100	50139	BCK2740FT
A3R70	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A3R71	321-5013-00			RES,FXD:THICK FILM;392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A3R72	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R73	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R74	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A3R75	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R76	321-5090-00			RES,FXD:THICK FILM; 20K OHM,0.125W,100 PPM,1206,T&R	50139	BCK2002FT
A3R77	321-5027-00			RES,FXD:THICK FILM;5.62K OHM,1%,0.125W,TC=100 PPM	50139	BCK5621FT
A3R80	321-5037-00			RES,FXD:THICK FILM;39.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3922FT
A3R81	321-5037-00			RES,FXD:THICK FILM;39.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3922FT
A3R82	307-5041-01			RES,NTWK FXD:FILM;(15),4.7K OHM,2%,0.08W EA,50 PPM	91637	SOMC-1601-472G-
A3R83	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R84	321-5037-00			RES,FXD:THICK FILM;39.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3922FT
A3R85	321-5037-00			RES,FXD:THICK FILM;39.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3922FT
A3R86	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R87	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R88	321-5122-00			RES,FXD:FILM;499 OHM,1%,0.125W,1206,8MM	91637	CRCW1206-4990FT
A3R89	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A3R90	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A3R91	321-5166-00			RES,FXD:THICK FILM;150K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1503FT
A3R92	321-5166-00			RES,FXD:THICK FILM;150K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1503FT
A3R93	321-5166-00			RES,FXD:THICK FILM;150K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1503FT
A3R94	321-5166-00			RES,FXD:THICK FILM;150K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1503FT
A3R95	321-5166-00			RES,FXD:THICK FILM;150K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1503FT
A3R96	321-5166-00			RES,FXD:THICK FILM;150K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1503FT
A3R97	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R99	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R100	321-5031-00			RES,FXD:THICK FILM;12.1K OHM,1%,0.125W,TC=100 PPM	50139	BCK1212FT
A3R101	321-5036-00			RES,FXD:THICK FILM;33.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3322FT
A3R102	321-5035-00			RES,FXD:THICK FILM;27.4K OHM,1%,0.125W,TC=100 PPM	50139	BCK2742FT
A3R103	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R104	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A3R105	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A3R106	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R107	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R108	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R109	321-5122-00			RES,FXD:FILM;499 OHM,1%,0.125W,1206,8MM	91637	CRCW1206-4990FT
A3R110	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A3R111	321-5021-00			RES,FXD:THICK FILM;1.82K OHM,1%,0.125W,TC=100 PPM	50139	BCK1821FT
A3R112	321-5037-00			RES,FXD:THICK FILM;39.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3922FT
A3R113	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A3R114	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R115	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R116	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R117	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R118	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R119	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A3R120	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R121	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R122	321-5013-00			RES,FXD:THICK FILM;392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A3R123	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R124	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R125	321-5032-00			RES,FXD:THICK FILM;15.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1502FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R126	321-5036-00			RES,FXD:THICK FILM;33.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3322FT
A3R128	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R129	321-5025-00			RES,FXD:THICK FILM;3.92K OHM,1%,0.125W,TC=100 PPM	50139	BCK3921FT
A3R130	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R131	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R132	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R133	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R134	311-5036-00			RES,VAR,TRMR:CERMET;5K OHM,25%,0.25W,4MM SQ,TOP ADJ	TK2073	G4DT502E
A3R135	311-5036-00			RES,VAR,TRMR:CERMET;5K OHM,25%,0.25W,4MM SQ,TOP ADJ	TK2073	G4DT502E
A3R136	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R137	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R138	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A3R139	321-5013-00			RES,FXD:THICK FILM;392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A3R140	321-5027-00			RES,FXD:THICK FILM;5.62K OHM,1%,0.125W,TC=100 PPM	50139	BCK5621FT
A3R141	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R142	321-5012-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R143	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R144	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R145	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R146	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R147	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R148	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R149	321-5025-00			RES,FXD:THICK FILM;3.92K OHM,1%,0.125W,TC=100 PPM	50139	BCK3921FT
A3R150	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R151	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R152	321-5016-00			RES,FXD:THICK FILM;681 OHM,1%,0.125W,TC=100	50139	BCK6810FT
A3R153	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R154	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R155	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R156	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A3R157	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R158	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R159	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R160	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R161	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R162	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R163	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R164	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R165	321-5022-00			RES,FXD:THICK FILM;2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A3R166	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A3R167	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R168	311-5041-00			RES,VAR,TRMR:CERMET;100K OHM,25%,0.25W,4MMSQ,TOP ADJ	TK2073	G4DT104-M
A3R169	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A3R170	321-5022-00			RES,FXD:THICK FILM;2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A3R171	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A3R172	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R173	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R174	321-5027-00			RES,FXD:THICK FILM;5.62K OHM,1%,0.125W,TC=100 PPM	50139	BCK5621FT
A3R175	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R176	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R177	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R178	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R179	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R180	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125W,TAPE & REELED	91637	CRCW12063010FT
A3R181	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R182	311-5032-00			RES,VAR,TRMR:CERMET;200 OHM,25%,0.25W,4MM SQ,TOP ADJ	TK2073	G4DT201M
A3R183	311-5032-00			RES,VAR,TRMR:CERMET;200 OHM,25%,0.25W,4MM SQ,TOP ADJ	TK2073	G4DT201M
A3R184	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R185	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R186	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A3R187	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R188	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R189	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R190	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R191	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R192	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R193	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R194	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R195	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A3R196	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R197	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R198	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R200	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R201	321-5087-00			RES,FXD,FILM:620 OHM,5%,0.125W	50139	BCK6200JT
A3R202	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A3R203	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R204	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R205	321-5027-00			RES,FXD:THICK FILM;5.62K OHM,1%,0.125W,TC=100 PPM	50139	BCK5621FT
A3R206	307-0250-00			RES,THERMAL:390 OHM,10%,0.125W	01295	TG1/8 391K
A3R210	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R211	321-5021-00			RES,FXD:THICK FILM;1.82K OHM,1%,0.125W,TC=100 PPM	50139	BCK1821FT
A3R212	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R213	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A3R216	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R217	321-5266-00			RES,FXD:THICK FILM;11K OHM,1%,0.125W,TC=100	91637	CRCW1206-1102FT
A3R218	321-5087-00			RES,FXD,FILM:620 OHM,5%,0.125W	50139	BCK6200JT
A3R219	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A3R220	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A3R221	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A3R224	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R225	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R226	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R227	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R228	321-5266-00			RES,FXD:THICK FILM;11K OHM,1%,0.125W,TC=100	91637	CRCW1206-1102FT
A3R229	321-5266-00			RES,FXD:THICK FILM;11K OHM,1%,0.125W,TC=100	91637	CRCW1206-1102FT
A3R230	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R231	321-5041-00			RES,FXD:THICK FILM;82.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK8252FT
A3R234	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A3R235	321-5055-00			RES,FXD:THICK FILM;681K OHM,1%,0.125W,TC=100 PPM	91637	CRCW120668102FT
A3R242	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R244	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R245	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R246	321-5022-00			RES,FXD:THICK FILM;2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A3R247	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A3R248	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R249	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A3R250	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R252	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100 PPM	91637	CRCW120610R0FT
A3R253	321-5032-00			RES,FXD:THICK FILM;15.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1502FT
A3R254	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R255	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R258	321-5025-00			RES,FXD:THICK FILM;3.92K OHM,1%,0.125W,TC=100 PPM	50139	BCK3921FT
A3R259	321-5021-00			RES,FXD:THICK FILM;1.82K OHM,1%,0.125W,TC=100 PPM	50139	BCK1821FT
A3R260	321-5021-00			RES,FXD:THICK FILM;1.82K OHM,1%,0.125W,TC=100 PPM	50139	BCK1821FT
A3R261	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R262	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R268	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R271	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R272	321-5212-00			RES,FXD:THICK FILM;4.99K OHM,1%,0.125W,TC=100 PPM	91637	CRCW-1206-4991F
A3R273	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A3R274	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R275	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R276	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R282	321-5266-00			RES,FXD:THICK FILM;11K OHM,1%,0.125W,TC=100	91637	CRCW1206-1102FT
A3R283	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R284	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R285	321-5266-00			RES,FXD:THICK FILM;11K OHM,1%,0.125W,TC=100	91637	CRCW1206-1102FT
A3R286	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R287	321-5266-00			RES,FXD:THICK FILM;11K OHM,1%,0.125W,TC=100	91637	CRCW1206-1102FT
A3R289	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R290	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R293	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100 PPM	91637	CRCW120610R0FT
A3R294	321-5032-00			RES,FXD:THICK FILM;15.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1502FT
A3R302	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A3R310	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R311	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R312	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R321	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R322	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R323	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R324	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A3R325	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R326	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A3R327	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A3R328	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A3R329	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R330	321-5090-00			RES,FXD:THICK FILM; 20K OHM,0.125W,100 PPM,1206,T&R	50139	BCK2002FT
A3R331	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R332	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R333	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R336	321-5169-00			RES,FXD:THICK FILM;475K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-47502F
A3R337	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R338	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R339	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R340	321-5031-00			RES,FXD:THICK FILM;12.1K OHM,1%,0.125W,TC=100 PPM	50139	BCK1212FT
A3R341	321-5029-00			RES,FXD:THICK FILM;8.25K OHM,1%,0.125W,TC=100 PPM	50139	BCK8251FT
A3R342	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R343	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R344	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A3R345	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R346	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R347	321-5027-00			RES,FXD:THICK FILM;5.62K OHM,1%,0.125W,TC=100 PPM	50139	BCK5621FT
A3R348	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A3R352	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R353	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R354	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R355	321-5090-00			RES,FXD:THICK FILM; 20K OHM,0.125W,100 PPM,1206,T&R	50139	BCK2002FT
A3R356	307-5041-01			RES,NTWK FXD:FILM;(15),4.7K OHM,2%,0.08W EA,50 PPM	91637	SOMC-1601-472G-
A3R357	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R358	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A3R362	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R363	321-5022-00			RES,FXD:THICK FILM;2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A3R364	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A3R365	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A3R366	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A3R367	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R376	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A3R377	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R378	321-5016-00			RES,FXD:THICK FILM;681 OHM,1%,0.125W,TC=100	50139	BCK6810FT
A3R379	321-5003-00			RES,FXD:THICK FILM;18.2 OHM,1%,0.125W,TC=100 PPM	91637	CRCW120618R2FT
A3R380	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R382	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R383	321-5029-00			RES,FXD:THICK FILM;8.25K OHM,1%,0.125W,TC=100 PPM	50139	BCK8251FT
A3R384	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A3R385	321-5031-00			RES,FXD:THICK FILM;12.1K OHM,1%,0.125W,TC=100 PPM	50139	BCK1212FT
A3R386	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R387	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R388	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R389	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R390	321-5315-00			RES,FXD,FILM;24.9 OHM,1%,0.125W,SMD,1206	91637	CRCW1206-24R9F
A3R391	321-5315-00			RES,FXD,FILM;24.9 OHM,1%,0.125W,SMD,1206	91637	CRCW1206-24R9F
A3R392	321-5021-00			RES,FXD:THICK FILM;1.82K OHM,1%,0.125W,TC=100 PPM	50139	BCK1821FT
A3R393	321-5143-00			RES,FXD,FILM;301 OHM,1%,0.125W,TAPE & REELED	91637	CRCW12063010FT
A3R394	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R395	321-5212-00			RES,FXD:THICK FILM;4.99K OHM,1%,0.125W,TC=100 PPM	91637	CRCW-1206-4991F
A3R396	321-5032-00			RES,FXD:THICK FILM;15.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1502FT
A3R397	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R398	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A3R399	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A3R400	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R401	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R402	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R403	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A3R404	321-5315-00			RES,FXD,FILM;24.9 OHM,1%,0.125W,SMD,1206	91637	CRCW1206-24R9F
A3R405	321-5315-00			RES,FXD,FILM;24.9 OHM,1%,0.125W,SMD,1206	91637	CRCW1206-24R9F
A3R406	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A3R407	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A3R408	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A3R409	321-5170-00			RES,FXD:THICK FILM;825K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-82502F
A3R410	321-5044-00			RES,FXD:THICK FILM;56.2 OHM,1%,0.125W,TC=100 PPM	50139	BCD56R2FT
A3R411	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A3R412	321-5044-00			RES,FXD:THICK FILM;56.2 OHM,1%,0.125W,TC=100 PPM	50139	BCD56R2FT
A3R413	321-5044-00			RES,FXD:THICK FILM;56.2 OHM,1%,0.125W,TC=100 PPM	50139	BCD56R2FT
A3R414	321-5044-00			RES,FXD:THICK FILM;56.2 OHM,1%,0.125W,TC=100 PPM	50139	BCD56R2FT
A3R415	322-3185-00			RES,FXD:METAL FILM;825 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G825ROF
A3U1	156-2051-01			MICROCKT,LINEAR:OPERATIONAL AMPL,QUAD,JET INPUT	01295	LF347DR
A3U2	160-8970-00			IC,DGTL:CMOS,PLD;EEPLD,16V8,15NS,90MA	80009	160897000
A3U3	156-6007-00			IC,CONV:CMOS,A/D;8-BIT,13US,11 CHAN MUX,SERIAL OUT	01295	TLC5401FN
A3U4	156-6007-00			IC,CONV:CMOS,A/D;8-BIT,13US,11 CHAN MUX,SERIAL OUT	01295	TLC5401FN
A3U5	156-6256-01			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUT CURRENT	04713	MC33178DR2
A3U6	156-5058-01			IC,DGTL:FTTL,BUS XCVR;OCTAL, NONINV, 3-STATE	01295	SN74F245DWR
A3U7	156-5489-01			IC,MISC:BIPOL,PWR SPLY SUPERVISOR;MPU RESET GEN,5V SPLY SENSING	01295	TL7705ACDR
A3U8	156-5058-01			IC,DGTL:FTTL,BUS XCVR;OCTAL, NONINV, 3-STATE	01295	SN74F245DWR
A3U9	156-5358-01			IC,DGTL:HCMOS,RGTR;8-BIT PISO SHIFTRGTR	01295	SN74HC165DR
A3U10	156-6461-01			IC,MEMORY:CMOS,EPROM;256K X 8,150NS FLASH	34335	AM28F020-150C3J
A3U11	156-6151-01			IC,MEMORY:CMOS,SRAM;128K X 8,100NS,15UA,OE	TK1146	M5M51008AFP-10L

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3U12	156-5058-01			IC,DGTL:FCTL,BUS XCVR;OCTAL, NONINV, 3-STATE	01295	SN74F245DWR
A3U13	160-9720-01			IC,MEMORY:CMOS,EPRM;128K X 8,120NS,OTP	80009	160-9720-01
	136-5011-00			*MOUNTING PARTS* SOCKET,PLCC:SMD;32 POS,0.05 CTR,0.800X 0.700 INCH WIDE,0.200 H,BE/CU,TIN,W/O PLZ POSTS *END MOUNTING PARTS*	22526	69802-132
A3U14	156-4224-00			IC,MEMORY:CMOS,NVRAM;8K X 8,100NS,INTEGRALBTRY	0B0A9	DS1225D-100
A3U15	156-5058-01			IC,DGTL:FCTL,BUS XCVR;OCTAL, NONINV, 3-STATE	01295	SN74F245DWR
A3U16	156-6461-01			IC,MEMORY:CMOS,EPRM;256K X 8,150NS FLASH	34335	AM28F020-150C3J
A3U17	156-6151-01			IC,MEMORY:CMOS,SRAM;128K X 8,100NS,15UA,OE	TK1146	M5M51008AFP-10L
A3U18	156-6454-00			IC,PROCESSOR:HCNOS,MICROCONTROLLER;32-BIT,16.78MHZ,2K RAM	04713	MC68332CFC
A3U19	156-5058-01			IC,DGTL:FCTL,BUS XCVR;OCTAL, NONINV, 3-STATE	01295	SN74F245DWR
A3U20	156-5441-01			IC,LIN:BIPOLAR,VR:POS,ADJUST,100MA,2%MICROPWR	27014	LP2951CMX
A3U21	156-5190-01			IC,DGTL:FCTL,DEMUX/DECODER;1-OF-8 DECODER	01295	SN74F138DR
A3U22	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE	01295	SN74HCT125DR
A3U23	156-5819-00			IC,DGTL:ACTCMOS,BFR;OCTAL BFR/DRVR,3-STATE	OJR04	TC74ACT244FN
A3U24	156-5123-01			IC,DGTL:HCTCMOS,DEMUX/DECODER;4-TO-16 DECODER	1CH66	74HCT154DT
A3U25	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE	01295	SN74HCT125DR
A3U26	156-5863-00			IC,DGTL:ECL,GATE;QUAD 2-INPUT OR	04713	MC10H103FN
A3U27	156-6147-00			IC,DGTL:CMOS,PLD:FPGA,XC3000 FAMILY,3030,100 CLBS,80 IOBS,74 I/O,70 MHZ	68994	XC3030-70PC84C
A3U28	156-5052-01			IC,DGTL:FCTL,GATE;HEX INV	01295	SN74F04DR
A3U29	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE	01295	SN74HCT125DR
A3U30	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE	01295	SN74HCT125DR
A3U31	156-6224-01			IC,CONVERTER:CMOS,D/A,12-BIT,V OUT,168.300,24MM	TK2441	I10412-04
A3U32	156-5480-01			IC,DGTL:HCNOS,RGTR;8-BIT SHIFTRGTR, WITH OUT LCH	OJR04	TC74HC595AFN(EL
A3U33	156-5299-01			IC,LINEAR:BIPOLAR,VR;NEGATIVE,-5V,100MA,5%	01295	MC79L05ACDR
A3U34	156-6194-00			IC,DGTL:CMOS,PLD:FPGA,XC3000 FAMILY,3042,144 CLBS,96 IOBS,74 I/O,70 MHZ	68994	XC3042-70PC84C
A3U35	156-6224-01			IC,CONVERTER:CMOS,D/A,12-BIT,V OUT,168.300,24MM	TK2441	I10412-04
A3U36	156-5011-01			IC,MEMORY:CMOS,SRAM;8K X 8,150NS,OE	44648	KM6264BLG-12T
A3U37	156-6425-01			IC,CONVERTER:CMOS,D/A:DUAL,12 BIT,US,V OUT,8-BIT MPU COMPATIBLE,REFERENCE	24355	AD7237JR-REEL
A3U38	156-5480-01			IC,DGTL:HCNOS,RGTR;8-BIT SHIFTRGTR, WITH OUT LCH	OJR04	TC74HC595AFN(EL
A3U39	156-2051-01			MICROCKT,LINEAR:OPERATIONAL AMPL,QUAD,JET INPUT	01295	LF347DR
A3U40	156-6619-01			IC,MEMORY:CMOS,FIFO;512 X 9,35NS	34335	AM7201-35JCTR
A3U41	156-5073-01			IC,MISC:HCNOS,ANALOG MUX;TRIPLE SPDT	1CH66	74HC4053DT
A3U42	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2
A3U43	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2
A3U44	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2
A3U45	156-5138-01			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CDR
A3U46	156-5073-01			IC,MISC:HCNOS,ANALOG MUX;TRIPLE SPDT	1CH66	74HC4053DT
A3U47	156-2051-01			MICROCKT,LINEAR:OPERATIONAL AMPL,QUAD,JET INPUT	01295	LF347DR
A3U48	156-2051-01			MICROCKT,LINEAR:OPERATIONAL AMPL,QUAD,JET INPUT	01295	LF347DR
A3U49	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A3U50	156-5073-01			IC,MISC:HCNOS,ANALOG MUX;TRIPLE SPDT	1CH66	74HC4053DT
A3U51	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2
A3U52	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2
A3U53	156-4234-00			IC,LINEAR:BIPOLAR,VR;NEGATIVE,-8.0 VOLTS,1.0A,2%	44648	KA7908T
A3U54	156-6446-01			IC,MISC:CMOS,SAMPLE/HOLD;QUAD,9USTO 0.01	24355	SMP04ESR
A3U55	234-0739-21	671-3155-00	671-3155-00	IC,ASIC:BIPOLAR,VIDEO PREAMPL;QC6-40,M639B-039	TK2598	234073921
A3U55	234-0739-22	671-3155-01		IC,ASIC: BIPOLAR,VIDEO DISPLAY OUTPUT AMP;QC6-40, M639-039	TK2598	234073922

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3U56	234-0739-21	671-3155-00	671-3155-00	IC,ASIC:BIPOLAR,VIDEO PREAMPL;QC6-40,M639B-039	TK2598	234073921
A3U56	234-0739-22	671-3155-01		IC,ASIC: BIPOLAR,VIDEO DISPLAY OUTPUT AMP;QC6-40, M639-039	TK2598	234073922
A3U57	156-5138-01			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CDR
A3U59	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A3U60	156-5088-01			IC,DGTL:HCTCMOS,DEMUX/DECODER;3-TO-8 DECODER	OJR04	TC74HCT138AFN(E
A3U62	156-5138-01			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CDR
A3U63	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A3U64	156-5138-01			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CDR
A3U65	156-5853-01			IC,LINEAR:BIPOLAR,OP-AMP;35MHZ,UNITYGAIN STABLE	27014	LM6361MX
A3U66	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A3U67	234-0728-21	671-3155-00	671-3155-00	IC,ASIC:BIPOLAR,ANALOG MUX;QC6-40,M639-028	TK2598	234072821
A3U67	234-0728-22	671-3155-01		IC,ASIC: BIPOLAR,VIDEO MULTIPLEXER,QC6-40,M639-028	TK2598	234072822
A3U68	156-5694-01			IC,MISC:BIPOLAR,VIDEO SUBSYSTEM;SYNC SEPARATOR	27014	LM1881MX
A3U70	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A3U72	156-6279-01			IC,LINEAR:BIFET,OP-AMP;DUAL,TWO POLEFREQ COMP	04713	MC33282DR2
A3U77	156-5480-01			IC,DGTL:HCMOS,RGTR;8-BIT SHIFTRGTR, WITH OUT LCH	OJR04	TC74HC595AFN(EL
A3U78	156-2959-00			IC,LINEAR:BIPOLAR,VR;POSITIVE,8.0V,1.0A,2%	04713	MCT7808CT
A3U79	234-0728-21	671-3155-00	671-3155-00	IC,ASIC:BIPOLAR,ANALOG MUX;QC6-40,M639-028	TK2598	234072821
A3U79	234-0728-22	671-3155-01		IC,ASIC: BIPOLAR,VIDEO MULTIPLEXER,QC6-40,M639-028	TK2598	234072822
A3U84	156-5138-01			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CDR
A3U85	156-5299-01			IC,LINEAR:BIPOLAR,VR;NEGATIVE,-5V,100MA,5%	01295	MC79L05ACDR
A3U86	156-6224-01			IC,CONVERTER:CMOS,D/A,12-BIT,V OUT,168.300,24MM	TK2441	I10412-04
A3U87	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE,	01295	SN74HCT125DR
A3U88	156-5138-01			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CDR
A3U89	156-5000-01			IC,LINEAR:BIPOLAR,COMPARATOR;OPEN COLL,200NS	01295	LM311DR
A3U90	156-5358-01			IC,DGTL:HCMOS,RGTR;8-BIT PISO SHIFTRGTR	01295	SN74HC165DR
A3U91	156-5358-01			IC,DGTL:HCMOS,RGTR;8-BIT PISO SHIFTRGTR	01295	SN74HC165DR
A3U92	156-5776-01			IC,MISC:CMOS,INTERFACE;DUAL RS-232LINE DRIVER/RE-CEIVER,+5V VCC,EXTERNAL CAPS REQUIRED	1ES66	MAX232CWE-T
A3U93	158-5024-00			OSCILLATOR,RF:CRYSTAL CONT;6MHZ,+/-0.01%,TTL OUT,SMD,FSO TYPE,24MM T&R	61429	FSO 6 MHZ
A3U94	156-5073-01			IC,MISC:HCMOS,ANALOG MUX;TRIPLE SPDT	1CH66	74HC4053DT
A3U95	156-5298-01			IC,LINEAR:BIPOLAR,VR;POSITIVE,5V,100MA,5%	01295	UA78L05ACDR
A3U96	156-6256-01			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUT CURRENT	04713	MC33178DR2
A3U97	156-6256-01			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUT CURRENT	04713	MC33178DR2
A3U98	156-6735-01			IC,LINEAR:BIPOLAR,OP-AMP;CURRENT FEED-BACK,65MHZ,W/DISABLE,1 TO 10 GAIN RANGE	24355	AD810AR-REEL
A3Y1	158-5013-00			XTAL UNIT QTZ:32.768KHZ,+/- 0.002%, RS 60KOHM,CS 0.85PF,SMT,FSM PKG0.41 X 0.16,0.14 HIGH	61429	FSM327
A3CR1	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A3CR2	152-5062-00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,COM-ANODE	27014	MMBD1205
A3CR3	152-5062-00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,COM-ANODE	27014	MMBD1205
A3CR4	152-5062-00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,COM-ANODE	27014	MMBD1205
A3CR5	152-5062-00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,COM-ANODE	27014	MMBD1205
A3CR6	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A3CR7	152-5062-00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,COM-ANODE	27014	MMBD1205
A3CR8	152-5047-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,COM-CATH	27014	MMBD1204
A3CR9	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A3DS1	150-5008-00			DIODE,OPTO:LED;GRN,569NM,4.2MCD AT 10MA,28	50434	HLMP-6505-021
A3DS2	150-0168-00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75FOR SKT MT *MOUNTING PARTS*	55335	73W
	136-1185-00			SOCKET,LPHLDR:PCB,WEDGE BASE;FEMALE,RTANG,SINGLE,0.328 H X 0.172 TAIL,TIN,T-1.75 *END MOUNTING PARTS*	95263	53-35XP11
A3DS3	150-0168-00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75FOR SKT MT *MOUNTING PARTS*	55335	73W
	136-1185-00			SOCKET,LPHLDR:PCB,WEDGE BASE;FEMALE,RTANG,SINGLE,0.328 H X 0.172 TAIL,TIN,T-1.75	95263	53-35XP11

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
				END MOUNTING PARTS		
A3DS4	150-0168-00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75FOR SKT MT	55335	73W
	136-1185-00			*MOUNTING PARTS*		
				SOCKET,LPHLDR:PCB,WEDGE BASE:FEMALE,RTANG,SINGLE,0.328 H X 0.172 TAIL,TIN,T-1.75	95263	53-35XP11
				END MOUNTING PARTS		
A3DS5	150-0168-00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75FOR SKT MT	55335	73W
	136-1185-00			*MOUNTING PARTS*		
				SOCKET,LPHLDR:PCB,WEDGE BASE:FEMALE,RTANG,SINGLE,0.328 H X 0.172 TAIL,TIN,T-1.75	95263	53-35XP11
				END MOUNTING PARTS		
A3LS1	119-2101-00			XDCR,AUDIO:6V NOM,40 MA,IMP 90 OHM,OUT 85 DB MIN @ 10 CM,FREQ2K-2.5K,MACHINE INSERTABLE/WASHABLE	63791	SMX-06
A3S1	260-1965-00			SWITCH,ROCKER:DIP:RAISED ROCKER,4 POSITION,TOP SEALED,150MA 30VDC	81073	76SB04S
A3TP7	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,WRED NYLON COLLAR	26364	104-01-02
A3VR1	152-5011-00			DIODE,ZENER:6.2V,5%,225MW	04713	MMBZ5234BLT1
A3VR2	152-5011-00			DIODE,ZENER:6.2V,5%,225MW	04713	MMBZ5234BLT1
A3VR3	152-5011-00			DIODE,ZENER:6.2V,5%,225MW	04713	MMBZ5234BLT1
A3VR4	152-5002-00			DIODE,ZENER:3.6V,5%,225MW	04713	MMBZ5227LBT1
A4	672-0332-00			CIRCUIT BD ASSY:BNC INPUT ASSEMBLY,WFM601i	80009	672033200
A4C1	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C2	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C3	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C4	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C5	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C6	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C7	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C8	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C9	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C10	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C11	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C12	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C13	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A4C14	283-5005-00			CAP,FXD,CERAMIC:MLC:4PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H040C-
A4C15	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C16	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A4C17	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C18	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4C19	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A4J1	131-0391-00			CONN,RF JACK:SMB;50 OHM,STR,PCB,GOLD/GOLD,0.293 H X 0.155 TAIL,3/0.045 SQ TAIL 0.038DIA CTRCOND,0.2 SQ PCB,0.312 HEX	24931	32JR105-1
A4J2	131-0265-00			CONN,RF PLUG:SMB;PCB,MALE,RTANG,50 OHM,0.381 H X 0.15 TAIL,0.043 DIA CTR COND,0.040 SQ TAIL	0GZV8	85SMB-50-0-1
A4J3	131-3718-00			CONN,HDR:PCB;MALE,STR,2 X 5,0.1 CTR,0.385H X 0.120 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.150 END DIM	TK1462	FAP-10-08-4-OAS
A4J4	131-0265-00			CONN,RF PLUG:SMB;PCB,MALE,RTANG,50 OHM,0.381 H X 0.15 TAIL,0.043 DIA CTR COND,0.040 SQ TAIL	0GZV8	85SMB-50-0-1
A4L1	108-5101-00			COIL,RF:IDCTR;FXD,100NH,5%,Q=28,SRF=700MHZ,DCR=0.44 OHM,IMAX=450MA	TK2058	NL322522T-R10J
A4J5	174-3134-00			CA ASSY,SP:RIBBON:IDC,10,28 AWG,1.75 L,2 X5,0.1 CTR PCB X 2 X 5,0.1 CTR,RCPT,W/CTR PLZ	TK2469	174-3134-00
A4L2	108-5101-00			COIL,RF:IDCTR;FXD,100NH,5%,Q=28,SRF=700MHZ,DCR=0.44 OHM,IMAX=450MA	TK2058	NL322522T-R10J
A4Q1	151-5008-00			XSTR,SIG:BIPOLAR,NPN;12V,70MA,3.0GHZ,AMPL	62104	NE02133-T1B (2S
A4Q2	151-5035-00			XSTR,SIG:BIPOLAR,NPN;25V,30MA,650MHZ,AMPL	04713	MMBTH10LT1

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A4Q3	151-5008-00			XSTR,SIG:BIPOLAR,NPN;12V,70MA,3.0GHZ,AMPL	62104	NE02133-T1B (2S
A4Q4	151-5035-00			XSTR,SIG:BIPOLAR,NPN;25V,30MA,650MHZ,AMPL	04713	MMBT10LT1
A4Q5	151-5008-00			XSTR,SIG:BIPOLAR,NPN;12V,70MA,3.0GHZ,AMPL	62104	NE02133-T1B (2S
A4Q6	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A4Q7	151-5008-00			XSTR,SIG:BIPOLAR,NPN;12V,70MA,3.0GHZ,AMPL	62104	NE02133-T1B (2S
A4Q8	151-5012-00			XSTR,SIG:BIPOLAR,PNP;15V,10MA,2.0GHZ,AMPL	04713	MMBT169LT1
A4Q9	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A4Q10	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A4Q11	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A4R1	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A4R2	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A4R3	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A4R5	321-5013-00			RES,FXD:THICK FILM;392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A4R6	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A4R7	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R8	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A4R9	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A4R10	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A4R11	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A4R12	321-5013-00			RES,FXD:THICK FILM;392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A4R14	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A4R15	321-5043-00			RES,FXD:THICK FILM;47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A4R16	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R17	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R18	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A4R19	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R20	321-5011-00			RES,FXD:THICK FILM;274 OHM,1%,0.125W,TC=100	50139	BCK2740FT
A4R21	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R22	321-5043-00			RES,FXD:THICK FILM;47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A4R23	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R24	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A4R25	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A4R26	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A4R27	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R28	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A4R29	321-5044-00			RES,FXD:THICK FILM;56.2 OHM,1%,0.125W,TC=100 PPM	50139	BCD56R2FT
A4R30	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R31	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R32	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R33	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A4R34	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R35	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A4R36	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A4R37	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R38	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A4R39	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A4R40	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A4R41	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A4R42	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A4R43	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A4R44	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A4R45	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A4R46	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A4R47	321-5011-00			RES,FXD:THICK FILM;274 OHM,1%,0.125W,TC=100	50139	BCK2740FT
A4R48	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A4U1	156-5299-01			IC,LINEAR:BIPOLAR,VR,NEGATIVE,-5V,100MA,5%	01295	MC79L05ACDR
A4CR1	152-5045-00			DIODE,SIG:SCHTKY;20V,1.2PF,24 OHM	50434	HSMS-2810-T31
A4CR2	152-5045-00			DIODE,SIG:SCHTKY;20V,1.2PF,24 OHM	50434	HSMS-2810-T31

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A4CR3	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A4CR4	152-5045-00			DIODE,SIG:SCHTKY;20V,1.2PF,24 OHM	50434	HSMS-2810-T31
A4CR5	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A4CR6	152-5045-00			DIODE,SIG:SCHTKY;20V,1.2PF,24 OHM	50434	HSMS-2810-T31
A4CR7	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A4CR8	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A4A1	-----			CIRCUIT BD ASSY:BNC		
A4A1J1	131-5647-00			CONN,RF,JACK:BNC;75 OHM,FEMALE,STR,PCB,4,0.04 SQ 0.189 L TAILS ON0.25 CTR,0.038 DIA CTR COND	24931	28JR469-1
A4A1J2	131-5647-00			CONN,RF,JACK:BNC;75 OHM,FEMALE,STR,PCB,4,0.04 SQ 0.189 L TAILS ON0.25 CTR,0.038 DIA CTR COND	24931	28JR469-1
A4A1J3	131-5647-00			CONN,RF,JACK:BNC;75 OHM,FEMALE,STR,PCB,4,0.04 SQ 0.189 L TAILS ON0.25 CTR,0.038 DIA CTR COND	24931	28JR469-1
A4A1J4	131-5647-00			CONN,RF,JACK:BNC;75 OHM,FEMALE,STR,PCB,4,0.04 SQ 0.189 L TAILS ON0.25 CTR,0.038 DIA CTR COND	24931	28JR469-1
A4A1J5	131-5436-00			CONN,RF JACK:BNC;50 OHM,FEMALE,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTRPCB	24931	28JR299-3
A4A1J6	131-5436-00			CONN,RF JACK:BNC;50 OHM,FEMALE,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTRPCB	24931	28JR299-3
A4A1J7	131-5647-00			CONN,RF,JACK:BNC;75 OHM,FEMALE,STR,PCB,4,0.04 SQ 0.189 L TAILS ON0.25 CTR,0.038 DIA CTR COND	24931	28JR469-1
A4A1J8	131-5436-00			CONN,RF JACK:BNC;50 OHM,FEMALE,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTRPCB	24931	28JR299-3
A4A1J9	131-5436-00			CONN,RF JACK:BNC;50 OHM,FEMALE,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTRPCB	24931	28JR299-3
A4A1J10	131-5436-00			CONN,RF JACK:BNC;50 OHM,FEMALE,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTRPCB	24931	28JR299-3
A5	671-3161-00			CIRCUIT BD ASSY:DESERIALIZER	80009	671316100
A5C1	281-0826-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,100V,0.100 X	TK1743	CGB222KEX
A5C2	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V,	TK1743	CGB103KEX
A5C3	281-0826-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,100V,0.100 X	TK1743	CGB222KEX
A5C4	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C5	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A5C6	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C7	281-0925-01			CAP,FXD,CERAMIC:MLC:0.22UF,20%,50V,Z5U,0.170 X 0.120	04222	SA115E224MAA
A5C8	281-0925-01			CAP,FXD,CERAMIC:MLC:0.22UF,20%,50V,Z5U,0.170 X 0.120	04222	SA115E224MAA
A5C9	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A5C10	281-0850-00			CAP,FXD,CERAMIC:MLC:820PF,5%,50VDC,0.100 X0.170	TK1743	CGC821JDN
A5C11	281-0826-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,100V,0.100 X	TK1743	CGB222KEX
A5C12	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C13	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C14	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A5C15	281-0895-00			CAP,FXD,CER DI:6.8PF,100VDC	04222	SA102A6R8DAA
A5C16	281-0819-00			CAP,FXD,CERAMIC:MLC:33 PF,5%,50V,0.100 X 0.170	04222	SA102A330JAA
A5C17	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C18	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A5C19	281-0850-00			CAP,FXD,CERAMIC:MLC:820PF,5%,50VDC,0.100 X0.170	TK1743	CGC821JDN
A5C20	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A5C21	281-0812-00			CAP,FXD,CERAMIC:MLC:1000PF,10%,100V,0.100 X	04222	SA101C102KAA
A5C22	281-0904-00			CAP,FXD,CERAMIC:MLC:12PF,10%,100V,0.100 X 0.170	04222	SA102A120JAA
A5C23	281-0960-00			CAP,FXD,CERAMIC:MLC:10PF,+/- .25PF,200V,NPO,.170X.100	04222	SA102A100CAA
A5C24	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A5C25	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A5C26	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C27	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C28	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V,	TK1743	CGB103KEX
A5C29	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C30	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C31	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A5C32	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A5C33	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C34	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A5C35	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A5C36	281-0811-00			CAP,FXD,CERAMIC:MLC;10PF,10%,200V,0.100 X 0.170	04222	SA102A100KAA
A5C37	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C38	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A5C39	290-1296-01			CAP,FXD,ALUM:100UF,20%,25V,8 X 9MM;105 DEG,RDL,T&A	55680	URT1E101MNH1TA
A5C40	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C41	281-0537-00			CAP,FXD,CERAMIC:MLC;0.68PF,20%,500V,0.170 X	TK2058	DA12COG2HR68M
A5C42	290-1296-01			CAP,FXD,ALUM:100UF,20%,25V,8 X 9MM;105 DEG,RDL,T&A	55680	URT1E101MNH1TA
A5C43	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C44	283-0177-05			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAAAP1
A5C45	283-0784-01			CAP,FXD,MICA DI:40PF,2%,500V,TAPE & AMMO PACK	09023	CDA15ED400G03
A5C46	283-0672-01			CAP,FXD,MICA DI:200PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD201F03
A5C47	281-0759-00			CAP,FXD,CERAMIC:MLC;22PF,10%,100V,0.100 X 0.170	04222	SA102A220KAA
A5J1	131-3360-01			CONN,HDR:PCB;MALE,STR,2 X 10,0.1 CTR,0.365D,BD RETENTION	53387	2520-60K2UB
A5J2	131-0391-00			CONN,RF JACK:SMB;50 OHM,STR,PCB,GOLD/GOLD,0.293 H X 0.155 TAIL,3/0.045 SQ TAIL 0.038DIA CTRCOND,0.2 SQ PCB,0.312 HEX	24931	32JR105-1
A5J3	131-4530-00			CONN,HDR:PCB;MALE,STR,1 X 3,0.1 CTR,0.230MLG X 0.120 TAIL,30GOLD,BD RETENTION	00779	104344-1
A5J4	131-0391-00			CONN,RF JACK:SMB;50 OHM,STR,PCB,GOLD/GOLD,0.293 H X 0.155 TAIL,3/0.045 SQ TAIL 0.038DIA CTRCOND,0.2 SQ PCB,0.312 HEX	24931	32JR105-1
A5J5	131-3361-00			CONN,HDR:PCB;MALE,RTANG,2 X 13,0.1CTR,0.33 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD	53387	2526-5002UB
A5J6	131-4530-00			CONN,HDR:PCB;MALE,STR,1 X 3,0.1 CTR,0.230MLG X 0.120 TAIL,30GOLD,BD RETENTION	00779	104344-1
A5J7	174-2744-00			CA ASSY,SP,ELEC:34,28 AWG, 3.25 L,RIBBON	53387	174-2744-00
A5J8	131-0391-00			CONN,RF JACK:SMB;50 OHM,STR,PCB,GOLD/GOLD,0.293 H X 0.155 TAIL,3/0.045 SQ TAIL 0.038DIA CTRCOND,0.2 SQ PCB,0.312 HEX	24931	32JR105-1
A5J9	131-3360-01			CONN,HDR:PCB;MALE,STR,2 X 10,0.1 CTR,0.365D,BD RETENTION	53387	2520-60K2UB
A5L1	108-1352-00			COIL,RF:FIXED,22UH,10%, Q=50 @ 2.52MHZ,SRF13 MHZ, DCR 1.2 OHMI MAX 285 MA, AXIAL LEAD, FERRITE CORE	TK2058	SPT0305-220K-2
A5L2	108-1352-00			COIL,RF:FIXED,22UH,10%, Q=50 @ 2.52MHZ,SRF13 MHZ, DCR 1.2 OHMI MAX 285 MA, AXIAL LEAD, FERRITE CORE	TK2058	SPT0305-220K-2
A5L3	114-0501-00			IDCTR:VAR,0.22UH,6%,Q>60 AT 80MHZ,7.5MMSQ 13MM HI	TK2453	292SNS-T1368Z
A5L4	108-1412-00			IDCTR,FXD:POWER:4.7UH,20%,I<3.7A,RDC<0.017 OHM,Q>10,SRF>30MHZ	TK2058	TSL0807-4R7M3R0
A5L5	108-0735-00			COIL,RF:FIXED,584NH	0JR03	108-0735-00
A5P3	131-3199-00			CONN,SHUNT:SHUNT;FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A5P6	131-3199-00			CONN,SHUNT:SHUNT;FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A5Q1	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A5Q2	151-0190-00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A5Q3	151-1078-00			XSTR,SIG:JFET,N-CH;3.5V,75MA,90 OHM,SWITCH	04713	MPF4393
A5Q5	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A5Q6	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A5Q7	151-0965-00			XSTR,SIG:BIPOLAR,NPN;10V,80MA,6.0GHZ,AMPL	04713	MPS571
A5Q8	151-0965-00			XSTR,SIG:BIPOLAR,NPN;10V,80MA,6.0GHZ,AMPL	04713	MPS571
A5Q9	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A5Q10	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A5R1	322-3114-00			RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A5R2	131-4566-00			BUS,CNDCT:0 OHM,300 SPACING,SM BODYMI,DUM RES	91637	FRJ-50
A5R3	322-3082-00			RES,FXD,FILM:69.8 OHM,1%,0.2W,TC=T0SMALL BODY	57668	CRB20 FXE 69E8
A5R4	131-4566-00			BUS,CNDCT:0 OHM,300 SPACING,SM BODYMI,DUM RES	91637	FRJ-50
A5R5	322-3069-00			RES,FXD,FILM:51.1 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G51R10F
A5R6	322-3293-00			RES,FXD:METAL FILM;11K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G11001F
A5R7	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0MI,SMALLBODY	91637	CCF501G200ROF
A5R8	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R9	322-3114-00			RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A5R10	322-3105-00			RES,FXD:METAL FILM;121 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G121ROF
A5R11	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R12	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R13	322-3322-00			RES,FXD:METAL FILM;22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A5R14	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A5R15	131-4566-00			BUS,CNDCT:0 OHM,300 SPACING,SM BODYMI,DUM RES	91637	FRJ-50
A5R17	322-3139-00			RES,FXD:METAL FILM;274 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G274ROF
A5R18	311-2233-00			RES,VAR,TRMR:CERMET;3K OHM,20%,0.5W,0.197 SQ,TOP ADJUST	TK2073	GF06UT2 302 M L
A5R19	322-3066-00			RES,FXD:METAL FILM;47.5 OHM,1%,0.2W,TC=100PPM	09969	CCF502G47R50F
A5R20	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A5R21	131-4566-00			BUS,CNDCT:0 OHM,300 SPACING,SM BODYMI,DUM RES	91637	FRJ-50
A5R22	322-3153-00			RES,FXD,FILM:383 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB20 FXE383
A5R23	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G200ROF
A5R24	322-3246-00			RES,FXD,FILM:3.57K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G35700F
A5R25	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R26	322-3135-00			RES,FXD,FILM:249 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G249R0F
A5R27	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R28	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A5R29	322-3322-00			RES,FXD:METAL FILM;22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A5R30	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A5R31	131-4566-00			BUS,CNDCT:0 OHM,300 SPACING,SM BODYMI,DUM RES	91637	FRJ-50
A5R32	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G10003F
A5R33	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A5R34	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R35	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R36	322-3068-00			RES,FXD:METAL FILM;49.9 OHM,1%,0.2W,TC=100PPM	91637	CCF501G49R90F
A5R37	322-3114-00			RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A5R38	322-3114-00			RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A5R39	322-3068-00			RES,FXD:METAL FILM;49.9 OHM,1%,0.2W,TC=100PPM	91637	CCF501G49R90F
A5R40	322-3018-00			RES,FXD:METAL FILM;15 OHM,1%,0.2W,TC=100 PPM	57668	CRB20FXE15E0
A5R41	322-3068-00			RES,FXD:METAL FILM;49.9 OHM,1%,0.2W,TC=100PPM	91637	CCF501G49R90F
A5R42	322-3322-00			RES,FXD:METAL FILM;22.1K OHM,1%,0.2W,TC=100	91637	CCF501G22101F
A5R43	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R44	322-3068-00			RES,FXD:METAL FILM;49.9 OHM,1%,0.2W,TC=100PPM	91637	CCF501G49R90F
A5R45	322-3001-00			RES,FXD:METAL FILM;10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A5R46	322-3068-00			RES,FXD:METAL FILM;49.9 OHM,1%,0.2W,TC=100PPM	91637	CCF501G49R90F
A5R47	322-3001-00			RES,FXD:METAL FILM;10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A5R48	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R49	307-0541-00			RES NTWK,FXD,FI:(7)1K OHM,10%,1W	11236	750-81-R1 KOHM
A5R50	307-0541-00			RES NTWK,FXD,FI:(7)1K OHM,10%,1W	11236	750-81-R1 KOHM
A5R51	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A5R52	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0MI,SMALLBODY	91637	CCF501G200ROF
A5R53	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G75R00F
A5R54	322-3001-00			RES,FXD:METAL FILM;10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5R55	131-4566-00			BUS,CNDC:T:0 OHM,300 SPACING,SM BODYMI,DUM RES	91637	FRJ-50
A5R56	322-3114-00			RES,FXD:METAL FILM:150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A5R57	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A5R58	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A5R59	322-3082-00			RES,FXD,FILM:69.8 OHM,1%,0.2W,TC=T0,SMALL BODY	57668	CRB20 FXE 69E8
A5R60	322-3034-00			RES,FXD:METAL FILM:22.1 OHM,1%,0.2W,TC=100PPM	91637	CCF50-2-G22R10F
A5R61	322-3034-00			RES,FXD:METAL FILM:22.1 OHM,1%,0.2W,TC=100PPM	91637	CCF50-2-G22R10F
A5R62	131-4566-00			BUS,CNDC:T:0 OHM,300 SPACING,SM BODYMI,DUM RES	91637	FRJ-50
A5R63	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R64	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R65	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R66	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R67	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R68	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R69	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R70	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R71	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R72	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R73	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A5R74	322-3001-00			RES,FXD:METAL FILM:10 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10R00F
A5U1	156-4500-00			IC,LINEAR:BIPOLAR,AMPL;LOGARITHMIC,80DB DYNAMIC RANGE,50 MHZ,LIMITING,RSSI	24355	AD606JN
A5U2	156-4234-00			IC,LINEAR:BIPOLAR,VR:NEGATIVE,-8.0 VOLTS,1.0A,2%	44648	KA7908T
A5U3	156-4501-00			IC,MISC:BIPOLAR,MISC:DBL-BALANCED MIXER AND OSC	1CH66	NE602AN
A5U4	156-0991-02			IC,LINEAR:BIPOLAR,VR:POSITIVE,5.0V,100MA,5%	01295	UA78L05ACLPM
A5U5	156-2959-00			IC,LINEAR:BIPOLAR,VR:POSITIVE,8.0V,1.0A,2%	04713	MCT7808CT
A5U6	156-3047-00			IC,LINEAR:BIPOLAR,AMPL;RF AMP,20DB GAIN,600MHZ	1CH66	NE5205AN
A5U7	156-4158-00			IC,MISC:ECL,DCDR;SER DATA XMSN TO PRL DATA	TK2540	SBX1602A
				MOUNTING PARTS		
	136-1159-00			SOCKET,PGA:PCB:37 POS,10 X 10,0.1 CTR,0.165 H X 0.125 TAIL,GOLD/GOLD,NON SYMMETRICAL,PAT 1026,W/CORNER POS & 3 PLUGS	63058	PGA 63160-001
				END MOUNTING PARTS		
A5U8	156-5933-00			MICROCKT,DGTL:ECL,10KH,10 BIT VIDEO LINEDRIVER,SMPTE RP-125 COMPATIBLE	9Z527	VS620PLJ
	136-0959-00			SKT,PL-IN ELEK:PLCC,52,PCB,0.361 H X 0.147TAIL,TIN	00779	821551-1
				END MOUNTING PARTS		
A5U9	156-2349-00			IC,DGTL:HCMOS,RGTR:8-BIT SIPO,LATCHED 3-STATE	0JR04	TC74HC595AP
A5CR1	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A5CR2	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A5CR3	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A5CR4	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A5CR5	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A5CR6	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A5CR7	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A5CR8	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A5FL1	119-4759-00			FILTER:BANDPASS,77.2MHZ,BW=6MHZ AT-3DB,50 OHM IN 50 OHM OUT,9.5 X 25.5 X 10.5MM	TK0AN	335BBXS-0055
A5TP1	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A5TP2	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A6	671-3235-00			CIRCUIT BD ASSY:CPOROCESSOR	80009	671323500
A6C1	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C2	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C3	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C4	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C5	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A6C6	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C7	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C8	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C9	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C10	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C11	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C12	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C13	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C14	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C15	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C16	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C17	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A6C18	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A6C19	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A6C20	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A6C21	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A6C22	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A6C23	290-5022-00			CAP,FXD,TANT:68UF,20%,6V,0.287 X 0.170:7343,SMD,T&R	17554	TAJD686M006R
A6C24	290-5022-00			CAP,FXD,TANT:68UF,20%,6V,0.287 X 0.170:7343,SMD,T&R	17554	TAJD686M006R
A6C25	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C26	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C27	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C28	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C29	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A6C30	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A6J1	131-3358-00			CONN,HDR:PCB;MALE,RTANG,2 X 5,0.1 CTR,0.390 MLG X 0.112 TAIL,0.33 H,SHRD/4 SIDES,MILPLZ,30 GOLD	53387	2510-5002UB
A6J2	131-3181-00			CONN,HDR:PCB;MALE,RTANG,2 X 20,0.1 CTR,0.330 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.390 MLG,HIGH TEMP	22526	69155-440R
A6J7	131-3361-00			CONN,HDR:PCB;MALE,RTANG,2 X 13,0.1 CTR,0.33 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD	53387	2526-5002UB
A6J8	174-3128-00			CA ASSY,SP:26 COND,28 AWG,6.800 L	TK2469	174-3129-00
A6L1	108-0858-00			COIL,RF:IDCTR:FXD,3.0UH,10%,12TURNS,22AWG,276-0120 -00 FERRITE COIL FORM,0.243 DIA,0.775 LONG	OJR03	108-0858-00
A6L2	108-5000-00			IDCTR,FXD:POWER:1.0UH,20%,I<0.45A,RDC<0.5 OHM,Q>50,SRF>140MHZ	TK2058	NL453232T-1R0M
A6R1	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A6R2	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A6R5	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R6	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R7	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R8	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R9	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R10	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R11	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R12	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R13	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R14	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6R16	321-5106-00			RES,FXD,FILM:110 OHM,1%,0.125W,1206,8MM	50139	BCK1100FKM
A6U1	156-5324-01			IC,DGTL:ECL,TRANSLATOR:QUAD ECL-TO-TTL	04713	MC10H125FN2
A6U2	156-5324-01			IC,DGTL:ECL,TRANSLATOR:QUAD ECL-TO-TTL	04713	MC10H125FN2
A6U3	156-5324-01			IC,DGTL:ECL,TRANSLATOR:QUAD ECL-TO-TTL	04713	MC10H125FN2
A6U4	160-9977-00			IC,MEMORY:CMOS,PROM;128K X 1,SERIAL	80009	160997700
				MOUNTING PARTS		
	136-0727-00			SKT,PL-IN ELEK:MICROCKT,8 CONTACT	09922	DILB8P-108
				END MOUNTING PARTS		
A6U5	156-6657-00			IC,DGTL:CMOS,PLD:FPGA,XC4000A FAMILY,4005A,196 CLBS,112 IOBS,112 I/O,5 NS	68994	XC4005A-5PQ208C

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A6U6	160-9978-00			IC, MEMORY: CMOS, PROM; 128K X 1, SERIAL *MOUNTING PARTS*	80009	160997800
	136-0727-00			SKT, PL-IN ELEK: MICROCKT, 8 CONTACT *END MOUNTING PARTS*	09922	DILB8P-108
A6W21	321-5051-00			RES, FXD: THICK FILM; 0 OHM, 1%, 0.125W, TC=100 PPM	09969	CRCW1206 JUMPER
A6W22	321-5051-00			RES, FXD: THICK FILM; 0 OHM, 1%, 0.125W, TC=100 PPM	09969	CRCW1206 JUMPER
A6W23	321-5051-00			RES, FXD: THICK FILM; 0 OHM, 1%, 0.125W, TC=100 PPM	09969	CRCW1206 JUMPER
A6W24	321-5051-00			RES, FXD: THICK FILM; 0 OHM, 1%, 0.125W, TC=100 PPM	09969	CRCW1206 JUMPER
A7	671-3156-00			CIRCUIT BD ASSY: COMPONENT	80009	671315600
A7C1	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C2	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C3	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C4	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C5	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C6	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C9	290-5037-01			CAP, FXD, ALUM: 10UF, 20%, 35V, 5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A7C10	290-5037-01			CAP, FXD, ALUM: 10UF, 20%, 35V, 5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A7C11	283-5109-00			CAP, FXD, CERAMIC: MLC; 680PF, 5%, 100V, NPO, 1206	04222	12061A681JAT1A
A7C12	283-5109-00			CAP, FXD, CERAMIC: MLC; 680PF, 5%, 100V, NPO, 1206	04222	12061A681JAT1A
A7C13	283-5109-00			CAP, FXD, CERAMIC: MLC; 680PF, 5%, 100V, NPO, 1206	04222	12061A681JAT1A
A7C14	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C36	283-5001-00			CAP, FXD, CERAMIC: MLC; 100PF, 5%, 50V, NPO, 1206	TK2058	C3216COG1H101J-
A7C40	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C41	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C42	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C43	283-5259-00			CAP, FXD, CERAMIC: MLC; 6.8PF, +/-0.25PF, 100V, NPO	04222	12061A6R8CAT1A
A7C45	283-5259-00			CAP, FXD, CERAMIC: MLC; 6.8PF, +/-0.25PF, 100V, NPO	04222	12061A6R8CAT1A
A7C50	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C63	283-5259-00			CAP, FXD, CERAMIC: MLC; 6.8PF, +/-0.25PF, 100V, NPO	04222	12061A6R8CAT1A
A7C71	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C72	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C73	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C74	281-0139-00			CAP, VAR, CER DI: 2.5-9PF, 100V	59660	518-031 A 2.5-9
A7C75	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C80	283-5203-00			CAP, FXD, CERAMIC: MLC; 1000PF, 10%, 100V, X7R, 1206	04222	12061C102KAT1A
A7C90	283-5203-00			CAP, FXD, CERAMIC: MLC; 1000PF, 10%, 100V, X7R, 1206	04222	12061C102KAT1A
A7C91	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C92	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C94	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C100	283-5203-00			CAP, FXD, CERAMIC: MLC; 1000PF, 10%, 100V, X7R, 1206	04222	12061C102KAT1A
A7C101	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C118	283-5003-00			CAP, FXD, CERAMIC: MLC; 0.01UF, 10%, 50V, X7R, 1206	TK2058	C3216X7R1H103K-
A7C119	283-5003-00			CAP, FXD, CERAMIC: MLC; 0.01UF, 10%, 50V, X7R, 1206	TK2058	C3216X7R1H103K-
A7C120	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C121	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C125	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C126	283-5098-00			CAP, FXD, CERAMIC: MLC; 0.1UF, +80%-20%, 50V, Z5U, 1206	04222	12065E104ZAT3A
A7C130	283-0633-01			CAP, FXD, MICA DI: 77PF, 1%, 500V, RDL, TAPE & AMMO PACK	09023	CDA15ED770F03
A7C131	283-0647-01			CAP, FXD, MICA DI: 70PF, 1%, 500V, TAPE & AMMO PACK	09023	CDA15ED700F03
A7C132	283-0649-01			CAP, FXD, MICA DI: 105PF, 1%, 500V, TAPE & AMMO PACK	09023	CDA15FD(105)F03
A7C133	281-0140-00			CAP, VAR, CER DI: 5-25PF, 100V	59660	518-038A-5-25
A7C134	283-0779-01			CAP, FXD, MICA: 27PF, 2%, 500V, T&A	09023	CDA15ED270G03
A7C136	281-0140-00			CAP, VAR, CER DI: 5-25PF, 100V	59660	518-038A-5-25
A7C151	283-0633-01			CAP, FXD, MICA DI: 77PF, 1%, 500V, RDL, TAPE & AMMO PACK	09023	CDA15ED770F03
A7C152	283-0647-01			CAP, FXD, MICA DI: 70PF, 1%, 500V, TAPE & AMMO PACK	09023	CDA15ED700F03
A7C155	283-0649-01			CAP, FXD, MICA DI: 105PF, 1%, 500V, TAPE & AMMO PACK	09023	CDA15FD(105)F03
A7C156	283-0636-01			CAP, FXD, MICA DI: 36PF, 1%, 500V, TAPE & AMMO PACK	09023	CDA15ED360G03

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A7C162	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C163	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C164	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A7C165	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A7C180	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C181	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A7C190	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C191	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A7C202	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C206	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C207	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C208	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C209	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C210	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C301	283-0646-01			CAP,FXD,MICA DI:170PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD171F03
A7C302	281-0756-00			CAP,FXD,CER:MLC:2.2PF,+/-0.5PF,200V,NPO,0.100 X 0.170	04222	SA102A2R2DAA
A7C303	283-0648-01			CAP,FXD,MICA DI:10PF,5%,500V,TAPED & REELED	TK0891	RDM15CD100D03
A7C304	283-0698-01			CAP,FXD,MICA DI:390PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD391F03
A7C305	283-0782-00			CAP,FXD,MICA DI:39 PF,5%,500V	TK0891	RDM15ED390J03
A7C306	283-0646-01			CAP,FXD,MICA DI:170PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD171F03
A7C307	283-5187-00			CAP,FXD,CERAMIC:MLC:15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C308	281-0140-00			CAP,VAR,CER DI:5-25PF,100V	59660	518-038A-5-25
A7C309	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C310	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C311	283-0728-01			CAP,FXD,MICA DI:120PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD121F03
A7C312	283-0728-01			CAP,FXD,MICA DI:120PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD121F03
A7C315	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C316	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C321	283-5041-00			CAP,FXD,CERAMIC:MLC:7PF,+/-0.5PF,50V,NPO,1206	TK2058	C3216C0G1H070D-
A7C322	283-5196-00			CAP,FXD,CERAMIC:MLC:47PF,5%,100V,NPO,1206	04222	12061A470JAT1A
A7C323	283-5200-00			CAP,FXD,CER DI:0.47UF,+80-20%,50V	04222	18125E474ZAT1A
A7C325	281-0799-00			CAP,FXD,CER DI:62PF,2%,100V	04222	SA102A620GAA
A7C350	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C400	283-5203-00			CAP,FXD,CERAMIC:MLC:1000PF,10%,100V,X7R,1206	04222	12061C102KAT1A
A7C401	283-0752-01			CAP,FXD,MICA DI:345PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD(345)F03
A7C402	283-0779-01			CAP,FXD,MICA DI:27PF,2%,500V,T&A	09023	CDA15ED270G03
A7C403	283-0645-01			CAP,FXD,MICA DI:790PF,1%,300V,TAPE & AMMO PACK	09023	CDA15FC791F03
A7C404	283-0633-01			CAP,FXD,MICA DI:77PF,1%,500V,RDL,TAPE &AMMO PACK	09023	CDA15ED770F03
A7C405	283-0752-01			CAP,FXD,MICA DI:345PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD(345)F03
A7C407	281-0140-00			CAP,VAR,CER DI:5-25PF,100V	59660	518-038A-5-25
A7C408	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C409	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C410	283-0625-01			CAP,FXD,MICA DI:220PF,1%,500V,TAPE & AMMO PACK	09023	CDA10FD221F03
A7C411	283-0625-01			CAP,FXD,MICA DI:220PF,1%,500V,TAPE & AMMO PACK	09023	CDA10FD221F03
A7C412	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C414	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C415	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C419	283-5019-00			CAP,FXD,CERAMIC:MLC:2PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H020C-
A7C420	283-5203-00			CAP,FXD,CERAMIC:MLC:1000PF,10%,100V,X7R,1206	04222	12061C102KAT1A
A7C421	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C422	283-5196-00			CAP,FXD,CERAMIC:MLC:47PF,5%,100V,NPO,1206	04222	12061A470JAT1A
A7C423	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A7C424	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C425	283-5001-00			CAP,FXD,CERAMIC:MLC:100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A7C430	283-5187-00			CAP,FXD,CERAMIC:MLC:15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C442	283-5201-00			CAP,FXD,CERAMIC:MLC:33PF,5%,100V,NPO,1206	04222	12061A330JAT1A
A7C446	283-5188-00			CAP,FXD,CERAMIC:MLC:100PF,5%,100V,NPO,1206	04222	12061A101JAT1A
A7C450	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A7C501	283-0752-01			CAP,FXD,MICA DI:345PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD(345)F03
A7C502	283-0779-01			CAP,FXD,MICA:27PF,2%,500V,T&A	09023	CDA15ED270G03
A7C503	283-0645-01			CAP,FXD,MICA DI:790PF,1%,300V,TAPE & AMMO PACK	09023	CDA15FC791F03
A7C504	283-0633-01			CAP,FXD,MICA DI:77PF,1%,500V,RDL,TAPE &AMMO PACK	09023	CDA15ED770F03
A7C505	283-0752-01			CAP,FXD,MICA DI:345PF,1%,500V,TAPE & AMMO PACK	09023	CDA15FD(345)F03
A7C507	281-0140-00			CAP,VAR,CER DI:5-25PF,100V	59660	518-038A-5-25
A7C508	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C509	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C510	283-0625-01			CAP,FXD,MICA DI:220PF,1%,500VTAPE & AMMO PACK	09023	CDA10FD221F03
A7C511	283-0625-01			CAP,FXD,MICA DI:220PF,1%,500VTAPE & AMMO PACK	09023	CDA10FD221F03
A7C514	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C515	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C522	283-5196-00			CAP,FXD,CERAMIC:MLC;47PF,5%,100V,NPO,1206	04222	12061A470JAT1A
A7C523	283-5267-00			CAP,FXD,CERAMIC:MLC;1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A7C525	283-5001-00			CAP,FXD,CERAMIC:MLC;100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A7C550	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C601	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C602	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C610	283-5203-00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V,X7R,1206	04222	12061C102KAT1A
A7C611	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A7C711	281-0140-00			CAP,VAR,CER DI:5-25PF,100V	59660	518-038A-5-25
A7C712	283-5107-00			CAP,FXD,CERAMIC:MLC;22PF,5%,100V,NPO,1206	04222	12061A220JAT1A
A7C713	283-5187-00			CAP,FXD,CERAMIC:MLC;15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C714	283-5187-00			CAP,FXD,CERAMIC:MLC;15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C721	281-0140-00			CAP,VAR,CER DI:5-25PF,100V	59660	518-038A-5-25
A7C722	283-5107-00			CAP,FXD,CERAMIC:MLC;22PF,5%,100V,NPO,1206	04222	12061A220JAT1A
A7C723	283-5187-00			CAP,FXD,CERAMIC:MLC;15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C724	283-5187-00			CAP,FXD,CERAMIC:MLC;15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C731	281-0140-00			CAP,VAR,CER DI:5-25PF,100V	59660	518-038A-5-25
A7C732	283-5187-00			CAP,FXD,CERAMIC:MLC;15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C733	283-5187-00			CAP,FXD,CERAMIC:MLC;15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C734	283-5187-00			CAP,FXD,CERAMIC:MLC;15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A7C771	283-5226-00			CAP,FXD,CERAMIC:MLC;270PF,5%,50V,NPO,1206	04222	12065A271JAT1A
A7C772	283-5239-00			CAP,FXD,CERAMIC:MLC;1200PF,5%,100V,NPO,1206	04222	12061A122JAT1A
A7C773	283-5226-00			CAP,FXD,CERAMIC:MLC;270PF,5%,50V,NPO,1206	04222	12065A271JAT1A
A7C774	283-5239-00			CAP,FXD,CERAMIC:MLC;1200PF,5%,100V,NPO,1206	04222	12061A122JAT1A
A7C775	283-5226-00			CAP,FXD,CERAMIC:MLC;270PF,5%,50V,NPO,1206	04222	12065A271JAT1A
A7C776	283-5239-00			CAP,FXD,CERAMIC:MLC;1200PF,5%,100V,NPO,1206	04222	12061A122JAT1A
A7J2	174-3130-00			CA ASSY,SP:26 COND,28 AWG.2.0 L	53387	80-6107-1874-6
A7J9	131-3181-00			CONN,HDR:PCB;MALE,RTANG,2 X 20,0.1CTR,0.330 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.390 MLG,HIGH TEMP	22526	69155-440R
A7J12	131-3181-00			CONN,HDR:PCB;MALE,RTANG,2 X 20,0.1CTR,0.330 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.390 MLG,HIGH TEMP	22526	69155-440R
A7J13	131-3181-00			CONN,HDR:PCB;MALE,RTANG,2 X 20,0.1CTR,0.330 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.390 MLG,HIGH TEMP	22526	69155-440R
A7J14	131-3181-00			CONN,HDR:PCB;MALE,RTANG,2 X 20,0.1CTR,0.330 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.390 MLG,HIGH TEMP	22526	69155-440R
A7J84	131-3718-00			CONN,HDR:PCB;MALE,STR,2 X 5,0.1 CTR,0.385 H X 0.120 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.150 END DIM	TK1462	FAP-10-08-4-OAS
A7J300	131-1425-00			CONN,HDR:PCB;MALE,RTANG,1 X 36,0.1CTR,0.230 MLG X 0.090 TAIL,30 GOLD,STACKABLE	22526	65521-136
A7J400	131-4794-00			CONN,HDR:PCB;MALE,STR,1 X 2,0.1 CTR,0.235	53387	2402-6112 UB
A7J500	131-4794-00			CONN,HDR:PCB;MALE,STR,1 X 2,0.1 CTR,0.235	53387	2402-6112 UB
A7L1	108-1263-00			IDCTR,FXD:POWER:10UH,10%,I<2.1A,RDC<0.043 OHM,Q>20,SRF>19MHZ	TK2058	TSL0707-100K1R9

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A7L2	108-1263-00			IDCTR,FXD:POWER:10UH,10%,I<2.1A,RDC<0.043 OHM,Q>20,SRF>19MHZ	TK2058	TSL0707-100K1R9
A7L3	108-1263-00			IDCTR,FXD:POWER:10UH,10%,I<2.1A,RDC<0.043 OHM,Q>20,SRF>19MHZ	TK2058	TSL0707-100K1R9
A7L4	108-1263-00			IDCTR,FXD:POWER:10UH,10%,I<2.1A,RDC<0.043 OHM,Q>20,SRF>19MHZ	TK2058	TSL0707-100K1R9
A7L71	108-5024-00			IDCTR,FXD:POWER:39UH,10%,I<0.15A,RDC<4.5	TK2058	NL453232T-390K
A7L72	108-5024-00			IDCTR,FXD:POWER:39UH,10%,I<0.15A,RDC<4.5	TK2058	NL453232T-390K
A7L73	108-5024-00			IDCTR,FXD:POWER:39UH,10%,I<0.15A,RDC<4.5	TK2058	NL453232T-390K
A7L301	108-1561-00			COIL,PWR:IDCTR;FXD,TOROID,1.9UH,5%,Q=200,0.478 DIA,0.20 THICK	OJR03	108-1561-00
A7L302	108-1558-00			COIL,PWR:IDCTR;FXD,TOROID,1.75UH,5%,Q=200,0.478 DIA,0.02 THICK	OJR03	108-1558-00
A7L401	108-1560-00			COIL,PWR:IDCTR;FXD,TOROID,3.8UH,5%,Q=200,0.478 DIA,0.20 THICK	OJR03	108-1560-00
A7L402	108-1559-00			COIL,PWR:IDCTR;FXD,TOROID,3.6UH,5%,Q=200,0.478 DIA,0.20 THICK	OJR03	108-1559-00
A7L501	108-1560-00			COIL,PWR:IDCTR;FXD,TOROID,3.8UH,5%,Q=200,0.478 DIA,0.20 THICK	OJR03	108-1560-00
A7L502	108-1559-00			COIL,PWR:IDCTR;FXD,TOROID,3.6UH,5%,Q=200,0.478 DIA,0.20 THICK	OJR03	108-1559-00
A7Q131	151-5035-00			XSTR,SIG:BIPOLAR,NPN:25V,30MA,650MHZ,AMPL	04713	MMBTH10LT1
A7Q134	151-5016-00			XSTR,SIG:BIPOLAR,PNP:20V,30MA,600MHZ,AMPL	04713	MMBTH81LT1
A7Q136	151-5035-00			XSTR,SIG:BIPOLAR,NPN:25V,30MA,650MHZ,AMPL	04713	MMBTH10LT1
A7Q151	151-5035-00			XSTR,SIG:BIPOLAR,NPN:25V,30MA,650MHZ,AMPL	04713	MMBTH10LT1
A7Q157	151-5016-00			XSTR,SIG:BIPOLAR,PNP:20V,30MA,600MHZ,AMPL	04713	MMBTH81LT1
A7Q180	151-5035-00			XSTR,SIG:BIPOLAR,NPN:25V,30MA,650MHZ,AMPL	04713	MMBTH10LT1
A7Q441	151-5035-00			XSTR,SIG:BIPOLAR,NPN:25V,30MA,650MHZ,AMPL	04713	MMBTH10LT1
A7R11	321-5005-00			RES,FXD:THICK FILM;27.4 OHM,1%,0.125W,TC=100 PPM	57668	MCR18EZHFW 27E4
A7R12	321-5005-00			RES,FXD:THICK FILM;27.4 OHM,1%,0.125W,TC=100 PPM	57668	MCR18EZHFW 27E4
A7R13	321-5005-00			RES,FXD:THICK FILM;27.4 OHM,1%,0.125W,TC=100 PPM	57668	MCR18EZHFW 27E4
A7R14	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R15	321-5022-00			RES,FXD:THICK FILM;2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A7R36	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R40	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R41	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R42	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R43	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R44	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R45	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R46	321-5241-00			RES,FXD,FILM:34.0K,0.1%,0.125W	91637	TNPW1206-3402-B
A7R47	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R48	321-5212-00			RES,FXD:THICK FILM;4.99K OHM,1%,0.125W,TC=100 PPM	91637	CRCW-1206-4991F
A7R51	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A7R52	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125W,TAPE & REELED	91637	CRCW12063010FT
A7R53	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A7R54	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125W,TAPE & REELED	91637	CRCW12063010FT
A7R55	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R56	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R61	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R62	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A7R63	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R64	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R65	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R66	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A7R70	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R71	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R72	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R73	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A7R74	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R75	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R76	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R77	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R78	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R79	321-5305-00			RES,FXD,FILM:2K OHM,0.1%,25PPM,0.125W,1206PKG	91637	TNPW1206-2001BT
A7R80	321-5014-00			RES,FXD:THICK FILM:475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A7R81	321-5012-00			RES,FXD:THICK FILM:332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A7R82	321-5281-00			RES,FXD:THICK FILM:2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R84	321-5020-00			RES,FXD:THICK FILM:1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A7R85	321-5113-00			RES,FXD:THICK FILM:75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A7R86	321-5023-00			RES,FXD:THICK FILM:2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A7R87	321-5043-00			RES,FXD:THICK FILM:47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A7R88	321-5043-00			RES,FXD:THICK FILM:47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A7R89	321-5043-00			RES,FXD:THICK FILM:47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A7R90	321-5013-00			RES,FXD:THICK FILM:392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A7R91	321-5013-00			RES,FXD:THICK FILM:392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A7R92	321-5281-00			RES,FXD:THICK FILM:2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R95	321-5113-00			RES,FXD:THICK FILM:75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A7R96	321-5022-00			RES,FXD:THICK FILM:2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A7R100	321-5013-00			RES,FXD:THICK FILM:392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A7R101	321-5013-00			RES,FXD:THICK FILM:392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A7R102	321-5281-00			RES,FXD:THICK FILM:2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R105	321-5113-00			RES,FXD:THICK FILM:75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A7R106	321-5022-00			RES,FXD:THICK FILM:2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A7R110	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R118	321-5026-00			RES,FXD:THICK FILM:4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A7R120	321-5030-00			RES,FXD:THICK FILM:10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R121	321-5030-00			RES,FXD:THICK FILM:10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R122	321-5030-00			RES,FXD:THICK FILM:10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R123	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R125	321-5009-00			RES,FXD:THICK FILM:182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A7R126	321-5027-00			RES,FXD:THICK FILM:5.62K OHM,1%,0.125W,TC=100 PPM	50139	BCK5621FT
A7R127	321-5006-00			RES,FXD:THICK FILM:100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R128	321-5006-00			RES,FXD:THICK FILM:100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R129	321-5006-00			RES,FXD:THICK FILM:100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R130	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R131	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R132	321-5023-00			RES,FXD:THICK FILM:2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A7R133	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R134	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R135	321-5023-00			RES,FXD:THICK FILM:2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A7R136	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R137	321-5023-00			RES,FXD:THICK FILM:2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A7R138	321-5006-00			RES,FXD:THICK FILM:100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R149	321-5006-00			RES,FXD:THICK FILM:100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R150	321-5038-00			RES,FXD:THICK FILM:47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A7R151	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R152	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R153	321-5023-00			RES,FXD:THICK FILM:2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A7R155	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R156	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R157	321-5023-00			RES,FXD:THICK FILM:2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A7R162	321-5030-00			RES,FXD:THICK FILM:10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R163	321-5030-00			RES,FXD:THICK FILM:10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R164	321-5028-00			RES,FXD:THICK FILM:6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A7R165	321-5030-00			RES,FXD:THICK FILM:10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R166	321-5018-00			RES,FXD:THICK FILM:1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A7R180	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R181	321-5023-00			RES,FXD:THICK FILM;2.74K OHM,1%,0.125W,TC=100 PPM	50139	BCK2741FT
A7R213	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R214	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R215	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R216	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R217	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R218	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R219	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R220	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A7R221	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A7R222	321-5049-00			RES,FXD:THICK FILM;1M OHM,1%,0.125W,TC=100PPM	57668	MCR18FXEA1M
A7R223	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A7R302	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R304	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R305	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R306	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R308	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R310	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A7R311	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A7R312	311-2280-00			RES,VAR, NONWW:TRMR, 10 OHM,20%,0.5WLINEAR,MI	TK2073	GF06VT2 100 M L
A7R313	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R314	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125W,TAPE & REELED	91637	CRCW12063010FT
A7R315	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R318	321-5050-00			RES,FXD:THICK FILM;33.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA33E2
A7R320	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R322	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A7R323	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R324	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R325	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R326	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A7R350	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A7R351	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A7R402	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R403	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R404	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R405	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R407	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R409	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A7R410	311-2280-00			RES,VAR, NONWW:TRMR, 10 OHM,20%,0.5WLINEAR,MI	TK2073	GF06VT2 100 M L
A7R411	321-5046-00			RES,FXD:THICK FILM;82.5 OHM,1%,0.125W,TC=100 PPM	50139	BCK82R5FT
A7R412	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A7R414	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R416	321-5050-00			RES,FXD:THICK FILM;33.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA33E2
A7R418	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A7R419	321-5022-00			RES,FXD:THICK FILM;2.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK2211FT
A7R420	321-5016-00			RES,FXD:THICK FILM;681 OHM,1%,0.125W,TC=100	50139	BCK6810FT
A7R421	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A7R422	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A7R423	321-5021-00			RES,FXD:THICK FILM;1.82K OHM,1%,0.125W,TC=100 PPM	50139	BCK1821FT
A7R424	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R425	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R426	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A7R428	321-5029-00			RES,FXD:THICK FILM;8.25K OHM,1%,0.125W,TC=100 PPM	50139	BCK8251FT
A7R429	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A7R430	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R431	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R432	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A7R441	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A7R442	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A7R443	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R446	321-5024-00			RES,FXD:THICK FILM;3.32K OHM,1%,0.125W,TC=100 PPM	50139	BCK3321FT
A7R447	321-5029-00			RES,FXD:THICK FILM;8.25K OHM,1%,0.125W,TC=100 PPM	50139	BCK8251FT
A7R448	321-5016-00			RES,FXD:THICK FILM;681 OHM,1%,0.125W,TC=100	50139	BCK6810FT
A7R449	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R450	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A7R451	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R470	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A7R496	321-5017-00			RES,FXD:THICK FILM;825 OHM,1%,0.125W,TC=100	50139	BCK8250FT
A7R497	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R502	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R503	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R504	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R505	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R507	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R509	321-5026-00			RES,FXD:THICK FILM;4.75K OHM,1%,0.125W,TC=100 PPM	50139	BCK4751FT
A7R510	311-2280-00			RES,VAR,NONWW:TRMR,10 OHM,20%,0.5WLINEAR,MI	TK2073	GF06VT2 100 M L
A7R511	321-5046-00			RES,FXD:THICK FILM;82.5 OHM,1%,0.125W,TC=100 PPM	50139	BCK82R5FT
A7R512	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125W,TAPE & REELED	91637	CRCW12063010FT
A7R514	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R515	321-5169-00			RES,FXD:THICK FILM;475K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-47502F
A7R516	321-5050-00			RES,FXD:THICK FILM;33.2 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA33E2
A7R520	321-5016-00			RES,FXD:THICK FILM;681 OHM,1%,0.125W,TC=100	50139	BCK6810FT
A7R521	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A7R522	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A7R523	321-5021-00			RES,FXD:THICK FILM;1.82K OHM,1%,0.125W,TC=100 PPM	50139	BCK1821FT
A7R524	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R525	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A7R526	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A7R550	321-5020-00			RES,FXD:THICK FILM;1.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK1501FT
A7R551	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R600	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R601	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A7R602	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A7R603	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R610	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R611	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A7R612	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A7R613	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R620	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A7R621	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A7R623	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A7R624	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A7R711	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A7R712	321-5237-00			RES,FXD,FILM:619 OHM,0.5%,25PPM,1206 PKG	91637	TNPW1206-6190DT
A7R713	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R721	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A7R722	321-5237-00			RES,FXD,FILM:619 OHM,0.5%,25PPM,1206 PKG	91637	TNPW1206-6190DT
A7R723	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R731	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A7R732	321-5237-00			RES,FXD,FILM:619 OHM,0.5%,25PPM,1206 PKG	91637	TNPW1206-6190DT
A7R733	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A7R771	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125W,TAPE & REEL,SMD	91637	CRCW-1206-2430F
A7R772	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125W,TAPE & REEL,SMD	91637	CRCW-1206-2430F
A7R773	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125W,TAPE & REEL,SMD	91637	CRCW-1206-2430F
A7R801	321-5043-00			RES,FXD:THICK FILM;47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A7R802	321-5043-00			RES,FXD:THICK FILM;47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A7R803	321-5043-00			RES,FXD:THICK FILM;47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A7U1	156-6645-01			IC,LINER:BIPOLAR,OP-AMP;140MHZ,HIGHOUTCURRENT,W/2-INPUT MUX	1ES66	MAX442CSA-T
A7U2	156-6645-01			IC,LINER:BIPOLAR,OP-AMP;140MHZ,HIGHOUTCURRENT,W/2-INPUT MUX	1ES66	MAX442CSA-T
A7U3	156-6645-01			IC,LINER:BIPOLAR,OP-AMP;140MHZ,HIGHOUTCURRENT,W/2-INPUT MUX	1ES66	MAX442CSA-T
A7U41	156-5853-01			IC,LINER:BIPOLAR,OP-AMP;35MHZ,UNITYGAIN STABLE	27014	LM6361MX
A7U43	156-6645-01			IC,LINER:BIPOLAR,OP-AMP;140MHZ,HIGHOUTCURRENT,W/2-INPUT MUX	1ES66	MAX442CSA-T
A7U45	156-6407-01			IC,LINER:BIPOLAR,AMPL:CURRENT FEEDBACK,100MHZ,SAMPLE/HOLD,VIDEO DC RESTORATION	64762	EL2090CM(T&R)
A7U51	156-5853-01			IC,LINER:BIPOLAR,OP-AMP;35MHZ,UNITYGAIN STABLE	27014	LM6361MX
A7U53	156-6645-01			IC,LINER:BIPOLAR,OP-AMP;140MHZ,HIGHOUTCURRENT,W/2-INPUT MUX	1ES66	MAX442CSA-T
A7U55	156-6407-01			IC,LINER:BIPOLAR,AMPL:CURRENT FEEDBACK,100MHZ,SAMPLE/HOLD,VIDEO DC RESTORATION	64762	EL2090CM(T&R)
A7U61	156-5853-01			IC,LINER:BIPOLAR,OP-AMP;35MHZ,UNITYGAIN STABLE	27014	LM6361MX
A7U63	156-6645-01			IC,LINER:BIPOLAR,OP-AMP;140MHZ,HIGHOUTCURRENT,W/2-INPUT MUX	1ES66	MAX442CSA-T
A7U65	156-6407-01			IC,LINER:BIPOLAR,AMPL:CURRENT FEEDBACK,100MHZ,SAMPLE/HOLD,VIDEO DC RESTORATION	64762	EL2090CM(T&R)
A7U70	156-5853-01			IC,LINER:BIPOLAR,OP-AMP;35MHZ,UNITYGAIN STABLE	27014	LM6361MX
A7U71	156-5119-00			IC,LINER:BIPOLAR,CMPTD:DUAL,OPEN COLL,80NS	1CH66	LM319D
A7U72	156-5119-00			IC,LINER:BIPOLAR,CMPTD:DUAL,OPEN COLL,80NS	1CH66	LM319D
A7U73	156-5119-00			IC,LINER:BIPOLAR,CMPTD:DUAL,OPEN COLL,80NS	1CH66	LM319D
A7U74	156-5098-01			IC,DGTL:HCTCMOS,GATE:QUAD 2-INPUT NAND	01295	SN74HCT00DR
A7U75	156-5290-01			IC,DGTL:HCTCMOS,GATE:TRIPLE 3-INPUT NOR	1CH66	74HCT27DT
A7U76	156-5853-01			IC,LINER:BIPOLAR,OP-AMP;35MHZ,UNITYGAIN STABLE	27014	LM6361MX
A7U80	156-6407-01			IC,LINER:BIPOLAR,AMPL:CURRENT FEEDBACK,100MHZ,SAMPLE/HOLD,VIDEO DC RESTORATION	64762	EL2090CM(T&R)
A7U90	156-6407-01			IC,LINER:BIPOLAR,AMPL:CURRENT FEEDBACK,100MHZ,SAMPLE/HOLD,VIDEO DC RESTORATION	64762	EL2090CM(T&R)
A7U100	156-6407-01			IC,LINER:BIPOLAR,AMPL:CURRENT FEEDBACK,100MHZ,SAMPLE/HOLD,VIDEO DC RESTORATION	64762	EL2090CM(T&R)
A7U101	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A7U102	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A7U103	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A7U124	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A7U125	156-5085-01			IC,DGTL:HCTCMOS,GATE:QUAD 2-INPUT OR	0JR04	TCHCT32AFN(ELP)
A7U126	156-6279-01			IC,LINER:BIFET,OP-AMP;DUAL,TWO POLEFREQ COMP	04713	MC33282DR2
A7U127	156-6644-00			IC,LINER:BIPOLAR,AMPL:TRANSCONDUCTANCE,DIFFERENTIAL INPUT,275MHZ,CURRENT OUT	1ES66	MAX436CSD
A7U151	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A7U161	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A7U162	156-6279-01			IC,LINER:BIFET,OP-AMP;DUAL,TWO POLEFREQ COMP	04713	MC33282DR2
A7U180	156-2959-00			IC,LINER:BIPOLAR,VR:POSITIVE,-8.0V,1.0A,2%	04713	MCT7808CT
A7U190	156-4234-00			IC,LINER:BIPOLAR,VR:NEGATIVE,-8.0 VOLTS,1.0A,2%	44648	KA7908T
A7U202	156-5088-01			IC,DGTL:HCTCMOS,DEMUX/DECODER;3-TO-8 DECODER	0JR04	TC74HCT138AFN(E
A7U203	156-5358-01			IC,DGTL:HCTCMOS,RGTR;8-BIT PISO SHIFTRGTR	01295	SN74HC165DR
A7U204	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2
A7U206	156-6619-01			IC,MEMORY:CMOS,FIFO;512 X 9,35NS	34335	AM7201-35JCTR
A7U207	160-9401-00			IC,DGTL:CMOS,PLD:EEPLD,22V10,130MA,25NS,PRGM 156-5924-00,PLCC28	80009	160940100
A7U208	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2
A7U209	156-5289-01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D-TYPE,3-STATE	04713	MC74HCT574ADWR 2

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A7U210	156-5480-01			IC,DGTL:HCMOS,RGTR;8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A7U211	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE,	01295	SN74HCT125DR
A7U212	156-6224-01			IC,CONVERTER:CMOS,D/A,12-BIT,V OUT,168.300,24MM	TK2441	I10412-04
A7U213	156-5304-01			IC,DGTL:HCTCMOS,BUFFER;QUAD BUFFER, /OE	01295	SN74HCT125DR
A7U220	156-5480-01			IC,DGTL:HCMOS,RGTR;8-BIT SHIFTRGTR, WITH OUT LCH	0JR04	TC74HC595AFN(EL
A7U300	156-6647-00			IC,LIN:AR:BIPOlar,OP-AMP;CURRENT FEED- BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A7U301	156-6603-00			IC,LIN:BIPOlar,OP-AMP;200MHZ,1.5MV VOS,HI OUT CUR	64762	EL2073CS
A7U302	156-6647-00			IC,LIN:AR:BIPOlar,OP-AMP;CURRENT FEED- BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A7U400	156-6647-00			IC,LIN:AR:BIPOlar,OP-AMP;CURRENT FEED- BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A7U401	156-6603-00			IC,LIN:BIPOlar,OP-AMP;200MHZ,1.5MV VOS,HI OUT CUR	64762	EL2073CS
A7U402	156-6647-00			IC,LIN:AR:BIPOlar,OP-AMP;CURRENT FEED- BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A7U500	156-6647-00			IC,LIN:AR:BIPOlar,OP-AMP;CURRENT FEED- BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A7U501	156-6603-00			IC,LIN:BIPOlar,OP-AMP;200MHZ,1.5MV VOS,HI OUT CUR	64762	EL2073CS
A7U502	156-6647-00			IC,LIN:AR:BIPOlar,OP-AMP;CURRENT FEED- BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A7CR180	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A7CR190	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A7CR470	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A8	671-2676-03			CIRCUIT BD ASSY:DAC	80009	671267603
				ATTACHED PARTS		
	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR (LOCATED @ GND,PB,PR,Y)	26364	104-01-02
				END ATTACHED PARTS		
A8C1	283-0420-00			CAP,FXD,CER DI:1000PF,20%,1KV	59660	0838 562 Z5U0 1
A8C14	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C15	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C16	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C18	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C19	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C25	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C27	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A8C33	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C37	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A8C41	283-5109-00			CAP,FXD,CERAMIC:MLC;680PF,5%,100V,NPO,1206	04222	12061A681JAT1A
A8C42	283-5109-00			CAP,FXD,CERAMIC:MLC;680PF,5%,100V,NPO,1206	04222	12061A681JAT1A
A8C43	290-5036-01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM(0.224)	62643	MVK16VC22RME60T
A8C44	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C45	290-0939-00			CAP,FXD,ELCTL:10UF,+100-10%,100V	62643	LX100VB10RM10X2
A8C46	290-1302-00			CAP,FXD,AL:1000UF,20%,35V,12.5 X 30MM(0.492 X 1.180)	0H1N5	CEEFM1V102M7
A8C47	290-1034-00			CAP,FXD,ALUM:330UF,20%,25V,13 X 25MM	55680	UPL1J331MHH
A8C49	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C50	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C51	283-0111-04			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SR595C104MAAAP1
A8C54	283-5211-00			CAP,FXD,CERAMIC:MLC;4700PF,10%,50V,X7R	04222	12065C472KAT2A
A8C55	290-5008-00			CAP,FXD,TANT:1UF,20%,35V,0.138 X 0.110;3528,SMD,T&R	04222	TAJB105M035
A8C56	290-5008-00			CAP,FXD,TANT:1UF,20%,35V,0.138 X 0.110;3528,SMD,T&R	04222	TAJB105M035
A8C57	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C58	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C59	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C60	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C63	283-5188-00			CAP,FXD,CERAMIC:MLC;100PF,5%,100V,NPO,1206	04222	12061A101JAT1A
A8C64	283-5188-00			CAP,FXD,CERAMIC:MLC;100PF,5%,100V,NPO,1206	04222	12061A101JAT1A

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A8C66	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C67	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C68	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C69	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C70	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C71	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C72	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C170	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C171	290-0758-00			CAP,FXD,ELCTLT:2.2UF,+50-10%,200V	0H1N5	CEUSM2F2R2
A8C172	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A8C173	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A8C174	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C175	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C176	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C177	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C178	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C179	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C180	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C181	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C182	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C183	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C190	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C191	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C192	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C193	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C194	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C211	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C215	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C216	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C217	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C218	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C219	283-5006-00			CAP,FXD,CERAMIC:MLC:5PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H050C-
A8C221	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C225	283-5022-00			CAP,FXD,CER DI:47PF,5%,50V	TK2058	C3216C0G1H470J-
A8C226	283-5022-00			CAP,FXD,CER DI:47PF,5%,50V	TK2058	C3216C0G1H470J-
A8C227	283-5007-00			CAP,FXD,CERAMIC:MLC:8PF,+/-0.5PF,50V,NPO,1206	TK2058	C3216C0G1H080D-
A8C228	283-5259-00			CAP,FXD,CERAMIC:MLC:6.8PF,+/-0.25PF,100V,NPO	04222	12061A6R8CAT1A
A8C229	283-5259-00			CAP,FXD,CERAMIC:MLC:6.8PF,+/-0.25PF,100V,NPO	04222	12061A6R8CAT1A
A8C230	283-5042-00			CAP,FXD,CERAMIC:MLC:27PF,5%,50V,NPO,1206	TK2058	C3216C0G1H270J-
A8C231	283-5187-00			CAP,FXD,CERAMIC:MLC:15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A8C232	283-5187-00			CAP,FXD,CERAMIC:MLC:15PF,5%,100V,NPO,1206	04222	12061A150JAT1A
A8C233	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C234	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C235	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C236	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C237	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C238	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C239	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C240	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8C241	283-5108-00			CAP,FXD,CERAMIC:MLC:68PF,5%,100V,NPO,1206	04222	12061A680JAT1A
A8C242	283-5098-00			CAP,FXD,CERAMIC:MLC:0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8J1	131-4530-00			CONN,HDR:PCB:MALE,STR,1 X 3,0.1 CTR,0.230MLG X 0.120 TAIL,30GOLD,BD RETENTION	00779	104344-1
A8J3	131-3361-00			CONN,HDR:PCB:MALE,RTANG,2 X 13,0.1CTR,0.33 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD	53387	2526-5002UB
A8J9	131-3358-00			CONN,HDR:PCB:MALE,RTANG,2 X 5,0.1 CTR,0.390 MLG X 0.112 TAIL,0.33 H,SHRD/4 SIDES,MILPLZ,30 GOLD	53387	2510-5002UB

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A8J10	131-3361-00			CONN,HDR:PCB;MALE,RTANG,2 X 13,0.1CTR,0.33 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD	53387	2526-5002UB
A8J11	131-3718-00			CONN,HDR:PCB;MALE,STR,2 X 5,0.1 CTR,0.385H X 0.120 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD,0.150 END DIM	TK1462	FAP-10-08-4-OAS
A8L4	108-5018-00			IDCTR,FXD:POWER:4.7UH,20%,I<0.315A,RDC<1.0 OHM,Q>50,SRF>45MHZ	TK2058	NL453232T-4R7M
A8L5	108-5018-00			IDCTR,FXD:POWER:4.7UH,20%,I<0.315A,RDC<1.0 OHM,Q>50,SRF>45MHZ	TK2058	NL453232T-4R7M
A8L6	108-5018-00			IDCTR,FXD:POWER:4.7UH,20%,I<0.315A,RDC<1.0 OHM,Q>50,SRF>45MHZ	TK2058	NL453232T-4R7M
A8L7	108-1412-00			IDCTR,FXD:POWER:4.7UH,20%,I<3.7A,RDC<0.017 OHM,Q>10,SRF>30MHZ	TK2058	TSL0807-4R7M3R0
A8L8	108-1412-00			IDCTR,FXD:POWER:4.7UH,20%,I<3.7A,RDC<0.017 OHM,Q>10,SRF>30MHZ	TK2058	TSL0807-4R7M3R0
A8L10	108-5106-00			COIL,RF:IDCTR:FXD,680NH,10%,Q=30,SRF=340MHZ,DCR=1.47 OHM,IMAX=540MA	80009	108510600
A8L106	108-5018-00			IDCTR,FXD:POWER:4.7UH,20%,I<0.315A,RDC<1.0 OHM,Q>50,SRF>45MHZ	TK2058	NL453232T-4R7M
A8L107	108-1262-00			IDCTR,FXD:POWER:100UH,10%,I<0.75A,RDC<0.23 OHM,Q>15,SRF>5.4MHZ	TK2058	TSL0807-101KR75
A8L108	108-5072-00			COIL,RF:IDCTR:FXD,1UH,5%,Q=33,SRF=290MHZ,DCR=1.75 OHM,IMAX=460MA	02113	1008CS-102XJBA
A8L109	108-5072-00			COIL,RF:IDCTR:FXD,1UH,5%,Q=33,SRF=290MHZ,DCR=1.75 OHM,IMAX=460MA	02113	1008CS-102XJBA
A8P1	131-3199-00			CONN,SHUNT:SHUNT;FEMALE,STR,1 X 2,0.1 CTR,0.2 H,LOW PROFILE,JUMPER	22526	68786-202
A8Q1	151-1136-00			XSTR,PWR:MOS,N-CH;100V,14A,0.16 OHM	04713	MTP12N10E
	210-1178-00			*ATTACHED PARTS*		
	214-3841-00			WASHER,SHLDR:UW TO-220 XSTR	13103	7721-7PPS
	342-0355-00			HEAT SINK,SEMIC:XSTR,TO-220;VERTICAL-MOUNT,(2)SOLDERABLE TABS,ALUMINUM,BLACK ANODIZE INSULATOR,PLATE:XSTR,SILICONE RUBBER	13103	6021PB
				END ATTACHED PARTS	2K262	CHR-1869
A8R1	311-2271-00			RES,VAR,TRMR: CERMET;5K OHM,20%,0.5W,0.197 SQ,SIDE ADJUST	TK2073	GF06VT2 502 M L
A8R2	321-5166-00			RES,FXD:THICK FILM;150K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1503FT
A8R26	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A8R42	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R43	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R44	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A8R45	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A8R48	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A8R49	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A8R50	321-5086-00			RES,FXD:THICK FILM;36.5 OHM,1%,0.125W,TC=100 PPM	50139	BCK36R5FT
A8R51	321-5086-00			RES,FXD:THICK FILM;36.5 OHM,1%,0.125W,TC=100 PPM	50139	BCK36R5FT
A8R57	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R58	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R59	321-5049-00			RES,FXD:THICK FILM;1M OHM,1%,0.125W,TC=100PPM	57668	MCR18FXEA1M
A8R62	321-5049-00			RES,FXD:THICK FILM;1M OHM,1%,0.125W,TC=100PPM	57668	MCR18FXEA1M
A8R71	321-5049-00			RES,FXD:THICK FILM;1M OHM,1%,0.125W,TC=100PPM	57668	MCR18FXEA1M
A8R76	321-5049-00			RES,FXD:THICK FILM;1M OHM,1%,0.125W,TC=100PPM	57668	MCR18FXEA1M
A8R81	321-5035-00			RES,FXD:THICK FILM;27.4K OHM,1%,0.125W,TC=100 PPM	50139	BCK2742FT
A8R82	321-5039-00			RES,FXD:THICK FILM;56.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK5622FT
A8R83	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A8R84	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R85	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R88	321-5266-00			RES,FXD:THICK FILM;11K OHM,1%,0.125W,TC=100	91637	CRCW1206-1102FT
A8R89	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R90	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A8R91	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A8R92	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A8R93	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A8R94	308-0677-00			RES,FXD,WW:1 OHM,5%,2W	75042	SPH 1 OHM 5 PER
A8R118	321-5031-00			RES,FXD:THICK FILM;12.1K OHM,1%,0.125W,TC=100 PPM	50139	BCK1212FT
A8R119	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R122	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A8R123	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A8R126	321-5019-00			RES,FXD:THICK FILM;1.21K OHM,1%,0.125W,TC=100 PPM	50139	BCK1211FT
A8R127	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R128	321-5035-00			RES,FXD:THICK FILM;27.4K OHM,1%,0.125W,TC=100 PPM	50139	BCK2742FT
A8R129	321-5032-00			RES,FXD:THICK FILM;15.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1502FT
A8R130	321-5036-00			RES,FXD:THICK FILM;33.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK3322FT
A8R131	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A8R132	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100	50139	BCK3320FT
A8R133	321-5013-00			RES,FXD:THICK FILM;392 OHM,1%,0.125W,TC=100	50139	BCK3920FT
A8R134	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A8R135	321-5044-00			RES,FXD:THICK FILM;56.2 OHM,1%,0.125W,TC=100 PPM	50139	BCK56R2FT
A8R136	321-5011-00			RES,FXD:THICK FILM;274 OHM,1%,0.125W,TC=100	50139	BCK2740FT
A8R137	321-5011-00			RES,FXD:THICK FILM;274 OHM,1%,0.125W,TC=100	50139	BCK2740FT
A8R138	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A8R139	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A8R146	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R147	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R148	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R149	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R150	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R151	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R152	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R153	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R200	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R201	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R202	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R203	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R204	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R205	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R206	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R207	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R208	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R209	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R210	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R211	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R212	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R213	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R214	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R215	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R216	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R219	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R220	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R221	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R222	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R223	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R224	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R225	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R226	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R227	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R228	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R229	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A8R230	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A8R231	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A8R233	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R235	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R237	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R238	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R239	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R241	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R243	321-5086-00			RES,FXD:THICK FILM;36.5 OHM,1%,0.125W,TC=100 PPM	50139	BCK36R5FT
A8R244	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R245	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R246	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A8R247	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A8R249	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A8R250	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R252	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A8R253	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A8R254	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A8R255	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A8R256	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A8R257	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R259	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R261	321-5044-00			RES,FXD:THICK FILM;56.2 OHM,1%,0.125W,TC=100 PPM	50139	BCD56R2FT
A8R263	321-5051-00			RES,FXD:THICK FILM;0 OHM,1%,0.125W,TC=100 PPM	09969	CRCW1206 JUMPER
A8R264	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R265	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A8R266	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A8R267	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A8R268	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A8R269	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R270	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A8R271	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A8T1	120-1851-00			XFMR,PWR,STPDN:FLYBACK,100KHZ,40V INPUT,5VOUT	75498	128-9033-EA
A8U8	156-2959-00			IC,LINEAR:BIPOLAR,VR:POSITIVE,8.0V,1.0A,2%	04713	MCT7808CT
A8U9	156-6345-00			IC,CONVERTER:BIPOLAR,D/A:12 BIT,80MHZ,TTL INPUT,W/LCH,CURRENT OUT,REFERENCE	24355	AD9713BAP
A8U14	156-1989-00			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CD
A8U16	156-5325-01			IC,DGTL:ECL,TRANSLATOR:QUAD TTL-TO-ECL	04713	MC10H124FNR2
A8U17	156-6233-00			IC,ASIC:CMOS,CUSTOM;HALF BAND FILTER	27014	MM9217-V4/SZ107
A8U18	156-6345-00			IC,CONVERTER:BIPOLAR,D/A:12 BIT,80MHZ,TTL INPUT,W/LCH,CURRENT OUT,REFERENCE	24355	AD9713BAP
A8U19	156-6345-00			IC,CONVERTER:BIPOLAR,D/A:12 BIT,80MHZ,TTL INPUT,W/LCH,CURRENT OUT,REFERENCE	24355	AD9713BAP
A8U20	156-6233-00			IC,ASIC:CMOS,CUSTOM;HALF BAND FILTER	27014	MM9217-V4/SZ107
A8U22	156-1989-00			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CD
A8U23	156-4386-00			IC,LINEAR:BIPOLAR,SW-REGULATOR CONTROL- LER;PWM,CURRENT MODE,SINGLE TOTEM POLE OUT	04713	UC3845BN
A8U24	156-5973-00			IC,DGTL:ECL,GATE;TRIPLE 2-INPUT XOR/XNOR	04713	MC10H107FN
A8U27	156-5324-01			IC,DGTL:ECL,TRANSLATOR:QUAD ECL-TO-TTL	04713	MC10H125FNR2
A8U29	156-6233-00			IC,ASIC:CMOS,CUSTOM;HALF BAND FILTER	27014	MM9217-V4/SZ107
A8U90	156-4234-00			IC,LINEAR:BIPOLAR,VR:NEGATIVE,-8.0 VOLTS,1.0A,2%	44648	KA7908T
A8U93	160-9718-00			IC,DGTL:CMOS,PLD;EEPLD,16V8,10NS,115MA,156-5848-00	80009	160971800
A8U94	156-6146-00			IC,ASIC:CMOS,CUSTOM;12-BIT,32 STAGE PIPELINE RGTR,ADG234	27014	SCX6244UEC/V2
A8Y1	158-0445-00			CRYSTAL:PRL;13.5MHZ,30PPM,LC=25PF,ESR=25 OHMS	14301	016-210-00278
A8C2	283-5098-00			CAP,FXD,CERAMIC:MLC;0.1UF,+80%-20%,50V,Z5U,1206	04222	12065E104ZAT3A
A8CR1	152-0720-00			DIODE,RECT:ULTRA FAST;200V,8A,25NS,100A IFSM	0LUA3	BYW29-200

ATTACHED PARTS

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Serial / Assembly Number Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
	214-3841-00			HEAT SINK,SEMIC:XSTR,TO-220;VERTICALM- OUNT,(2)SOLDERABLE TABS,ALUMINUM,BLACK ANODIZE *END ATTACHED PARTS*	13103	6021PB
A8CR2	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A8CR3	152-0864-00			DIO,RECT:ULTRA FAST;150V,2A,25NS,IFSM=50A,SOFT REC	0LUA3	BYV27-150
A8CR4	152-0864-00			DIO,RECT:ULTRA FAST;150V,2A,25NS,IFSM=50A,SOFT REC	0LUA3	BYV27-150
A8CR6	152-5062-00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,COM-ANODE	27014	MMBD1205
A8CR7	152-0612-00			DIODE,SIG:VVC;50V,15-20PF,C4/30=2.33,Q=15	04713	SMV1561
A8CR100	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A8CR101	152-0864-00			DIO,RECT:ULTRA FAST;150V,2A,25NS,IFSM=50A,SOFT REC	0LUA3	BYV27-150
A8TP4	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A8TP5	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A8TP6	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A8TP7	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A8TP8	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A8TP9	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A9	671-3160-00	B010100	B010322	CIRCUIT BD ASSY:EYE PATTERN	80009	671316000
A9	671-3160-01	B010323		CIRCUIT BD ASSY:EYE PATTERN	80009	671316001
A9C1	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A9C2	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A9C3	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C4	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A9C5	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A9C6	283-5002-00			CAP,FXD,CERAMIC:MLC:1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C7	283-5002-00			CAP,FXD,CERAMIC:MLC:1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C8	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C9	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C10	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C11	283-5004-00			CAP,FXD,CERAMIC:MLC:0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C12	283-5002-00			CAP,FXD,CERAMIC:MLC:1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C13	283-5004-00			CAP,FXD,CERAMIC:MLC:0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C14	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A9C15	283-5001-00			CAP,FXD,CERAMIC:MLC:100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A9C16	283-5001-00			CAP,FXD,CERAMIC:MLC:100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A9C17	283-5113-00			CAP,FXD,CERAMIC:MLC:0.047UF,10%,50V,X7R,1206	04222	12065C473KAT1A
A9C18	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A9C19	290-5037-01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM	62643	MVK35VC10RME60T
A9C20	283-5267-00			CAP,FXD,CERAMIC:MLC:1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A9C21	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C22	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C23	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C24	283-5068-00			CAP,FXD,CERAMIC:MLC:2200PF,10%,50V,X7R,1206	04222	12065C222KAT1A
A9C25	283-5004-00			CAP,FXD,CERAMIC:MLC:0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C26	290-5027-00			CAP,FXD,ELCTLT:2.2UF,20%,20V	04222	TAJBZ25M020
A9C27	283-5265-00			CAP,FXD,CERAMIC:MLC:0.0033UF,5%,50V,NPO,1206	04222	12065A332JAT1A
A9C28	283-5265-00			CAP,FXD,CERAMIC:MLC:0.0033UF,5%,50V,NPO,1206	04222	12065A332JAT1A
A9C29	283-5265-00			CAP,FXD,CERAMIC:MLC:0.0033UF,5%,50V,NPO,1206	04222	12065A332JAT1A
A9C30	283-5265-00			CAP,FXD,CERAMIC:MLC:0.0033UF,5%,50V,NPO,1206	04222	12065A332JAT1A
A9C31	283-5004-00			CAP,FXD,CERAMIC:MLC:0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C32	283-5003-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A9C33	283-5004-00			CAP,FXD,CERAMIC:MLC:0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C34	283-5004-00			CAP,FXD,CERAMIC:MLC:0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A9C35	290-5034-01			CAP,FXD,ALUM:33UF,20%,10V,5.7MM(0.224)	62643	MVK10VC33RME60T
A9C36	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C37	283-5002-00			CAP,FXD,CERAMIC:MLC;1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C38	283-5002-00			CAP,FXD,CERAMIC:MLC;1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C39	283-5003-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A9C40	283-5003-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A9C41	283-5202-00			CAP,FXD,CER:MLC;0.022UF,10%,50V,X7R,1206,SMD,8MM	04222	12065C223KAT1A
A9C42	283-5202-00			CAP,FXD,CER:MLC;0.022UF,10%,50V,X7R,1206,SMD,8MM	04222	12065C223KAT1A
A9C43	283-5002-00			CAP,FXD,CERAMIC:MLC;1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C44	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C45	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C46	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C47	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C48	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C49	283-5002-00			CAP,FXD,CERAMIC:MLC;1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C50	283-5002-00			CAP,FXD,CERAMIC:MLC;1000PF,10%,50V,NPO,1206	TK2058	C3216COG1H102K-
A9C51	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C52	281-5006-00			CAP,VAR,CER:1.7-3.0PF,100V,NPO+/-200PPM/C,4 X 4.5 X 2.7MM	52769	GKG3R066-XX
A9C53	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C54	283-5001-00			CAP,FXD,CERAMIC:MLC;100PF,5%,50V,NPO,1206	TK2058	C3216C0G1H101J-
A9C55	283-5066-00			CAP,FXD,CERAMIC:MLC;150PF,10%,100V,NPO,1206	04222	12061A151KAT1A
A9C56	283-5004-00			CAP,FXD,CERAMIC:MLC;0.1UF,10%,25V,X7R,1206	TK2058	C3216X7R1E104K-
A9C57	290-5008-00			CAP,FXD,TANT:1UF,20%,35V,0.138 X 0.110;3528,SMD,T&R	04222	TAJB105M035
A9C58	283-5113-00			CAP,FXD,CERAMIC:MLC;0.047UF,10%,50V,X7R,1206	04222	12065C473KAT1A
A9C59	290-5034-01			CAP,FXD,ALUM:33UF,20%,10V,5.7MM(0.224)	62643	MVK10VC33RME60T
A9C60	283-5017-00			CAP,FXD,CERAMIC:MLC;1PF,+/-0.25PF,50V,NPO,1206	TK2058	C3216C0G1H010C-
A9C61	283-5267-00			CAP,FXD,CERAMIC:MLC;1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A9C62	283-5267-00			CAP,FXD,CERAMIC:MLC;1UF,+80%-20%,25V,Y5V,1206	04222	12063G105ZAT1A
A9C63	283-5196-00			CAP,FXD,CERAMIC:MLC;47PF,5%,100V,NPO,1206	04222	12061A470JAT1A
A9C64	283-5196-00			CAP,FXD,CERAMIC:MLC;47PF,5%,100V,NPO,1206	04222	12061A470JAT1A
A9C65	283-5027-00			CAP,FXD,CERAMIC:MLC;470PF,5%,50V,NPO,1206	TK2058	C3216C0G1H471J-
A9C66	283-5003-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,50V,X7R,1206	TK2058	C3216X7R1H103K-
A9C67	283-5238-00			CAP,FXD,CERAMIC:MLC;150PF,5%,100V,NPO,1206	04222	12061A151JAT1A
A9C68	283-5238-00			CAP,FXD,CERAMIC:MLC;150PF,5%,100V,NPO,1206	04222	12061A151JAT1A
A9CR1	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A9CR3	152-0269-01			DIODE,SIG:VVC;C4=33PF,5%,C4/C20=2	04713	SMV1263-1
A9CR4	152-0269-01			DIODE,SIG:VVC;C4=33PF,5%,C4/C20=2	04713	SMV1263-1
A9CR5	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A9CR6	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A9CR7	152-5018-00			DIODE,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER-PAIR	27014	MMBD1203-HIGH
A9J1	174-3238-00			CA ASSY,SP:2 X 10 WIDE RIBBON CABLE	TK2469	174-3238-00
A9J4	131-0391-00			CONN,RF JACK:SMB;50 OHM,STR,PCB,GOLD/GOLD,0.293 H X 0.155 TAIL,3/0.045 SQ TAIL 0.038DIA CTRCOND,0.2 SQ PCB,0.312 HEX	24931	32JR105-1
A9J9	131-0265-00			CONN,RF PLUG:SMB;PCB,MALE,RTANG,50 OHM,0.381 H X 0.15 TAIL,0.043 DIA CTR COND,0.040 SQ TAIL	0GZV8	85SMB-50-0-1
A9J10	131-0265-00			CONN,RF PLUG:SMB;PCB,MALE,RTANG,50 OHM,0.381 H X 0.15 TAIL,0.043 DIA CTR COND,0.040 SQ TAIL	0GZV8	85SMB-50-0-1
A9K1	148-0173-01			RELAY,ARMATURE:1 FM C; 50 & 75 OHM, INST LSS 0.3DB@900MHZ, VSWR 1.5@900MHZ,ISOL 60DB@1.5GHZ,12VDC 0.5A, 10W,PKG.795 X .441	61529	RK1EDC12V
A9L1	108-1262-00			IDCTR,FXD:POWER:100UH,10%,I<0.75A,RDC<0.23 OHM,Q>15,SRF>5.4MHZ	TK2058	TSL0807-101KR75
A9L2	108-5037-00			IDCTR,FXD:POWER:22UH,10%,I<0.18A,RDC<3.2	TK2058	NL453232T-220K
A9L3	108-5015-00			IDCTR,FXD:POWER:100UH,10%,I<0.11A,RDC<8.0 OHM,Q>40,SRF>8.0 MHZ	TK2058	NL453232T-101K
A9L4	108-5015-00			IDCTR,FXD:POWER:100UH,10%,I<0.11A,RDC<8.0 OHM,Q>40,SRF>8.0 MHZ	TK2058	NL453232T-101K

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A9L5	108-5015-00			IDCTR,FXD:POWER:100UH,10%,I<0.11A,RDC<8.0 OHM,Q>40,SRF>8.0 MHZ	TK2058	NL453232T-101K
A9L6	108-5015-00			IDCTR,FXD:POWER:100UH,10%,I<0.11A,RDC<8.0 OHM,Q>40,SRF>8.0 MHZ	TK2058	NL453232T-101K
A9L7	108-5051-00			IDCTR,FXD:POWER:10UH,10%,I<0.25A,RDC<1.6	TK2058	NL453232T-100K
A9L8	108-5051-00			IDCTR,FXD:POWER:10UH,10%,I<0.25A,RDC<1.6	TK2058	NL453232T-100K
A9L9	108-5084-00			COIL,RF:FERRITE CHIP BEAD,52 OHM +/-25%@100MHZ,DCR 0.3 OHM,IMAX 400 MA,8MM T&R	TK2058	HF70ACB322513T
A9L10	108-5072-00			COIL,RF:IDCTR:FXD,1UH,5%,Q=33,SRF=290MHZ,DCR=1.75 OHM,IMAX=460MA	02113	1008CS-102XJBA
A9L11	108-5072-00			COIL,RF:IDCTR:FXD,1UH,5%,Q=33,SRF=290MHZ,DCR=1.75 OHM,IMAX=460MA	02113	1008CS-102XJBA
A9Q1	151-5000-00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	MMBT3906LT1
A9Q2	151-5021-00			XSTR,SIG:BIPOLAR,NPN;40V,600MA,300MHZ,AMPL	04713	MMBT2222ALT1
A9R1	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R2	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A9R3	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A9R4	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R5	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R6	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A9R7	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A9R8	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A9R9	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A9R10	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A9R11	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A9R12	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R13	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R14	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R15	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R16	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A9R17	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A9R18	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A9R19	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R20	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R21	321-5039-00			RES,FXD:THICK FILM;56.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK5622FT
A9R22	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R23	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R24	321-5039-00			RES,FXD:THICK FILM;56.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK5622FT
A9R25	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A9R26	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A9R27	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R28	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A9R29	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A9R30	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R31	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A9R32	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A9R33	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R34	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A9R35	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A9R36	321-5028-00			RES,FXD:THICK FILM;6.81K OHM,1%,0.125W,TC=100 PPM	50139	BCK6811FT
A9R39	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125WTAPE & REEL,SMD	91637	CRCW-1206-2430F
A9R40	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125WTAPE & REEL,SMD	91637	CRCW-1206-2430F
A9R41	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125WTAPE & REEL,SMD	91637	CRCW-1206-2430F
A9R42	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125WTAPE & REEL,SMD	91637	CRCW-1206-2430F
A9R43	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A9R45	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A9R46	321-5113-00			RES,FXD:THICK FILM;75 OHM,1%,0.125W,TC=100PPM	56845	CRCW1206-75ROFT
A9R47	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT

Replaceable Electrical Parts

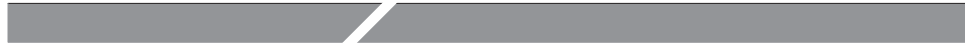
Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A9R48	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R49	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R50	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R51	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R52	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R53	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R56	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R57	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R58	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R59	321-5194-00			RES,FXD:THICK FILM;49.9 OHM,1%,0.125W,TC=100 PPM	91637	CRCW-1206-49R-9
A9R60	321-5194-00			RES,FXD:THICK FILM;49.9 OHM,1%,0.125W,TC=100 PPM	91637	CRCW-1206-49R-9
A9R61	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R62	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R63	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R64	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R65	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R66	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R67	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R68	321-5014-00			RES,FXD:THICK FILM;475 OHM,1%,0.125W,TC=100	50139	BCK4750FT
A9R69	321-5015-00			RES,FXD:THICK FILM;562 OHM,1%,0.125W,TC=100	50139	BCK5620FT
A9R70	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A9R71	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A9R72	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A9R75	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R76	321-5049-00			RES,FXD:THICK FILM;1M OHM,1%,0.125W,TC=100PPM	57668	MCR18FXEA1M
A9R77	321-5047-00			RES,FXD:THICK FILM;100K OHM,1%,0.125W,TC=100 PPM	50139	BCK1003FT
A9R78	321-5038-00			RES,FXD:THICK FILM;47.5K OHM,1%,0.125W,TC=100 PPM	50139	BCK4752FT
A9R79	321-5066-00			RES,FXD:THICK FILM;121K OHM,1%,0.125W,TC=100 PPM	91637	CRCW1206-1213FT
A9R80	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A9R81	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A9R82	321-5030-00			RES,FXD:THICK FILM;10.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1002FT
A9R83	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A9R84	321-5033-00			RES,FXD:THICK FILM;18.2K OHM,1%,0.125W,TC=100 PPM	50139	BCK1822FT
A9R85	321-5055-00			RES,FXD:THICK FILM;681K OHM,1%,0.125W,TC=100 PPM	91637	CRCW120668102FT
A9R86	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A9R87	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R88	321-5008-00			RES,FXD:THICK FILM;150 OHM,1%,0.125W,TC=100	50139	BCK1500FT
A9R89	321-5143-00			RES,FXD,FILM:301 OHM,1%,0.125WTAPE & REELED	91637	CRCW12063010FT
A9R90	321-5281-00			RES,FXD:THICK FILM;2K OHM,1%,0.125W,TC=100PPM	91637	CRCW1206-2001FT
A9R91	321-5000-00			RES,FXD:THICK FILM;10 OHM,1%,0.125W,TC=100PPM	91637	CRCW120610R0FT
A9R92	321-5046-00			RES,FXD:THICK FILM;82.5 OHM,1%,0.125W,TC=100 PPM	50139	BCK82R5FT
A9R93	321-5046-00			RES,FXD:THICK FILM;82.5 OHM,1%,0.125W,TC=100 PPM	50139	BCK82R5FT
A9R94	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9R95	321-5032-00			RES,FXD:THICK FILM;15.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1502FT
A9R96	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A9R97	321-5010-00			RES,FXD:THICK FILM;221 OHM,1%,0.125W,TC=100	50139	BCK221FT
A9R98	321-5209-00			RES,FXD,FILM:243 OHM,1%,0.125WTAPE & REEL,SMD	91637	CRCW-1206-2430F
A9R99	321-5018-00			RES,FXD:THICK FILM;1.0K OHM,1%,0.125W,TC=100 PPM	50139	BCK1001FT
A9R100	321-5009-00			RES,FXD:THICK FILM;182 OHM,1%,0.125W,TC=100	50139	BCK1820FT
A9R101	321-5006-00			RES,FXD:THICK FILM;100 OHM,1%,0.125W,TC=100	50139	BCK1000FT
A9R102	321-5043-00			RES,FXD:THICK FILM;47.5 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA47E5
A9R103	321-5004-00			RES,FXD:THICK FILM;22.1 OHM,1%,0.125W,TC=100 PPM	57668	MCR18FWEA22E1
A9TP1	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAPCB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A9U1	156-5299-01			IC,LINEAR:BIPOLAR,VR:NEGATIVE,-5V,100MA,5%	01295	MC79L05ACDR
A9U2	160-9945-00			IC,MEMORY:CMOS,PLD:OPT,22V10,25NS,55MA,PRGM	80009	160994500
A9U4	156-5382-01			IC,DGTL:ECL,GATE;TRIPLE 2-3-2 INPUT OR/NOR	04713	MC10H105FNR2
A9U5	156-5019-01			IC,LINEAR:BIPOLAR,COMPARATOR;DUAL,SINGLE SUPPLY	01295	LM393DR

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A9U6	156-5138-01			IC,LINEAR:BIFET,OP-AMP;DUAL	01295	TL072CDR
A9U7	156-5298-01			IC,LINEAR:BIPOLAR,VR;POSITIVE,5V,100MA,5%	01295	UA78L05ACDR
A9U8	156-5221-01			IC,DGTL:ECL,FLIP FLOP;DUAL D-TYPE	04713	MC10H131FNR2
A9U9	156-6059-01			IC,MISC:CMOS,ANALOG SWITCH;QUAD	17856	DG444DY-T1
A9U10	156-6647-00			IC,LINEAR:BIPOLAR,OP-AMP;CURRENT FEED-BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A9U11	156-5973-00			IC,DGTL:ECL,GATE;TRIPLE 2-INPUT XOR/XNOR	04713	MC10H107FN
A9U12	156-5221-01			IC,DGTL:ECL,FLIP FLOP;DUAL D-TYPE	04713	MC10H131FNR2
A9U13	156-5361-00			IC,DGTL:ECL,RECEIVER;TRIPLE LINE	04713	MC10116FN
A9U14	234-0727-21			IC,ASIC:BIPOL,PROBE SAMPLER(CORE);QCC6,M639-027	TK2598	234072721
A9U15	156-5517-01			IC,MISC:CMOS,PLL	04713	MC14046BDWR2
A9U16	160-9946-00			IC,MEMORY:CMOS,PLD;EEPLD,16V8,25NS,45MA,PLCC20	80009	160994600
A9U17	156-6647-00			IC,LINEAR:BIPOLAR,OP-AMP;CURRENT FEED-BACK,200MHZ,W/DISABLE,1 TO8 GAIN RANGE	62839	CLC410AJE
A9U18	156-6072-00			IC,LINEAR:BIPOLAR,AMPL;MICROWAVE,12DBGAIN,2.5GHZ	54893	MSA-0386
A9W1	131-4566-00			BUS,CNDCT:0 OHM,300 SPACING,SM BODYMI,DUMMY RES	91637	FRJ-50
A9W2	131-4566-00			BUS,CNDCT:0 OHM,300 SPACING,SM BODYMI,DUMMY RES	91637	FRJ-50
A9Y1	158-0451-01	671-3160-00	671-3160-00	CRYSTAL UNIT:13.492900MHZ,0.005%,FUNDAMENTAL,LOAD CAP=30PF,SERIES RESISTANCE=30 OHMS;4	80009	158045101
A9Y1	158-0458-00	671-3160-01		CRYSTAL:13.49294 MHZ,5 PPM,PARALLEL,LOAD CAP 30PF,ESR 15 OHMS; HC43U W/ 3RD WIRE	80009	158045800
A9Y2	158-0450-01	671-3160-00	671-3160-00	CRYSTAL UNIT:13.492200MHZ,50PPM,PRL,LC=30PF,ESR=30 OHMS;4 PINMINI DIP,SCREENED & BURNED IN	80009	158045001
A9Y2	158-0457-00	671-3160-01		CRYSTAL:13.49215,5 PPM,PARALLEL,LOAD CAP 30PF,ESR 15 OHMS;HC43U W/ 3RD WIRE	80009	158045700
V1	154-0909-16			ELECTRON TUBE:CRT,T1710-4-3.41	80009	154090916
W1	174-3126-00			CABLE ASSY,RF:75 OHM COAX,2.7 L (CONNECTED @ A4J1 & A5J2)	TK2469	174-3126-00
W2	174-2746-00			CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RIBBON (CONNECTED @ A3J2 & A7J13)	53387	80-6105-18179
W3	174-3125-00			CA ASSY,SP,BR:RIBBON,DESERIALIZER PWR;IDC,20,28 AWG,2 X 10,4.0 IN TO 2 X 5,18.0 IH TO 2 X 5 (CONNECTED @ A4J3,A5J1 & A8J11)	TK2469	174-3125-00
W4	174-2652-01			CA ASSY,RF:COAXIAL,SLDR,75 OHM,12.0 L,SMB,RTANG,MALE X SMB,RTANG,MALE (CONNECTED @ A4J4 & A5J8)	80009	174265201
W7	174-3127-00			CA ASSY,SP:26 COND,28 AWG,0.950 L (CONNECTED @ A6J7 & A8J3)	TK2469	174-3128-00
W9	174-3131-00			CA ASSY,SP:10 COND,28 AWG,0.950 L (CONNECTED @ A6J1 & A8J9)	80009	174313100
W10	174-2652-01			CA ASSY,RF:COAXIAL,SLDR,75 OHM,12.0 L,SMB,RTANG,MALE X SMB,RTANG,MALE (CONNECTED @ A4J4 & A9J10)	80009	174265201
W11	174-3237-00			CA ASSY,SP:WFM6011 EYPATTERN TO INPUT (CONNECTED @ A4J2 & A9J9)	80009	174323700
W12	174-2746-00			CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RIBBON (CONNECTED @ A3J5 & A7J12)	53387	80-6105-18179
W13	174-2746-00			CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RIBBON (CONNECTED @ A3J13 & A7J9)	53387	80-6105-18179
W14	174-3129-00			CA ASSY,SP:40 COND,28 AWG,1.750 L (CONNECTED @ A6J2 & A7J14)	TK2469	174-3129-00
B1	119-5040-01			FAN,DC:TUBEAXIAL;12V,1.4W,3,500 RPM,14.8 CFM,30DBA,60MM X 60MM X 25.4MM,BALL BEARING,8*LEAD W/CONN,HEAT SHRINK	S4246	TUDC12B4
FL1	119-0420-00			FILTER,RFI:6A,250VAC,400HZ	0GV52	FN223B-6/06
FL1	198-5808-00			*ATTACHED PARTS*		
FL1	198-5808-00			WIRE SET,ELEC:DESCRETE;CUT/KIT,3,18 AWG,4.0 L,2,0.375 X 0.25 CUT,1,0.375 X 0.375 CUT	TK2469	198-5808-00

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
	210-0202-00			TERMINAL,LUG:0.146 ID,LOCKING,BRZ TIN PL *END ATTACHED PARTS*	TK1181	ORDER BY DESC



Diagrams/Circuit Board Illustrations

Diagrams/Circuit Board Illustrations

Symbols

Graphic symbols and class designation letters are based on ANSI Standard Y32.2–1975.

Logic symbology is based on ANSI Y32.14–1973 in terms of positive logic. Logic symbols depict the logic function performed and may differ from the manufacturer's data.

Overline, parenthesis, or leading slash indicate a low asserting state.

Example: $\overline{\text{ID CONTROL}}$, (ID CONTROL), or /ID CONTROL.

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).

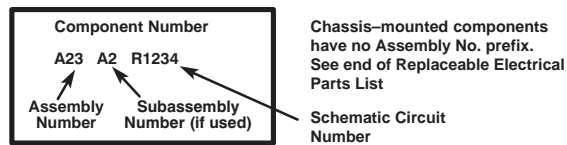
Resistors = Ohms (Ω).

The following information and special symbols may appear in this manual.

Assembly Numbers

Each assembly in the instrument is assigned an assembly number (e.g., A20). The assembly number appears on the diagram (in circuit board outline), circuit board illustration title, and lookup table for the schematic diagram.

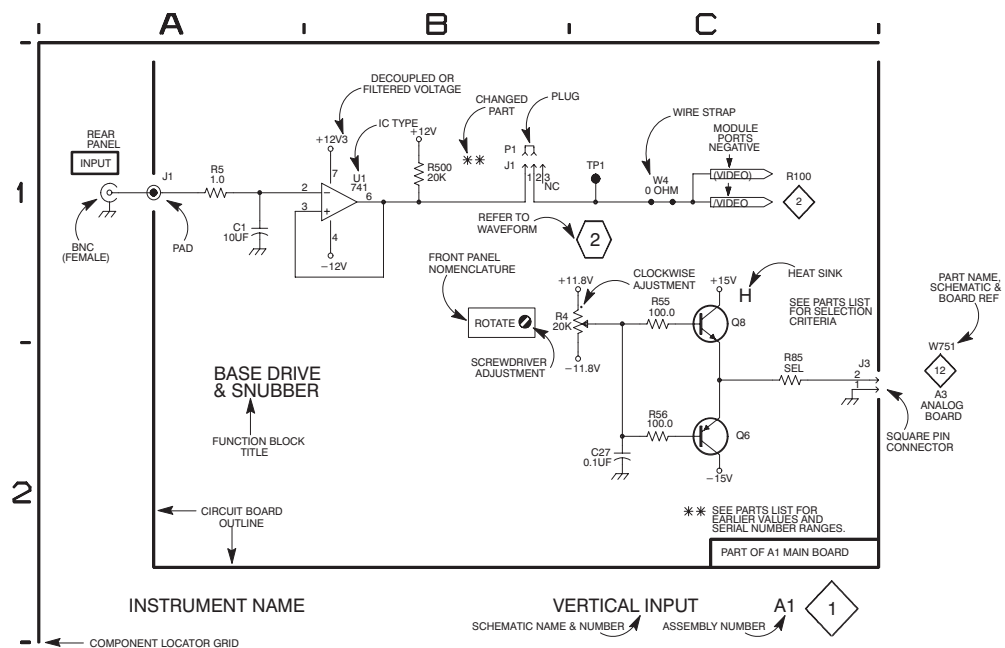
The Replaceable Electrical Parts List is arranged by assembly number in numerical sequence; the components are listed by component number. Example:

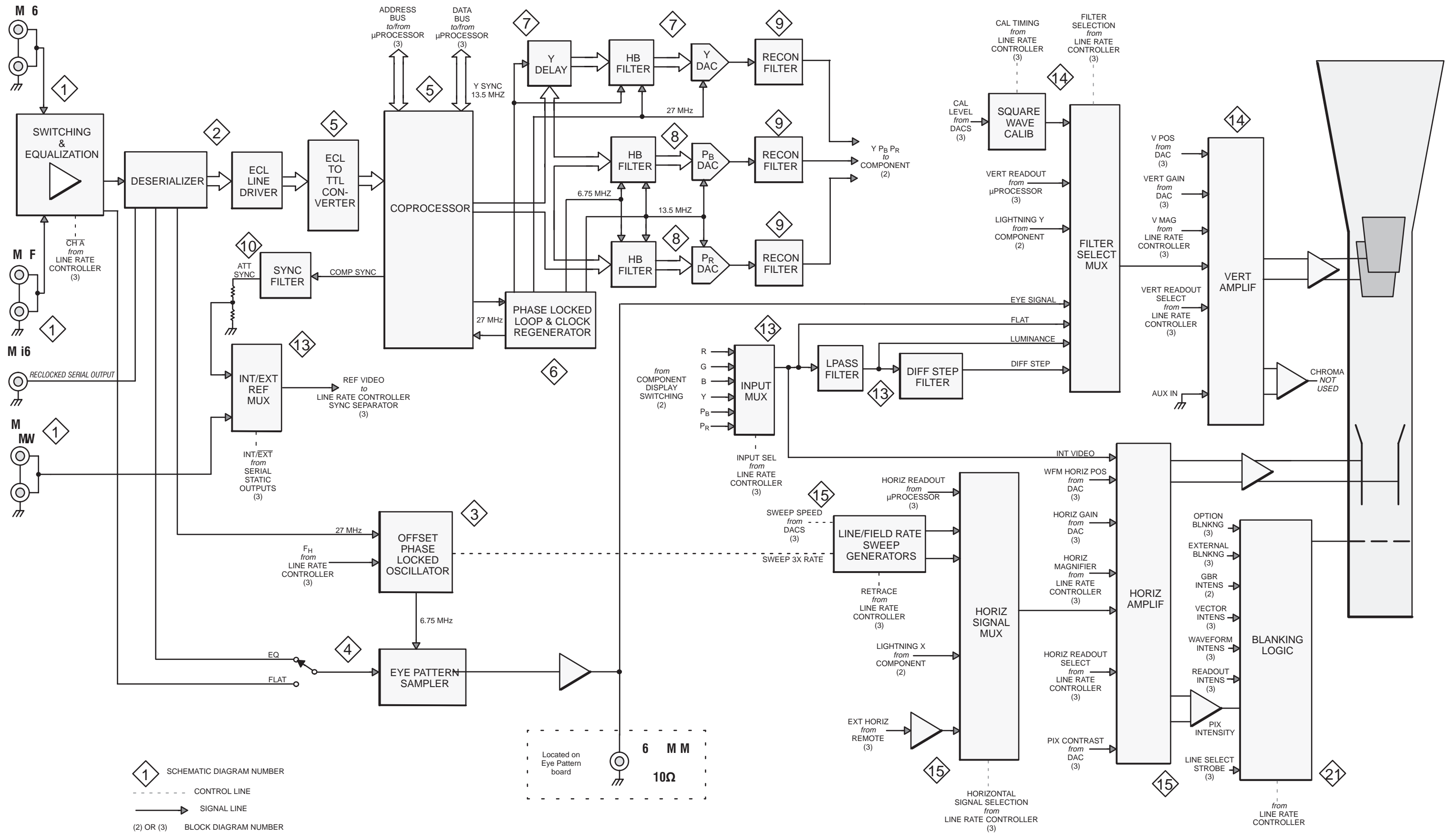


Grid Coordinates

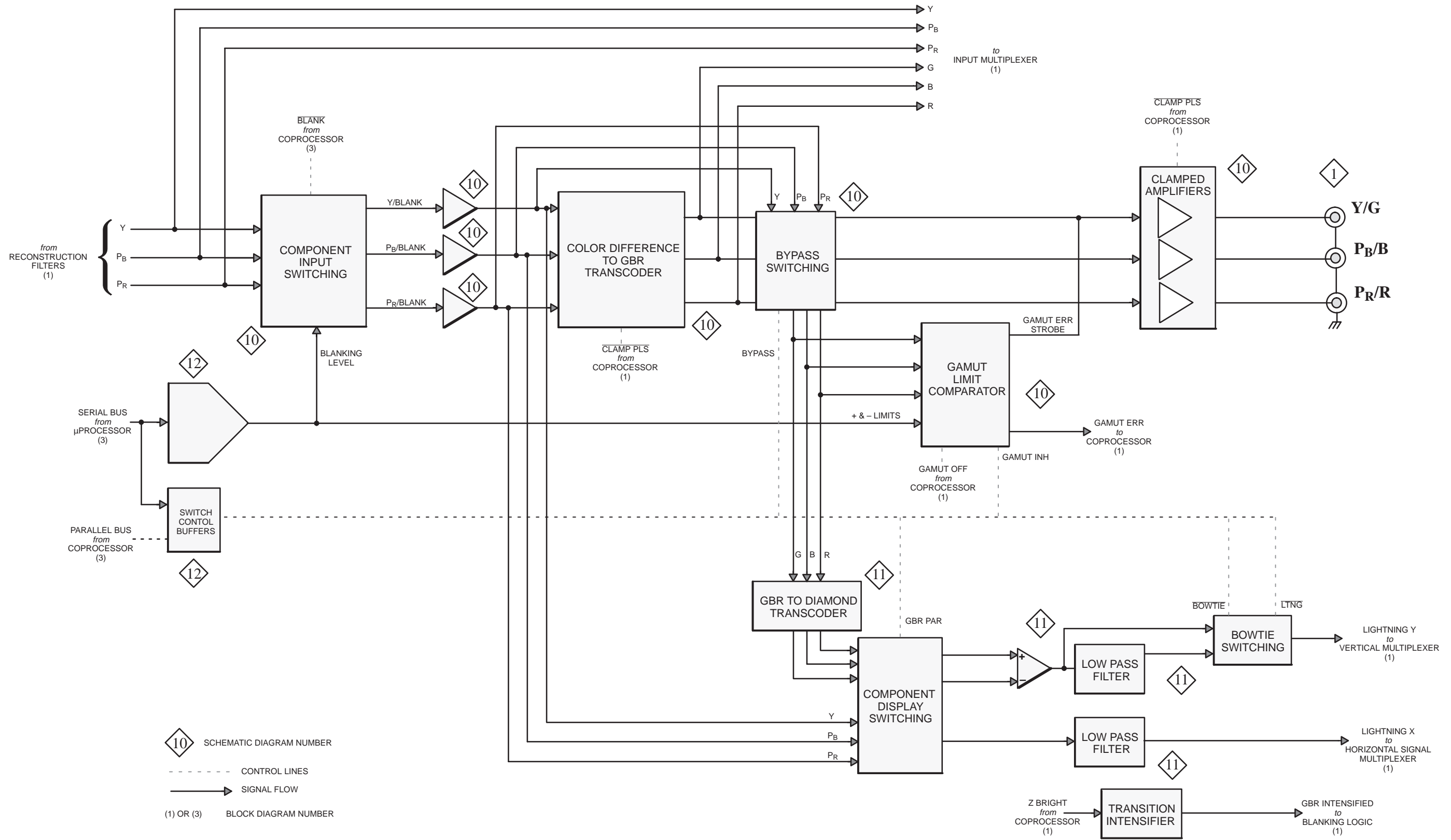
The schematic diagram and circuit board component location illustration have grids. A lookup table with the grid coordinates is provided for ease of locating the component. Only the components illustrated on the facing diagram are listed in the lookup table.

When more than one schematic diagram is used to illustrate the circuitry on a circuit board, the circuit board illustration will only appear opposite the first diagram; the lookup table will list the diagram number of other diagrams that the other circuitry appears on.

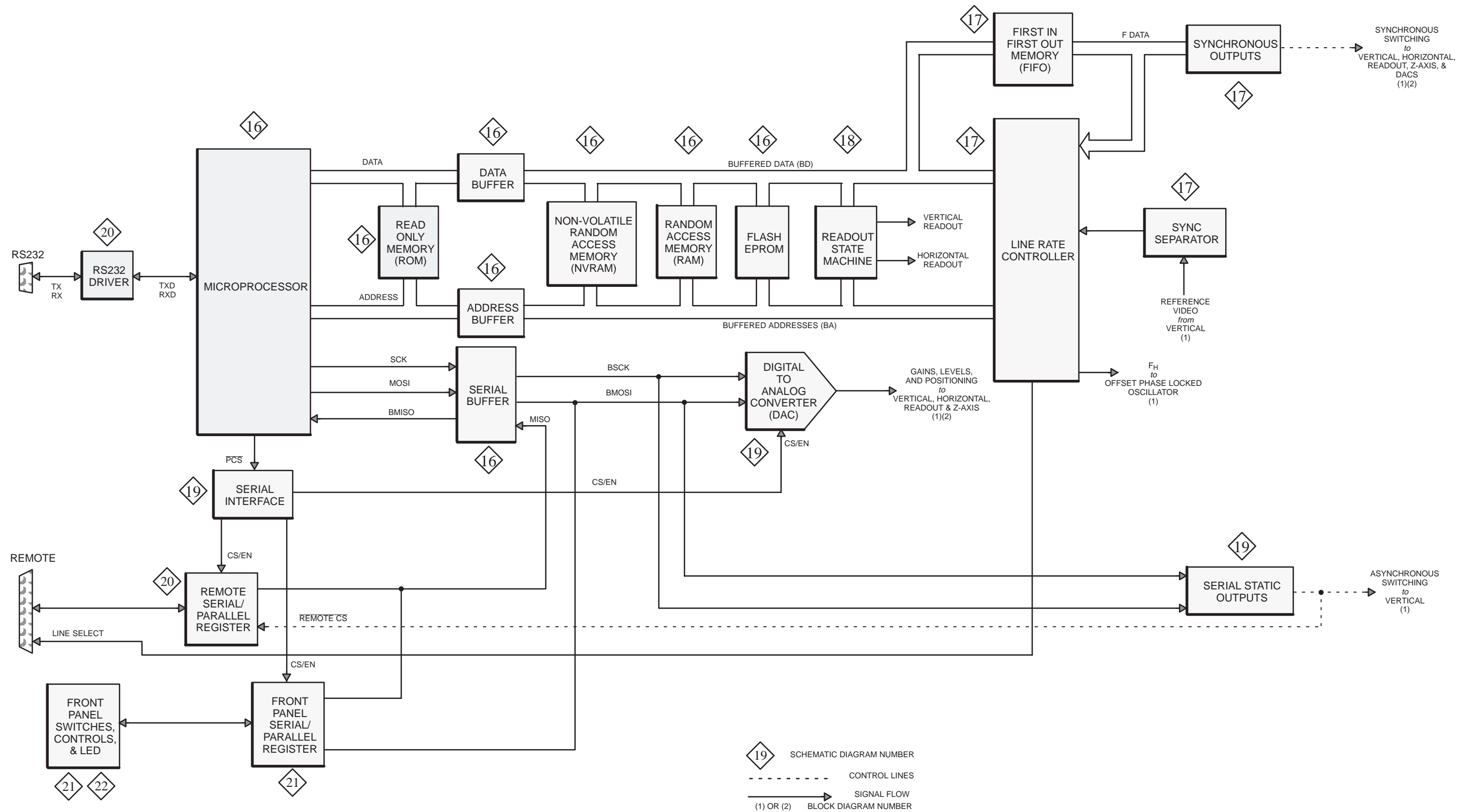




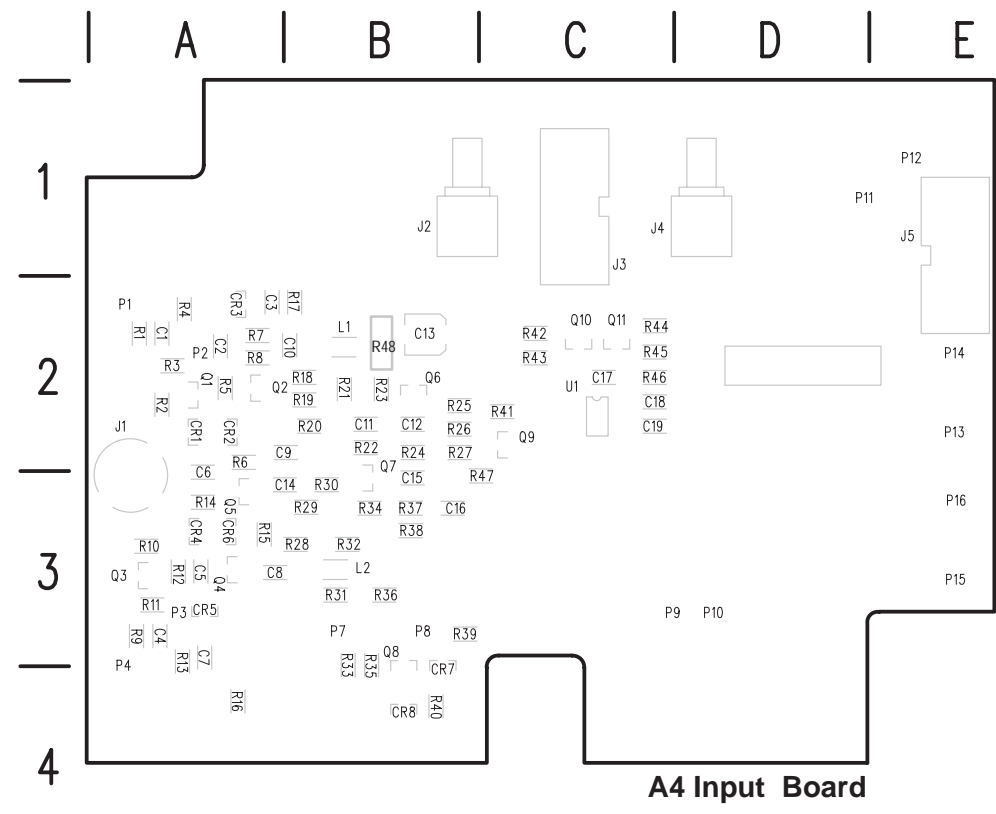
INPUT & WAVEFORM DISPLAY BLOCK DIAGRAM 1



COMPONENT BLOCK DIAGRAM 2

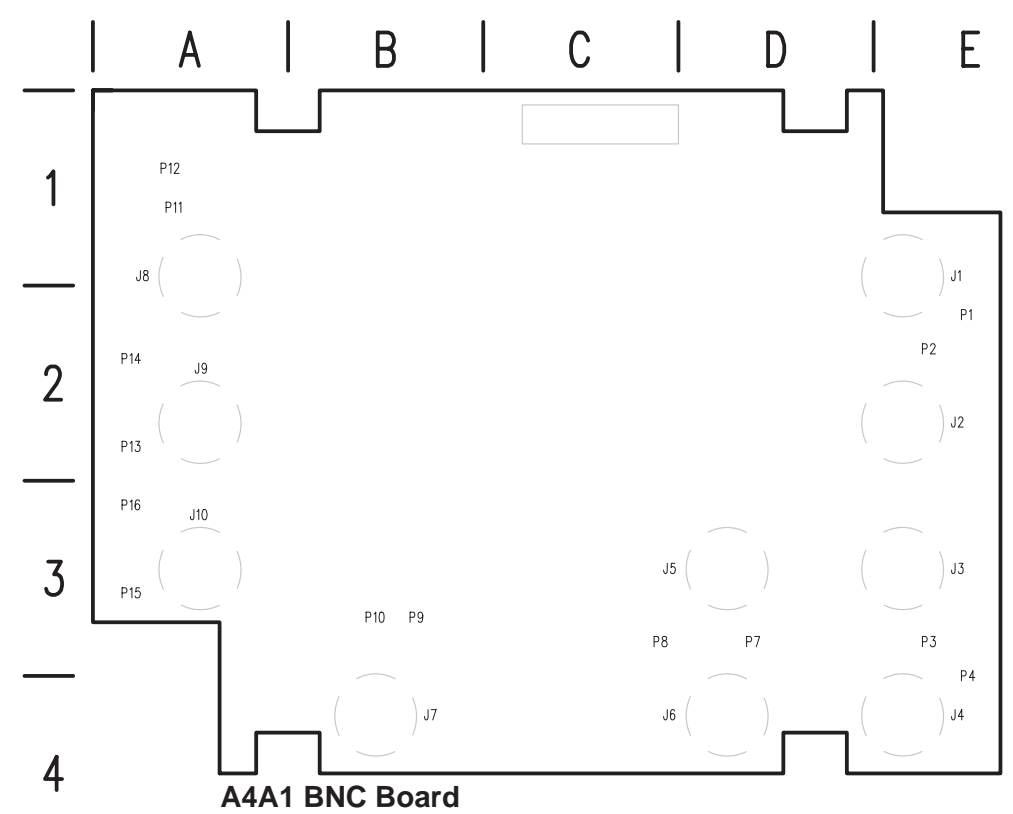


MICROPROCESSOR & LINE RATE CONTROLLER BLOCK DIAGRAM 3



A4 Input Board

 **Static Sensitive Devices**
See Maintenance Section

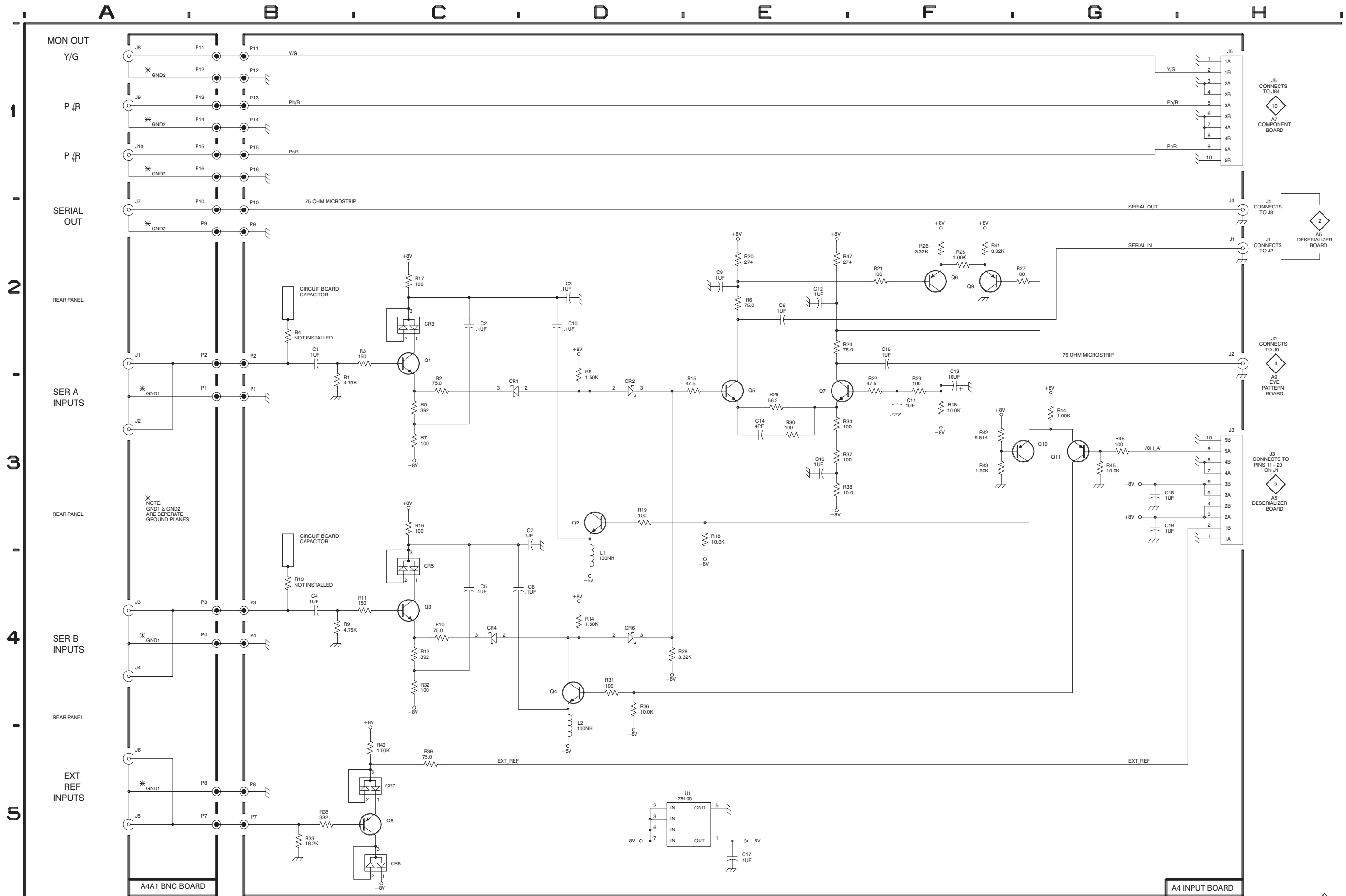


A4A1 BNC Board

A4 Input Board , A4A1 BNC Board and Diagram <1> Component Locator

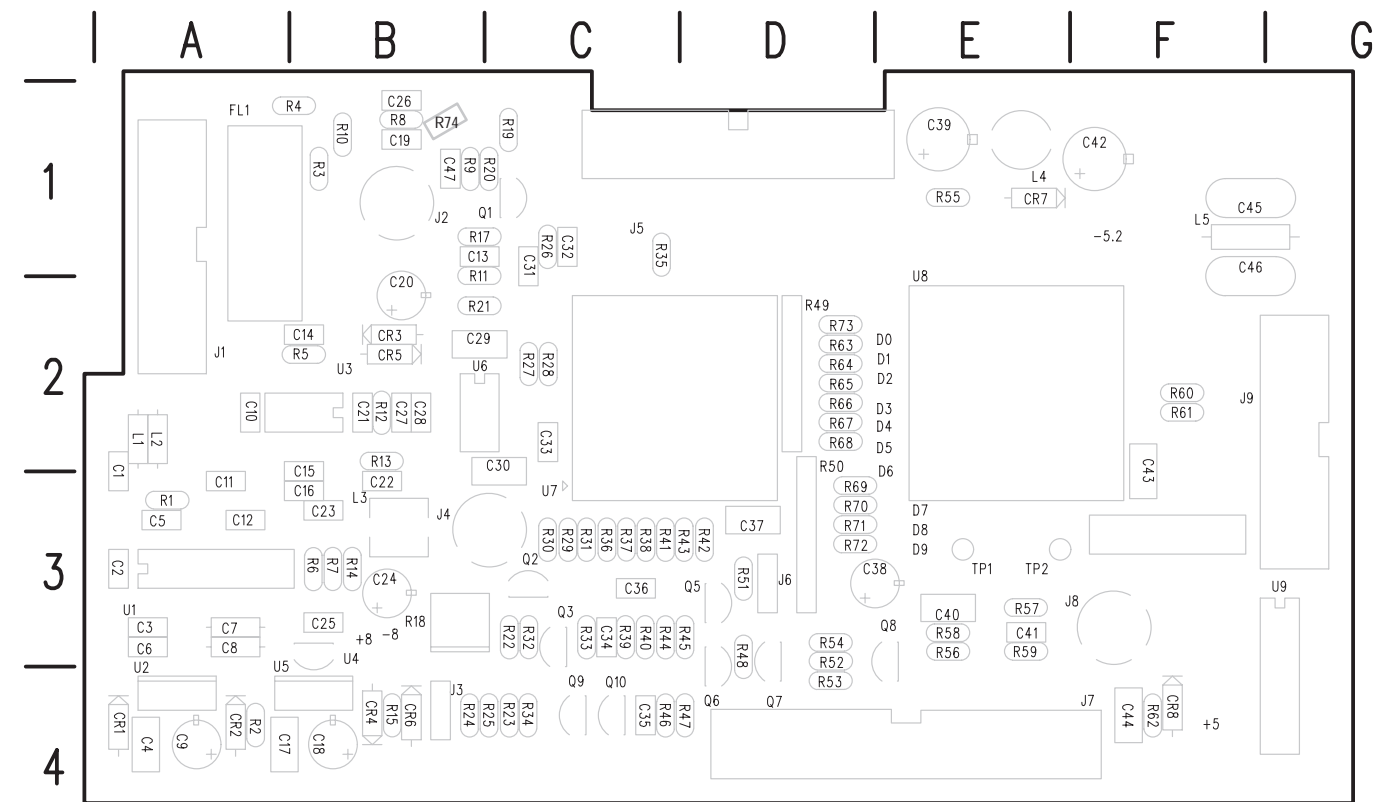
Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc			
C1	B2	A2	C18	G3	C2	L2	D4	B3	Q3	C4	A3	R10	C4	A3	R28	D4	B3	R46	G3	C2	J9	A1	A2
C2	C2	A2	C19	G3	C2	P1	B3	A2	Q4	D4	A3	R11	B4	A3	R29	E3	B3	R47	E2	B3	J10	A1	A3
C3	D2	A2				P2	B2	A2	Q5	E3	A3	R12	C4	A3	R30	E3	B3	R48	F3	B2			
C4	B4	A3	CR1	C3	A2	P3	B4	A3	Q6	F2	B2	R13	B4	A3	R31	D4	B3				P1	B2	E2
C5	C4	A3	CR2	D3	A2	P4	B4	A4	Q7	E3	B3	R14	D4	A3	R32	C4	B3	U1	D5	C2	P2	B2	E2
C6	E2	A3	CR3	C2	A2	P7	B5	B3	Q8	C5	B3	R15	D3	A3	R33	B5	B3				P3	B4	E3
C7	D3	A3	CR4	C4	A3	P8	B5	B3	Q9	F2	C2	R16	C3	A4	R34	E3	B3				P4	B4	E4
C8	C4	A3	CR5	C4	A3	P9	B2	C3	Q10	F3	C2	R17	C2	B2	R35	B5	B3				P7	B5	D3
C9	E2	A2	CR6	D4	A3				Q11	G3	C2	R18	E3	B2	R36	D4	B3				P8	B5	C3
			CR7	C5	B4	P10	B2	D3				R19	D3	B2	R37	E3	B3				P9	B2	B3
C10	D2	B2	CR8	C5	B4	P11	B1	D1	R1	B2	A2	R20	E2	B2	R38	E3	B3				P10	B2	B3
C11	F3	B2				P12	B1	E1	R2	C3	A2	R21	F2	B2	R39	C5	B3				P11	B1	A1
C12	E2	B2	J1	H2	A2	P13	B1	E2	R3	B2	A2	R22	F3	B2							P12	B1	A1
C13	F3	B2	J2	H2	B1	P14	B1	E2	R4	B2	A2	R23	F3	B2	R40	C5	B4				P13	B1	A2
C14	E3	A3	J3	H3	C1	P15	B1	E3	R5	C3	A2	R24	F3	B2	R41	F2	C2				P14	B1	A2
C15	F2	B3	J4	H2	C1	P16	B1	E3	R6	E2	A2	R25	E2	B2	R42	F3	C2				P15	B1	A3
C16	E3	B3	J5	H1	E1				R7	C3	A2	R26	F2	B2	R43	F3	C2				P16	B1	A3
C17	E5	C2				Q1	C2	A2	R8	D2	A2	R27	F2	B2	R44	G3	C2						
			L1	D3	B2	Q2	D3	A2	R9	B4	A3				R45	G3	C2						

A4A1 BNC



WFM 601i SERIAL COMPONENT MONITOR

BNC & INPUT BOARDS

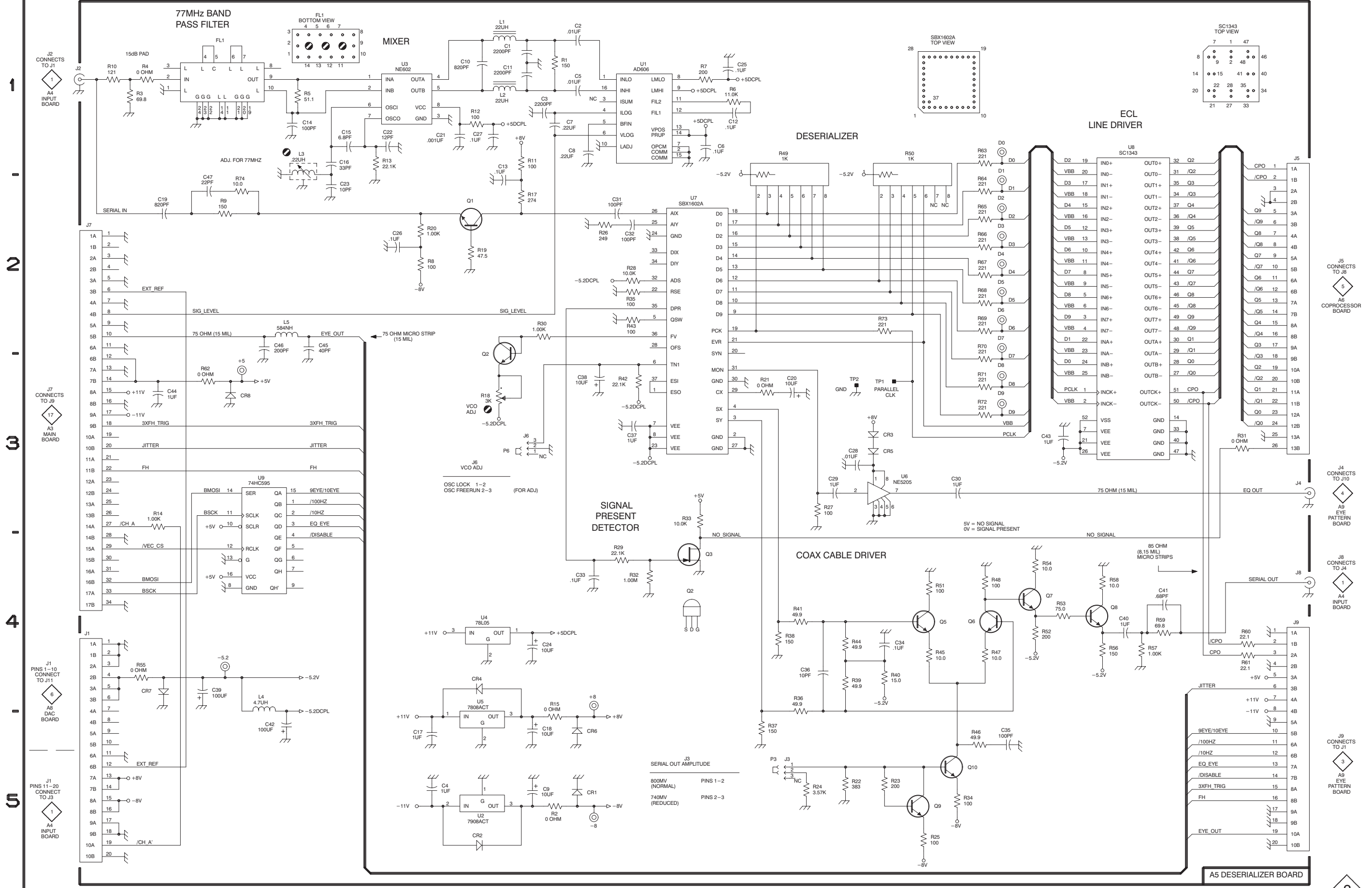


 **Static Sensitive Devices**
See Maintenance Section

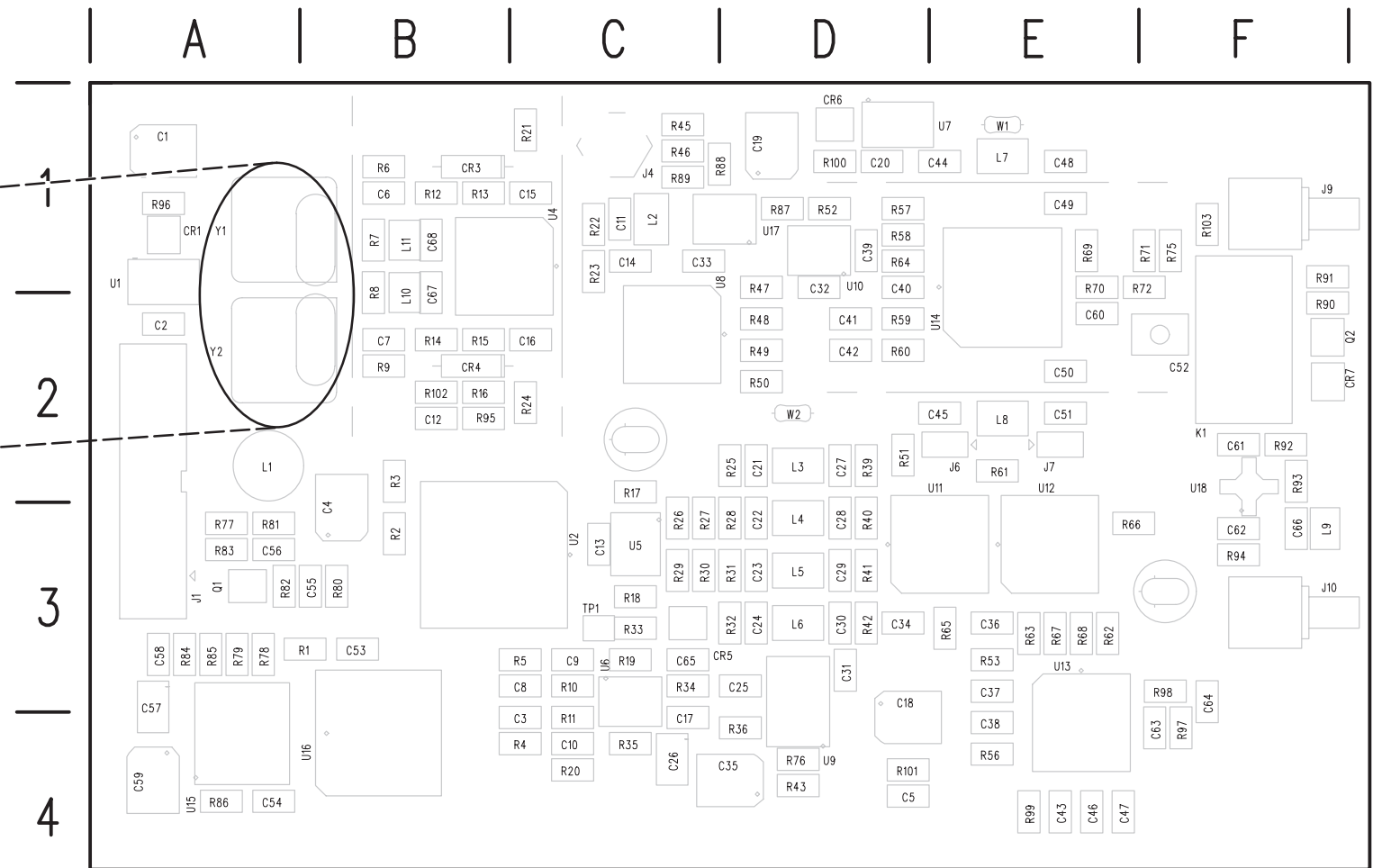
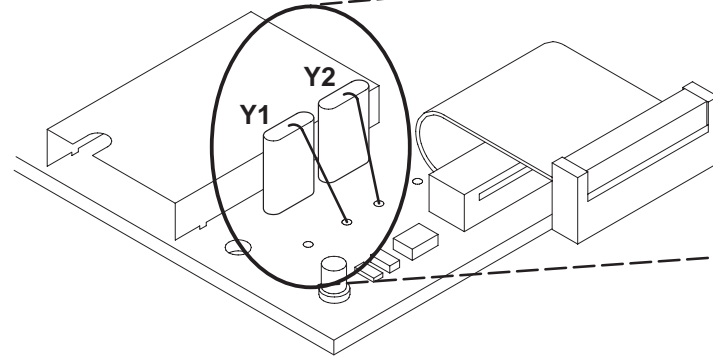
A5 Deserializer Board

A5 Deserializer Board and Diagram <2> Component Locator

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc			
C1	C1	A3	C24	C4	B3	C47	B2	B1	J1	A4	A2	Q7	F4	D4	R21	E3	B2	R43	D2	D3	R65	F2	D2
C2	D1	A3	C25	E1	B3				J2	A1	B1	Q8	G4	E3	R22	E5	C3	R44	E4	C3	R66	F2	D2
C3	D1	A3	C26	C2	B1	CR1	D5	A4	J3	E5	B4	Q9	F5	C4	R23	F5	C4	R45	F4	D3	R67	F2	D2
C4	C5	A4	C27	C1	B2	CR2	C5	A4	J4	H3	B3	Q10	F5	C4	R24	E5	B4	R46	F5	C4	R68	F2	D2
C5	D1	A3	C28	E3	B2	CR3	F3	B2	J5	H1	C1				R25	F5	C4	R47	F4	D4	R69	F2	D3
C6	E1	A3	C29	E3	B2	CR4	C4	B4	J6	C3	D3	R1	D1	A3	R26	D2	C1	R48	F4	D3	R70	F3	D3
C7	D1	A3	C30	F3	C3	CR5	F3	B2	J7	A2	F4	R2	D5	A4	R27	E3	C2	R49	E1	D2	R71	F3	D3
C8	D1	A3	C31	D2	C1	CR6	D5	B4	J8	H4	F3	R3	A1	B1	R28	D2	C2	R50	F1	D3	R72	F3	D3
C9	C5	A4	C32	D2	C1	CR7	A4	E1	J9	H4	F2	R4	A1	B1	R29	D4	C3	R51	F4	D3	R73	F2	D2
C10	C1	A2	C33	D4	C2	CR8	B3	F4				R5	B1	B2	R30	D2	C3	R52	F4	D4	R74	B2	B1
C11	C1	A3	C34	F4	C3				L1	C1	A2	R6	E1	B3	R31	H3	C3	R53	G4	D4			
C12	E1	A3	C35	F5	C4				L2	C1	A2	R7	D1	B3	R32	D4	C3	R54	F4	D3	TP1	F3	E3
C13	C2	B1	C36	E4	C3				L3	B1	B3	R8	C2	B1	R33	D3	C3	R55	A4	E1	TP2	E3	E3
C14	B1	B2	C37	D3	D3				L4	B4	E1	R9	B2	B1	R34	F5	C4	R56	G4	E4			
C15	B1	B3	C38	D3	D3				L5	B2	F1	R10	A1	B1	R35	D2	C1	R57	G4	E3	U1	D1	A3
C16	B1	B3	C39	B4	E1							R11	C1	B2	R36	E4	C3	R58	G4	E3	U2	C5	A4
C17	C5	B4										R12	C1	B2	R37	E5	C3	R59	G4	E4	U3	C1	B2
C18	C5	B4	C40	G4	E3							R13	C1	B3	R38	E4	C3				U4	C4	B4
C19	A2	B1	C41	G4	E3							R14	A3	B3	R39	E4	C3				U5	C5	A4
C20	E3	B2	C42	B5	F1							R15	D5	B4				R60	H4	F2	U6	F3	B2
			C43	G3	F2							R17	C2	B1				R62	B3	F4	U7	D2	C3
C21	C1	B2	C44	A3	F4							R18	C3	B3				R63	F1	D2	U8	G1	E2
C22	C1	B3	C45	B2	F1	FL1	A1	A1				R19	C2	C1				R64	F2	D2	U9	B3	G3
C23	B2	B3	C46	B2	F2							Q6	F4	D4									



Effective SN B010323
Y1 and Y2 replacement crystals



Static Sensitive Devices
See Maintenance Section

A9 Eye Pattern Board

A9 Eye Pattern Board and Diagram <3> Component Locator (with cross-references to schematic diagrams 2).

Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc
C1	3	H5	A1	C31	3	E2	D3	C61	4	B2	F2	L7	4	D3	E1	R21	3	E3	C1	R52	4	F2	D1	R84	3	C5	A3	U6A	3	C3	C3
C2	3	G5	A2	C32	4	F2	D2	C62	4	B2	F3	L8	4	D3	E2	R22	3	F4	C1	R53	3	C1	E3	R85	3	C5	A3	U6B	3	D3	C3
C3	3	C4	C4	C33	3	G4	C1	C63	3	D1	F4	L9	4	B2	F3	R23	3	F4	C1	R56	3	C1	E4	R86	3	C5	A4	U7	4	E4	E1
C4	3	C4	B3	C34	3	F1	D3	C64	3	E1	F4	L10	3	D4	B2	R24	3	E4	C2	R57	4	F2	D1	R87	4	G2	D1	U8A	3	F4	D1
C5	3	G5	D4	C35	3	D2	D4	C65	3	D3	C3	L11	3	D3	B1	R25	3	G1	D2	R58	4	F2	D1	R88	4	G3	D1	U8B	3	F4	D1
C6	3	E3	B1	C36	3	G3	E3	C66	4	B2	F3	C66	4	B2	F3	R26	3	G1	C3	R59	4	D3	D2	R89	4	G3	C1	U9A	3	D2	D4
C7	3	E4	B2	C37	3	C1	E3	C67	3	D4	B2	Q1	3	C4	A3	R27	3	G1	C3	R60	4	D3	D2	R90	4	B1	F2	U9B	3	E2	D4
C8	3	C3	C3	C38	3	C1	E4	C68	3	D4	B1	Q2	4	B1	G2	R28	3	G1	D3					R91	4	C1	F1	U9C	3	E2	D4
C9	3	C3	C3	C39	4	G2	D1					R29	3	G2	C3					R61	3	E1	E2	R91	4	C1	F1	U9D	3	D3	D4
C10	3	C3	C4	C40	4	F3	D2	CR1	3	H5	A1	R1	3	B3	B3					R62	3	E1	E3	R92	4	B2	F2	U10	4	F2	D1
								CR3	3	E3	B1	R2	3	C4	B3					R63	3	D1	E3	R93	4	B2	F2				
C11	3	E4	C1	C41	4	D2	D2	CR4	3	E4	B2	R3	3	C4	B2					R64	4	F2	D1	R94	4	A2	F3	U11A	3	F1	E2
C12	3	D5	B2	C42	4	D2	D2	CR5	3	E3	C3	R4	3	C3	C4					R65	3	E1	E3	R95	3	D4	B2	U11B	3	F2	E2
C13	3	G1	C3	C43	3	C1	E4	CR6	4	E4	D1	R5	3	C3	C3					R66	3	E1	E3	R96	3	H5	A1	U11C	3	F1	E2
C14	3	E4	C1	C44	4	D3	E1	CR7	4	C1	G2	R6	3	E3	B1					R67	3	D1	E3	R97	3	D1	F4	U12A	3	G2	E2
C15	3	E4	C1	C45	4	D3	E2					R7	3	D4	B1					R68	3	C1	E3	R98	3	D1	F3	U12B	3	D1	E2
C16	3	E4	C2	C46	3	C2	E4	J1	3	A3	A3	R8	3	D5	B2					R69	4	E2	E1	R99	3	C2	E4	U13A	3	C1	E3
C17	3	D3	C4	C47	3	C1	E4	J4	4	H2	C1	R9	3	E4	B2					R70	4	D2	E2	R100	4	E4	D1	U13B	3	C1	E3
C18	3	H4	D3	C48	4	D3	E1	J6	4	E3	E2	R10	3	C3	C3									R101	3	G4	D4	U13C	3	E1	E3
C19	4	E5	D1	C49	4	E3	E1	J7	4	E3	E2												R102	3	D5	B2	U14	4	E2	E2	
C20	4	D5	D1	C50	4	E3	E2	J9	4	A3	F1	R11	3	C3	C4					R71	4	C2	F1	R103	4	B3	F1	U15	3	B5	A4
								J10	4	A2	F3	R12	3	D4	B1					R72	4	D2	E2					U16	3	B4	B4
C21	3	G1	D2	C51	4	D3	E2					R13	3	E4	B1					R75	4	C2	F1					U17	4	G2	D1
C22	3	G1	D3	C52	4	D2	F2	K1	4	C2	F2	R14	3	D5	B2					R76	3	D2	D4					U18	4	B2	F2
C23	3	G1	D3	C53	3	C5	B3					R15	3	E5	B2					R77	3	A3	A3								
C24	3	G2	D3	C54	3	B5	A4	L1	3	B4	A2	R16	3	E5	B2					R78	3	B5	A3					U1	3	G5	A1
C25	3	E2	D3	C55	3	C4	B3	L2	3	E4	C1	R17	3	H1	C2					R79	3	B5	A3					U2	3	B3	C3
C26	3	D3	C4	C56	3	C4	A3	L3	3	F1	D2	R18	3	H1	C3					R80	3	C4	B3					U4A	3	E4	C1
C27	3	F1	D2	C57	3	C5	A4	L4	3	F1	D3	R19	3	C3	C3													U4B	3	D4	C1
C28	3	F1	D3	C58	3	C5	A3	L5	3	F1	D3	R20	3	C4	C4					R81	3	C4	A3					U4C	3	E5	C1
C29	3	F1	D3	C59	3	C5	A4	L6	3	F2	D3									R82	3	C4	A3					U5A	3	G1	C3
C30	3	F2	D3	C60	4	D2	E2													R83	3	C5	A3					USB	3	G1	C3

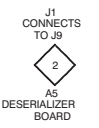
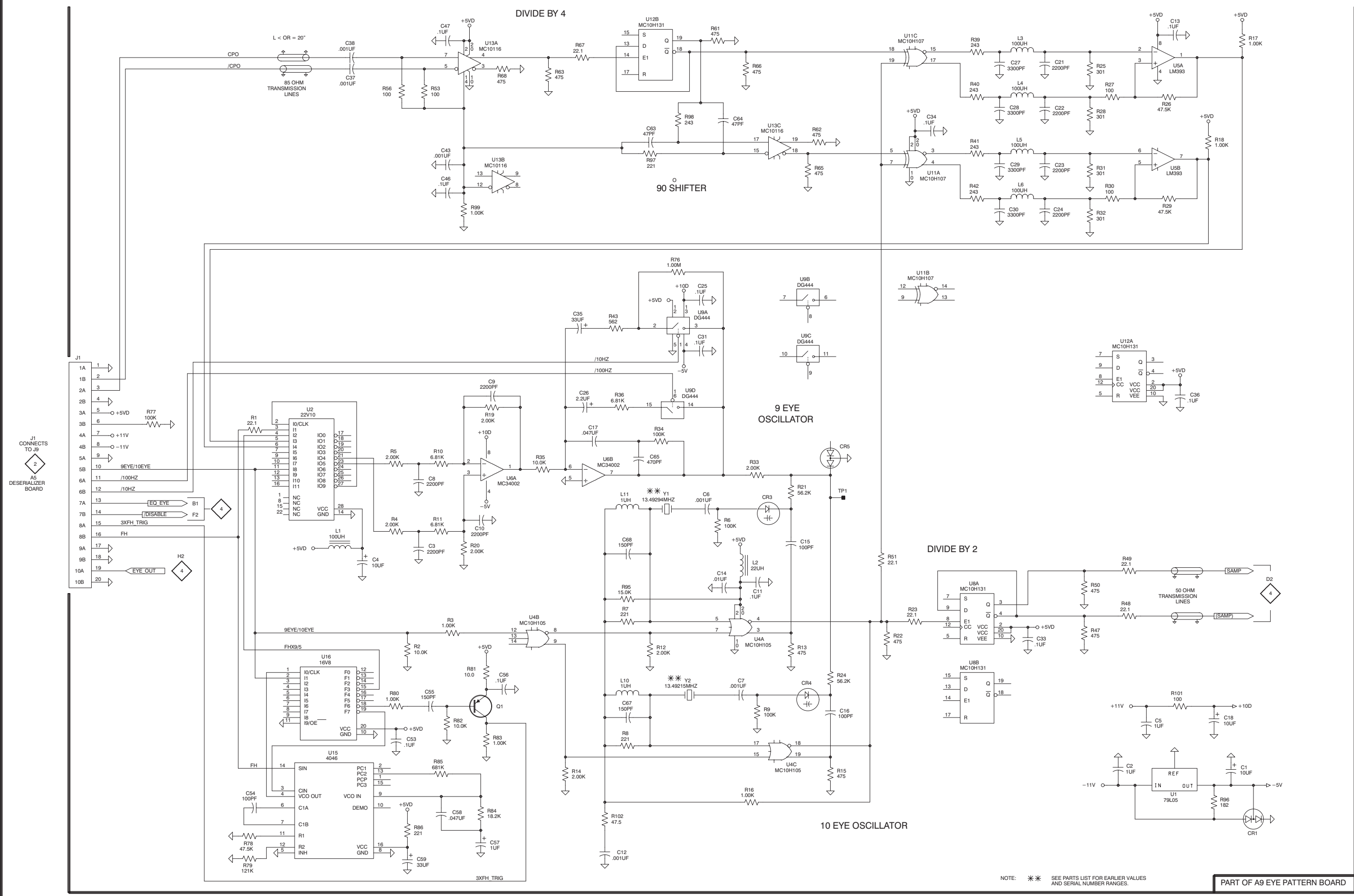
1

2

3

4

5



NOTE: ** SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES.

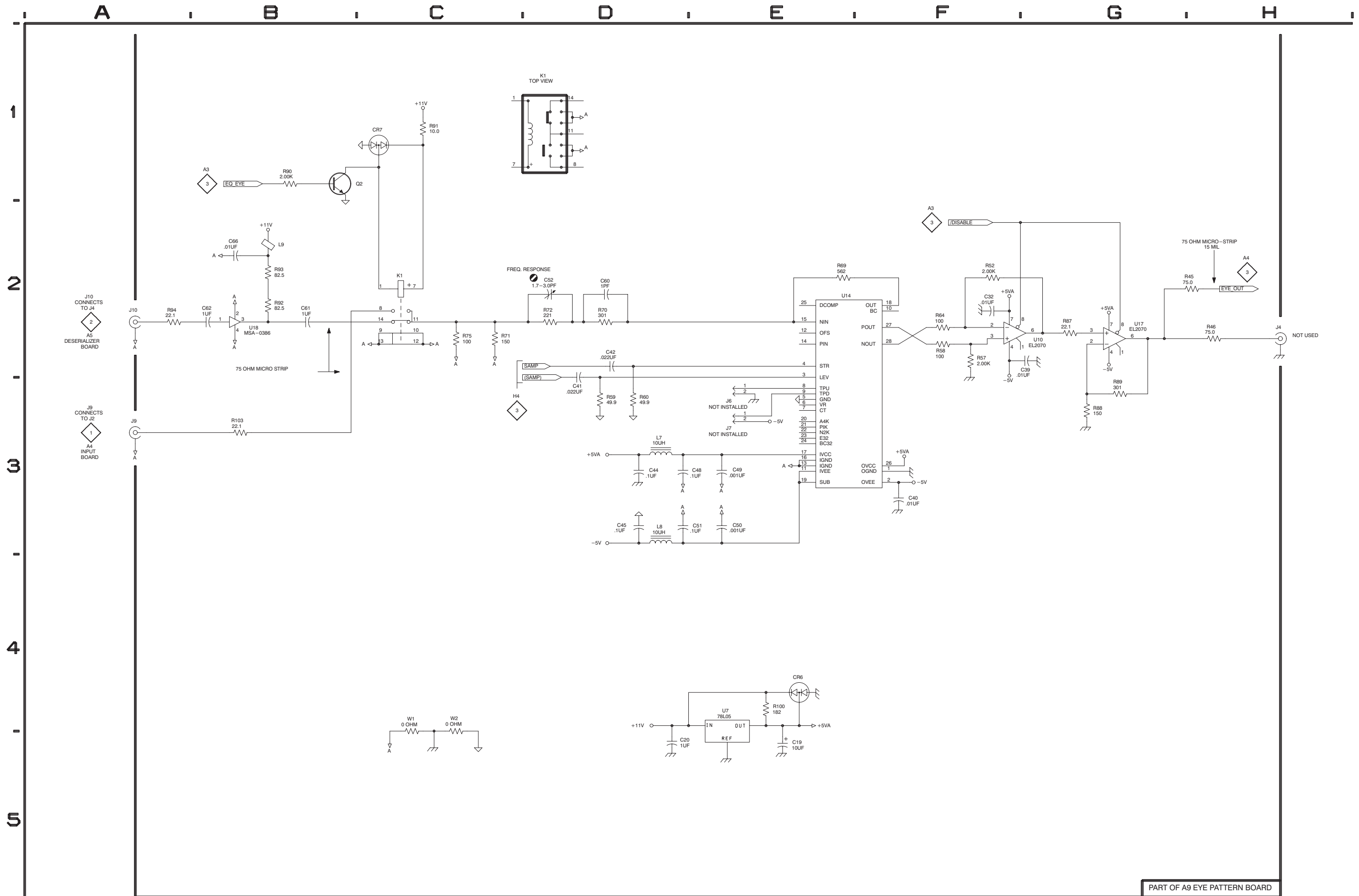
PART OF A9 EYE PATTERN BOARD

Schematic Diagram <4> Component Locator Chart

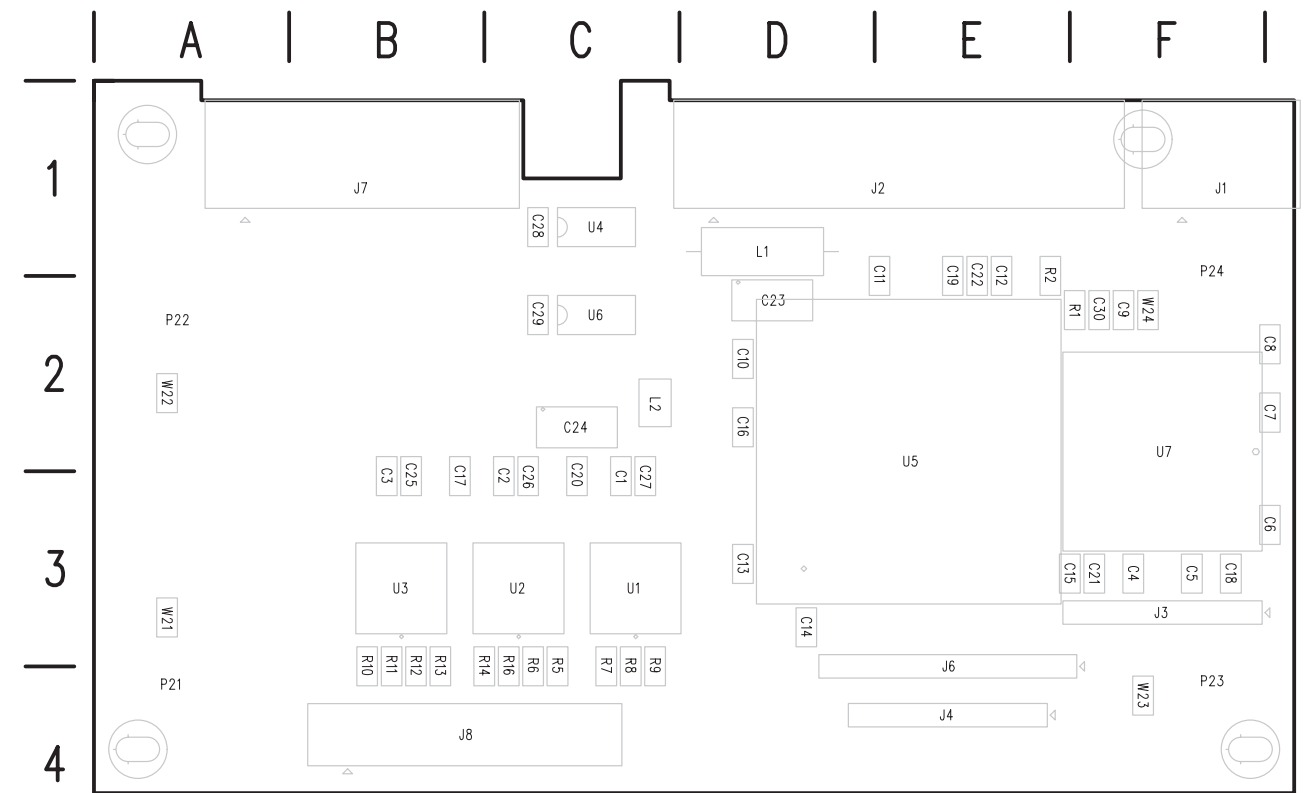
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A9. (Partial Assembly A9 also shown on schematic 3).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C19	E5	D1	CR6	E4	D1	R46	H2	C1	R90	B1	F2
C20	D5	D1	CR7	C1	G2	R52	F2	D1	R91	C1	F1
C32	F2	D2				R57	F2	D1	R92	B2	F2
C39	G2	D1	J4	H2	C1	R58	F2	D1	R93	B2	F2
C40	F3	D2	J6	E3	E2	R59	D3	D2	R94	A2	F3
C41	D2	D2	J7	E3	E2	R60	D3	D2	R100	E4	D1
C42	D2	D2	J9	A3	F1	R64	F2	D1	R103	B3	F1
C44	D3	E1	J10	A2	F3	R69	E2	E1			
C45	D3	E2							U7	E4	E1
C48	D3	E1	K1	C2	F2	R70	D2	E2	U10	F2	D1
C49	E3	E1				R71	C2	F1	U14	E2	E2
C50	E3	E2	L7	D3	E1	R72	D2	E2	U17	G2	D1
C51	D3	E2	L8	D3	E2	R75	C2	F1	U18	B2	F2
C52	D2	F2	L9	B2	F3	R87	G2	D1			
C60	D2	E2				R88	G3	D1	W1	C4	E1
C61	B2	F2	Q2	B1	G2	R89	G3	C1	W2	C4	D2
C62	B2	F3									
C66	B2	F3	R45	G2	C1						



PART OF A9 EYE PATTERN BOARD

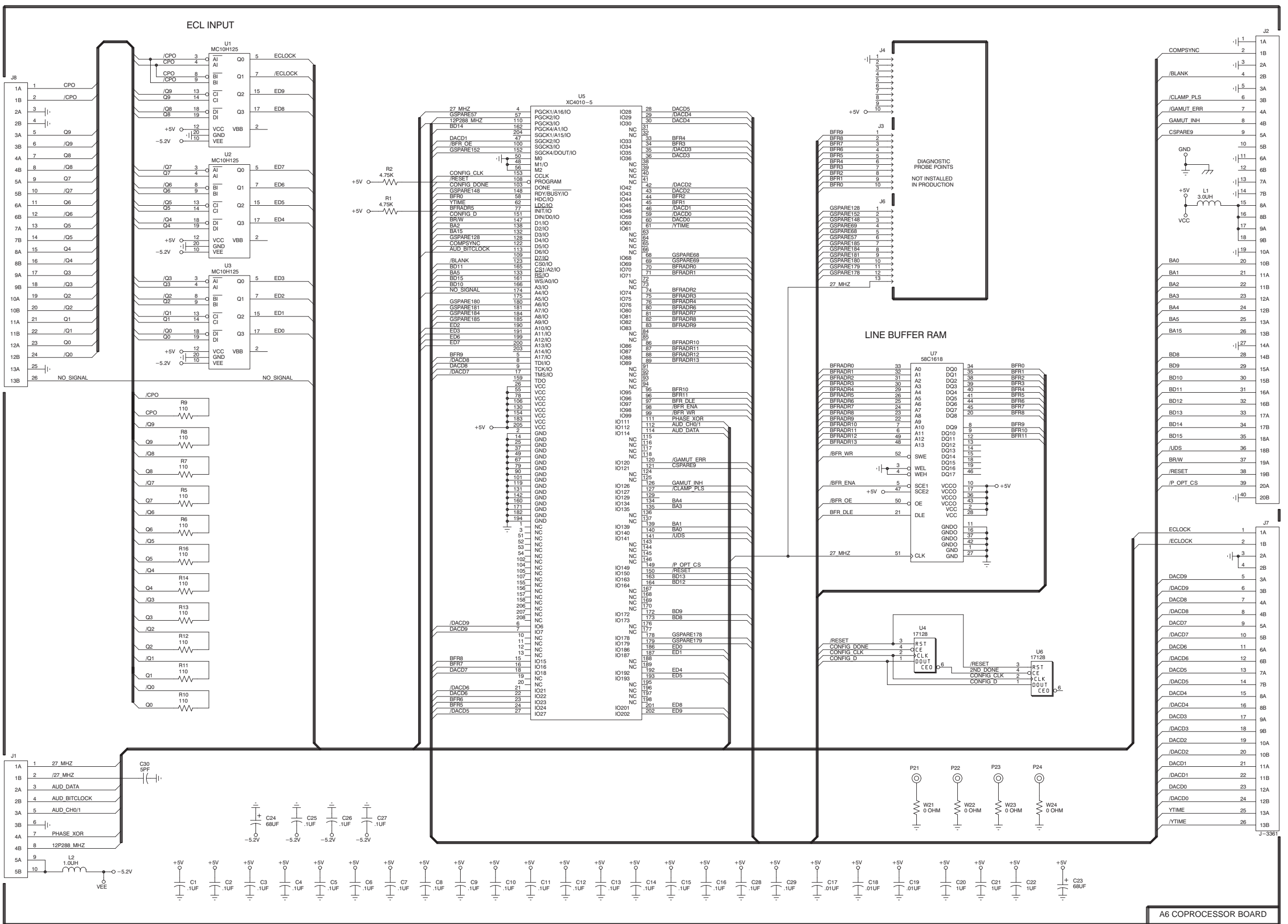


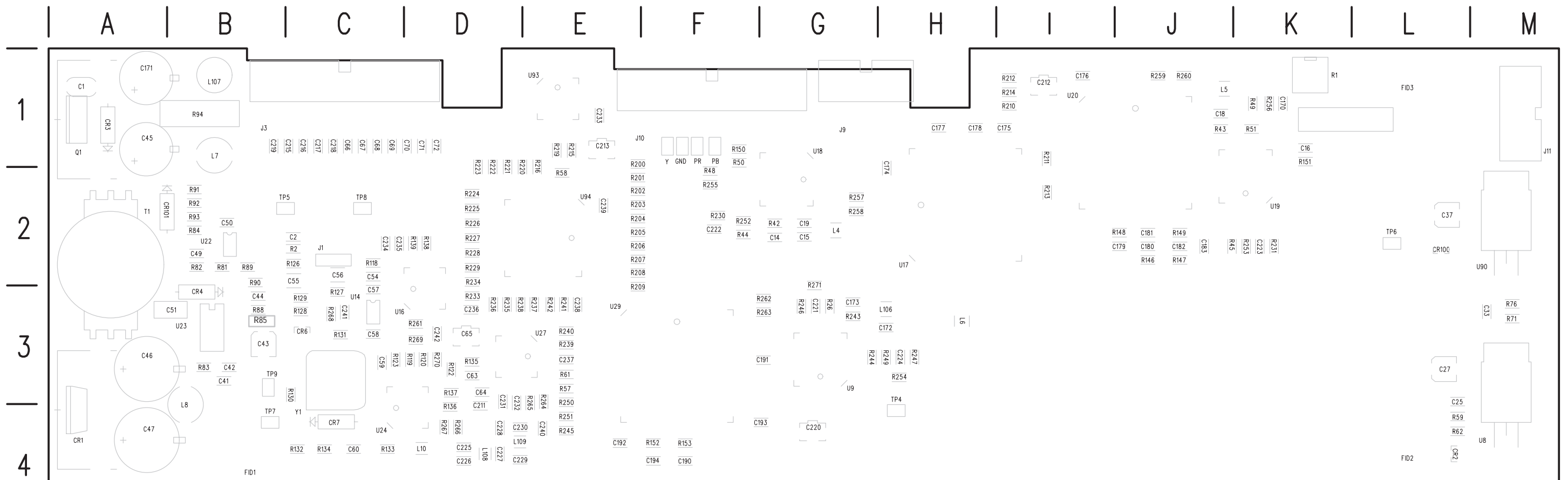
 **Static Sensitive Devices**
See Maintenance Section

A6 Coprocessor Board

A6 Coprocessor Board and Diagram <5> Component Locator

Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc								
C1	5	B5	C3	C10	5	D5	D2	C19	5	F5	E1	C28	5	E5	C1	J8	5	A1	B4	R1	5	C2	F2	R13	5	B4	B3	U6	5	G4	C2				
C2	5	B5	C2	C11	5	D5	E1	C20	5	F5	C2	C29	5	E5	C2	L1	5	H2	D1	R2	5	C1	E1	R14	5	B4	B3	U7	5	F2	F2				
C3	5	B5	B2	C12	5	D5	E1	C21	5	F5	F3	C30	5	B5	F2	L2	5	A5	C2	R5	5	B3	C3	R16	5	B4	C3								
C4	5	B5	F3	C13	5	D5	D3	C22	5	G5	E1									R6	5	B3	C3					W21	5	F5	A3				
C5	5	C5	F3	C14	5	D5	D3					J1	5	A5	F1	P21	5	F5	A4	R7	5	B3	C3	U1	5	B1	C3	W22	5	F5	A2				
C6	5	C5	G3	C15	5	E5	E3	C23	5	G5	D2	J2	5	H1	D1	P22	5	F5	A2	R8	5	B3	C3	U2	5	B1	C3	W23	5	G5	F4				
C7	5	C5	G2	C16	5	E5	D2	C24	5	B5	C2	J3	5	F1	F3	P23	5	G5	F4	R9	5	B3	C3	U3	5	B2	B3	W24	5	G5	F2				
C8	5	C5	G2	C17	5	E5	B2	C25	5	C5	B2	J4	5	F1	E4	P24	5	G5	F2	R10	5	B4	B3	U4	5	F4	C1								
C9	5	C5	F2	C18	5	F5	F3	C26	5	C5	C2	J6	5	F2	E4					R11	5	B4	B3	U5	5	D1	E2								
								C27	5	C5	C2	J7	5	H3	B1					R12	5	B4	B3												



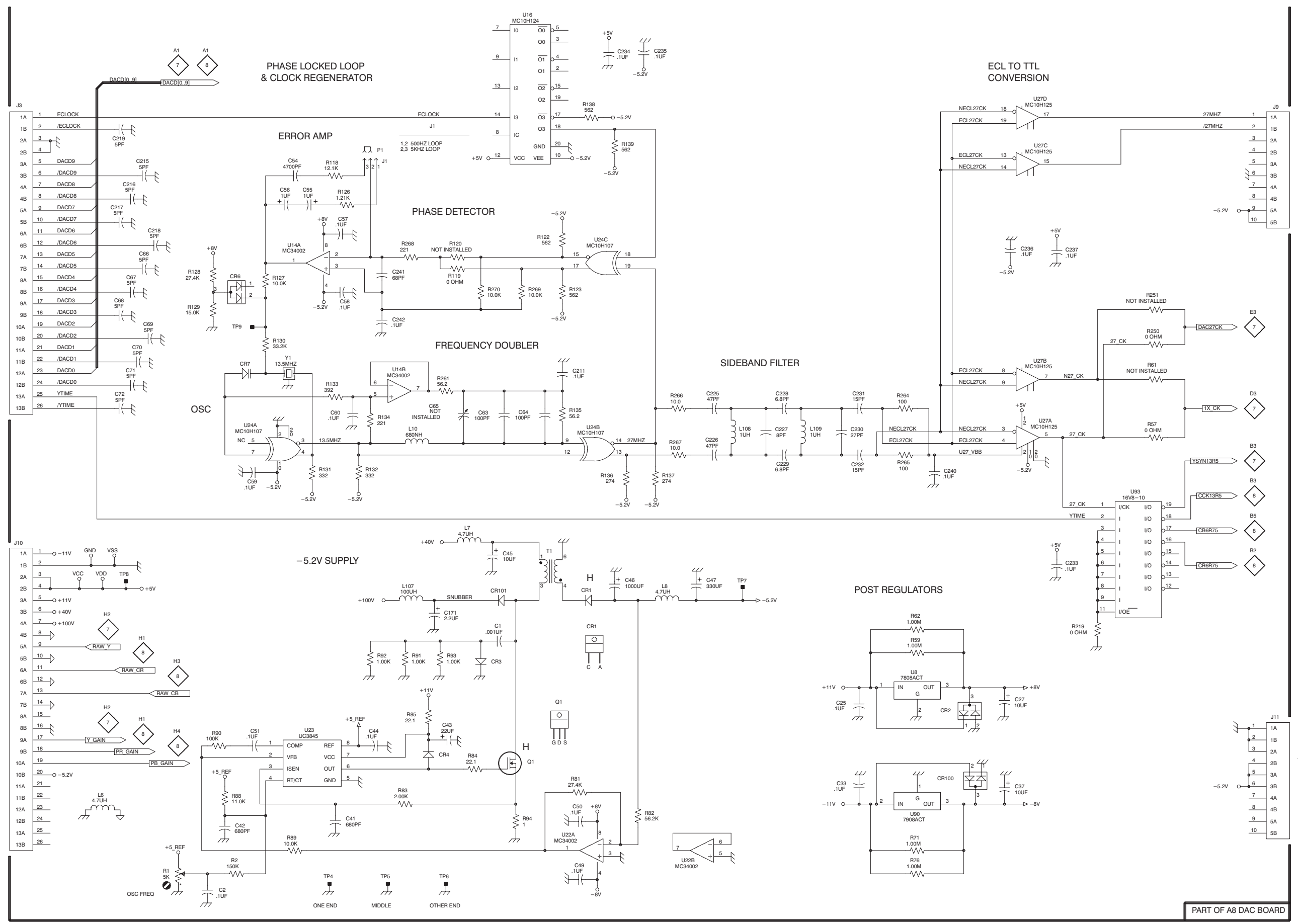


⚡ Static Sensitive Devices
See Maintenance Section

A8 DAC Board

A8 DAC Board and Diagram <6> Component Locator (with cross-references to schematic diagrams (7 and 8)).

Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc				
C1	6	D4	A1	C70	6	B2	D1	C224	7	G2	H3	L6	6	A5	H3	R88	6	B5	B3	R200	8	B1	E2	R237	7	A3	E3	T1	6	D4	A2
C2	6	B5	C2	C71	6	A3	D1	C225	6	E3	D4	L7	6	C3	B1	R89	6	B5	B2	R201	8	B1	E2	R238	7	A4	D3	TP4	6	C5	H3
C14	8	F2	G2	C72	6	A3	D1	C226	6	E3	D4	L8	6	E4	B4	R90	6	B5	B3	R202	8	B1	E2	R239	7	B4	E3	TP5	6	C5	B2
C15	8	E2	G2	C170	8	E4	K1	C227	6	E3	D4	L10	6	C3	D4	R91	6	C4	B2	R203	8	B1	E2	R240	7	B4	E3	TP6	6	C5	L2
C16	8	F4	K1					C228	6	E3	D4	L106	7	F3	H3	R92	6	C4	B2	R204	8	B1	E2	R241	7	B4	E3	TP7	6	E4	B4
C18	8	F4	J1	C171	6	C4	A1	C229	6	E3	D4	L107	6	C4	B1	R93	6	C4	B2	R205	8	B2	E2	R242	7	B4	E3	TP8	6	A4	C2
C19	8	F1	G2	C172	7	G3	H3	C230	6	F3	D4	L108	6	E3	D4	R94	6	D5	B1	R206	8	B2	E2	R243	7	B4	E3	TP9	6	B2	B3
C25	6	F4	L4	C173	7	F3	G3	C231	6	F3	D3	L109	6	E3	D4					R207	8	B2	E2	R244	7	G2	G3	U8	6	F4	M4
C27	6	F4	L3	C174	8	E3	H1	C232	6	F3	D3					R118	6	C1	C2	R208	8	B2	E2	R245	7	F2	G3	U9	7	F2	G3
C33	6	F5	M3	C175	8	F3	I1					P1	6	C1		R119	6	C2	D3	R209	8	B2	E3	R246	7	G2	G3	U14A	6	C2	C3
C37	6	F5	L2	C176	8	F3	I1	C233	6	G4	E1					R120	6	C2	D3				R247	7	G2	H3	U14B	6	C3	C3	
				C177	8	F3	H1	C234	6	D1	C2	Q1	6	D5	A1	R121	6	D2	D3	R210	8	C2	I1	R249	7	H2	H3	U16	6	D1	C3
C41	6	C5	B3	C178	8	F3	H1	C235	6	D1	C2					R122	6	D2	D3	R211	8	C2	I1	R250	6	G2	E4	U17	8	D1	H2
C42	6	B5	B3	C179	8	E5	I2	C236	6	G2	D3	R1	6	B5	K1	R123	6	D2	C3	R212	8	C4	I1	R251	6	G2	E4	U18	8	F1	G1
C43	6	C4	B3					C237	6	G2	E3	R2	6	B5	C2	R124	6	B2	C3	R213	8	C5	I2	R252	8	G1	F2	U19	8	F3	K2
C44	6	C5	B3	C180	8	F5	J2	C238	7	E5	E3	R26	7	G2	G3	R125	6	B2	C3	R214	8	E4	I1	R253	8	G4	K2	U20	8	D3	I1
C45	6	D3	A1	C181	8	F5	J2	C239	7	E5	E2	R42	8	F1	G2	R126	6	C2	C2	R215	8	E2	E1	R254	7	G2	H3				
C46	6	D4	A3	C182	8	F5	J2	C240	6	F3	E4	R43	8	F4	J1	R127	6	B2	C3	R216	7	B3	E1	R255	8	G1	F2	U22A	6	D5	B2
C47	6	E4	A4	C183	8	F5	J2	C241	6	C2	C3	R44	8	G1	F2	R128	6	B2	C3	R217	6	G4	E1	R256	8	G3	K1	U22B	6	E5	B2
C49	6	D5	B2	C190	7	D5	F4	C242	6	C2	D3	R45	8	G4	J2	R129	6	B2	C3	R218	6	B3	E1	R257	8	C2	G2	U23	6	B5	B3
C50	6	D5	B2	C191	7	D5	F3					R48	8	F1	F2	R130	6	C3	C3	R219	6	G4	E1	R258	8	C2	G2	U24	6	B3	C4
C51	6	B5	A3	C192	7	D5	E4	CR1	6	D4	A4	R49	8	F3	K1	R131	6	C3	C3	R220	7	B1	D1					U24A	6	D3	C4
				C193	7	D5	F4	CR2	6	F4	L4					R132	6	C3	C4	R221	7	B1	D1	R259	8	C5	J1	U24B	6	D3	C4
C54	6	B1	C2	C194	7	E5	F4	CR3	6	C4	A1	R50	8	F1	F1	R133	6	C3	C4				R222	7	B2	D1	U24C	6	D2	C4	
C55	6	C2	C2					CR4	6	C5	B3	R51	8	F3	K1	R134	6	C3	C4	R223	7	B2	D1	R260	8	C5	J1	U27A	6	G3	E3
C56	6	B2	C2	C211	6	D3	D4	CR6	6	B2	C3	R57	6	G3	E3	R135	6	D3	D3	R224	7	B2	D2	R261	6	C3	D3	U27B	6	G3	E3
C57	6	C2	C3	C212	8	E4	I1	CR7	6	B3	C4	R58	7	D3	E2	R136	6	D3	D4	R225	7	B2	D2	R262	7	C3	F3	U27C	6	G1	E3
C58	6	C2	C3	C213	8	E2	E1	CR100	6	F5	L2	R59	6	F4	L4	R137	6	D3	D3	R226	7	B2	D2	R263	7	D3	F3	U27D	6	G1	E3
C59	6	B3	C3	C215	6	B1	C1	CR101	6	D4	A2	R61	6	G3	E3	R138	6	D1	D2	R227	7	B2	D2	R264	6	F3	E3	U29	7	D2	E3
C60	6	C3	C4	C216	6	A2	C1					R62	6	F4	L4	R139	6	D1	D2	R228	7	B2	D2	R265	6	F3	E3	U90	6	F5	M2
C63	6	D3	D3	C217	6	A2	C1	J1	6	C1	C2	R71	6	F5	M3	R146	8	C2	J2	R229	7	B2	D2	R266	6	E3	D3				
C64	6	D3	D3	C218	6	B2	C1	J3	6	A1	B1	R76	6	F5	M3	R147	8	C3	J2	R230	8	G1	F2	R267	6	E3	D4	U93	6	G3	E1
				C219	6	A1	B1	J9	6	H1	G1	R81	6	D5	B2	R148	8	C4	I2	R231	8	G4	K2	R268	6	C2	C3	U94	7	C2	E2
C65	6	C3	D3	C220	7	F3	G4	J10	6	A3	E1					R149	8	C5	J2	R232	7	A3	D3	R269	6	D2	D3				
C66	6	B2	C1	C221	7	G2	G3	J11	6	H4	M1	R82	6	D5	B2	R150	8	E1	F1	R233	7	A3	D3	R270	6	C2	D3	Y1	6	B3	C4
C67	6	A2	C1	C222	8	G1	F2					R83	6	C5	B3	R151	8	E3	K1	R234	7	A3	D2	R271	7	H2	G3				
C68	6	A2	C1					L4	8	F2	G2	R84	6	C5	B2					R235	7	A3	D3								
C69	6	B2	C1	C223	8	G4	K2	L5	8	F4	J1	R85	6	C4						R236	7	A3	D3								



PART OF A8 DAC BOARD

Schematic Diagram <7> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A8. (Partial Assembly A8 also shown on schematic 6 and 8).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C172	G3	H3	R26	G2	G3	R228	B2	D2	R244	F2	G3
C173	F3	G3	R58	D3	E2	R229	B2	D2	R245	E3	E4
C190	D5	F4	R152	D3	F4	R233	A3	D3	R246	G2	G3
C191	D5	F3	R153	D4	F4	R234	A3	D2	R247	G2	H3
C192	D5	E4	R216	B3	E1	R235	A3	D3	R249	H2	H3
C193	D5	F4	R220	B1	D1	R236	A3	D3	R254	G2	H3
C194	E5	F4	R221	B1	D1	R237	A3	E3	R262	C3	F3
C220	F3	G4	R222	B2	D1	R238	A4	D3	R263	D3	F3
C221	G2	G3	R223	B2	D1	R239	B4	E3	R271	H2	G3
C224	G2	H3	R224	B2	D2						
C238	E5	E3	R225	B2	D2	R240	B4	E3	U9	F2	G3
C239	E5	E2	R226	B2	D2	R241	B4	E3	U29	D2	E3
						R242	B4	E3	U94	C2	E2
L106	F3	H3	R227	B2	D2	R243	G2	G3			

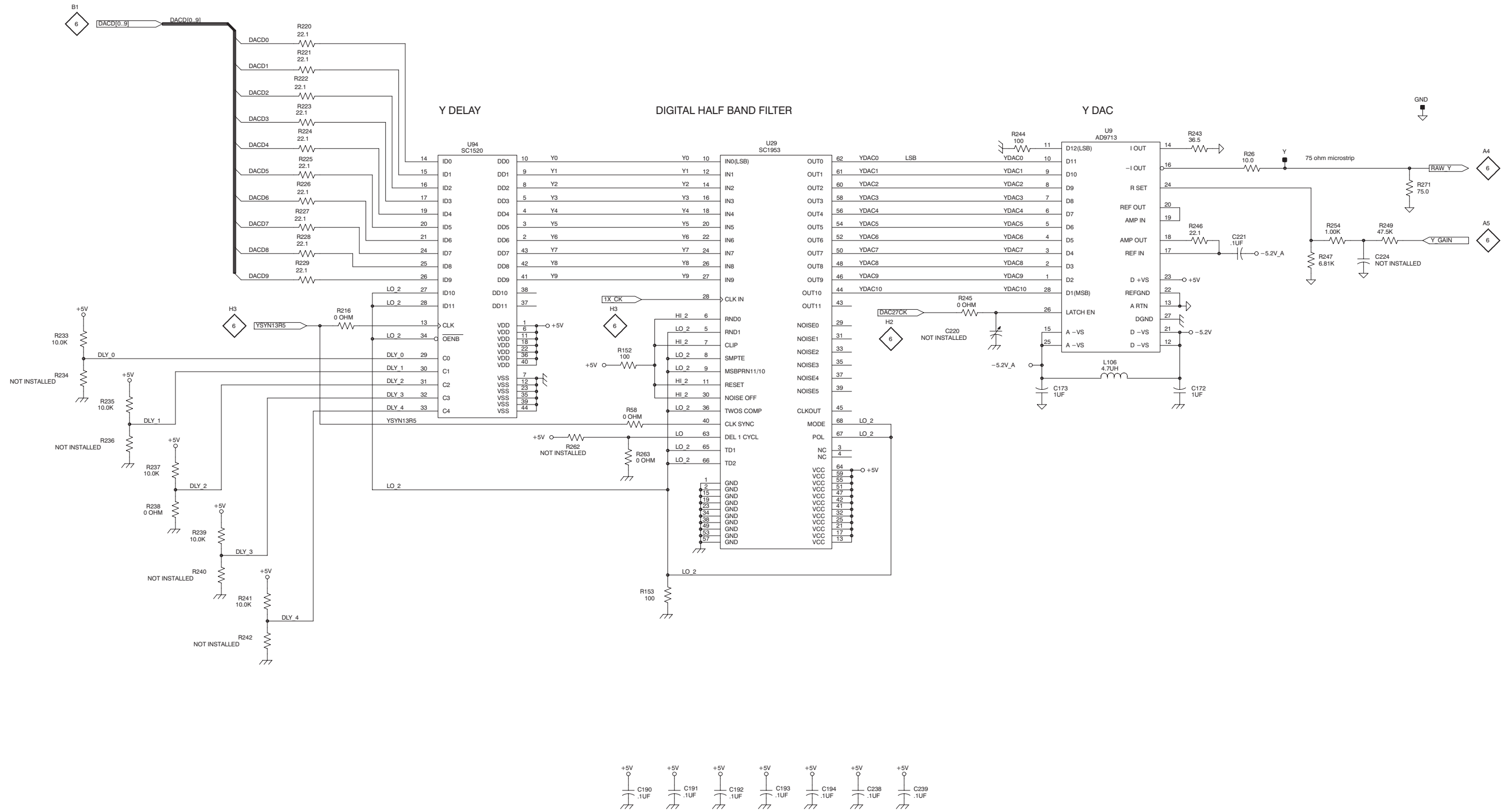
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PART OF A8 DAC BOARD

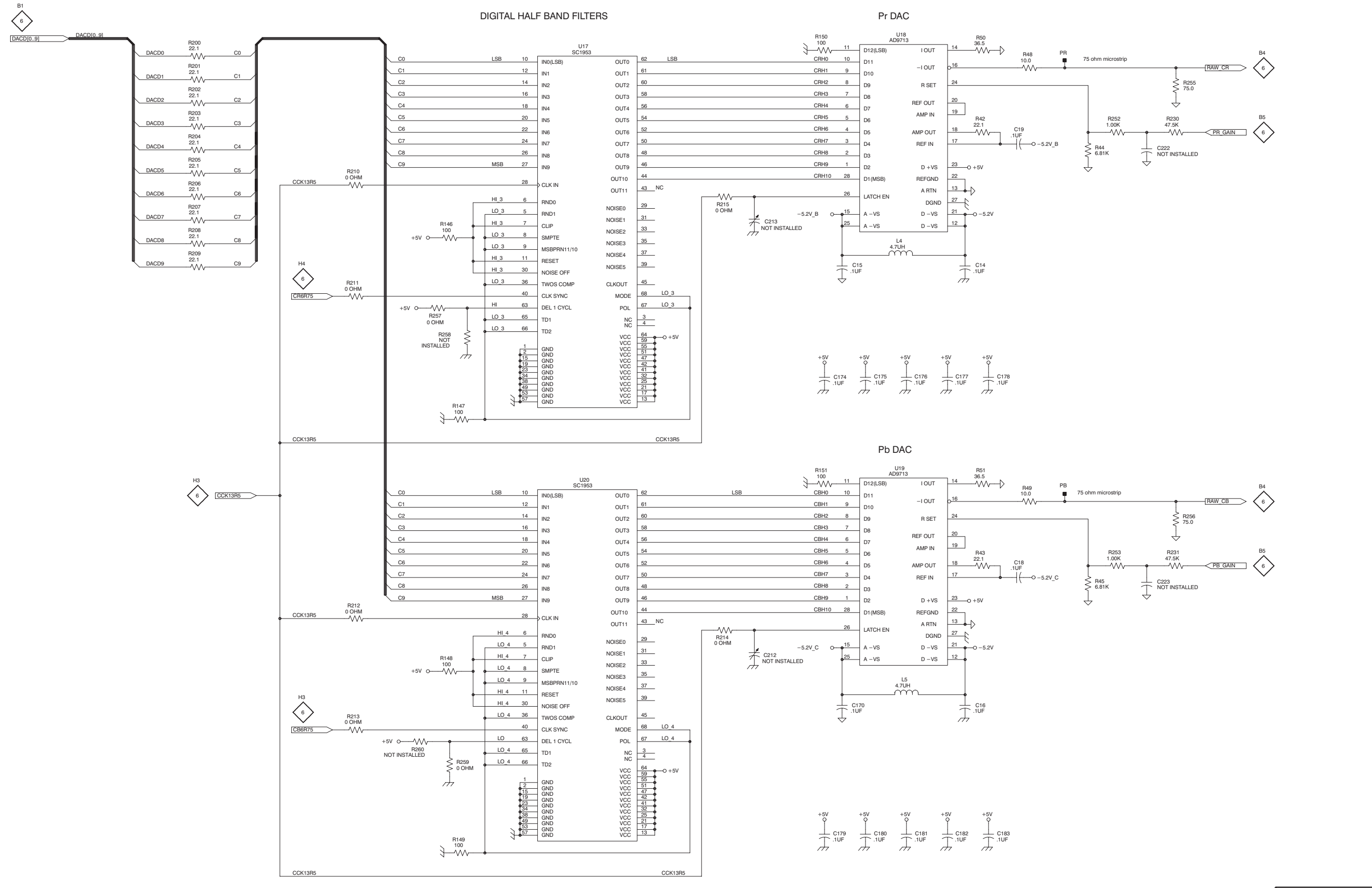
Schematic Diagram <8> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A8. (Partial Assembly A8 also shown on schematic 6 and 7).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C14	F2	G2	C222	G1	F2	R149	C5	J2	R214	E4	I1
C15	E2	G2	C223	G4	K2	R150	E1	F1	R215	E2	E1
C16	F4	K1				R151	E3	K1	R230	G1	F2
C18	F4	J1	L4	F2	G2	R200	B1	E2	R231	G4	K2
C19	F1	G2	L5	F4	J1	R201	B1	E2	R252	G1	F2
C170	E4	K1				R202	B1	E2	R253	G4	K2
C174	E3	H1	R42	F1	G2	R203	B1	E2	R255	G1	F2
C175	F3	I1	R43	F4	J1	R204	B1	E2	R256	G3	K1
C176	F3	I1	R44	G1	F2				R257	C2	G2
C177	F3	H1	R45	G4	J2	R205	B2	E2	R258	C2	G2
C178	F3	H1	R48	F1	F2	R206	B2	E2	R259	C5	J1
C179	E5	I2	R49	F3	K1	R207	B2	E2	R260	C5	J1
C180	F5	J2	R50	F1	F1	R208	B2	E2			
C181	F5	J2	R51	F3	K1	R209	B2	E3	U17	D1	H2
C182	F5	J2	R146	C2	J2	R210	C2	I1	U18	F1	G1
C183	F5	J2	R147	C3	J2	R211	C2	I1	U19	F3	K2
C212	E4	I1				R212	C4	I1	U20	D3	I1
C213	E2	E1	R148	C4	I2	R213	C5	I2			

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PART OF A8 DAC BOARD

A B C D E F G H

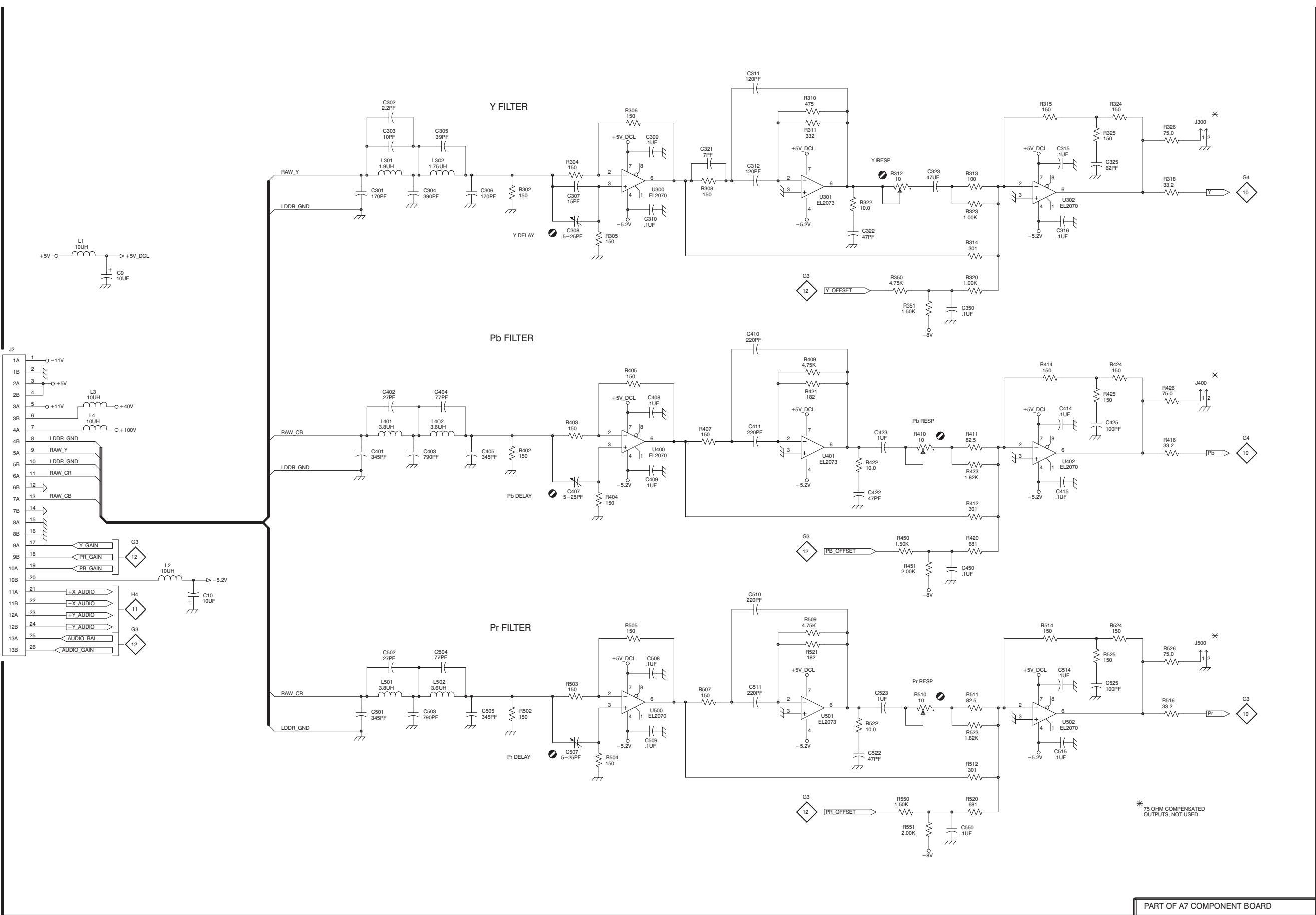
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PART OF A7 COMPONENT BOARD

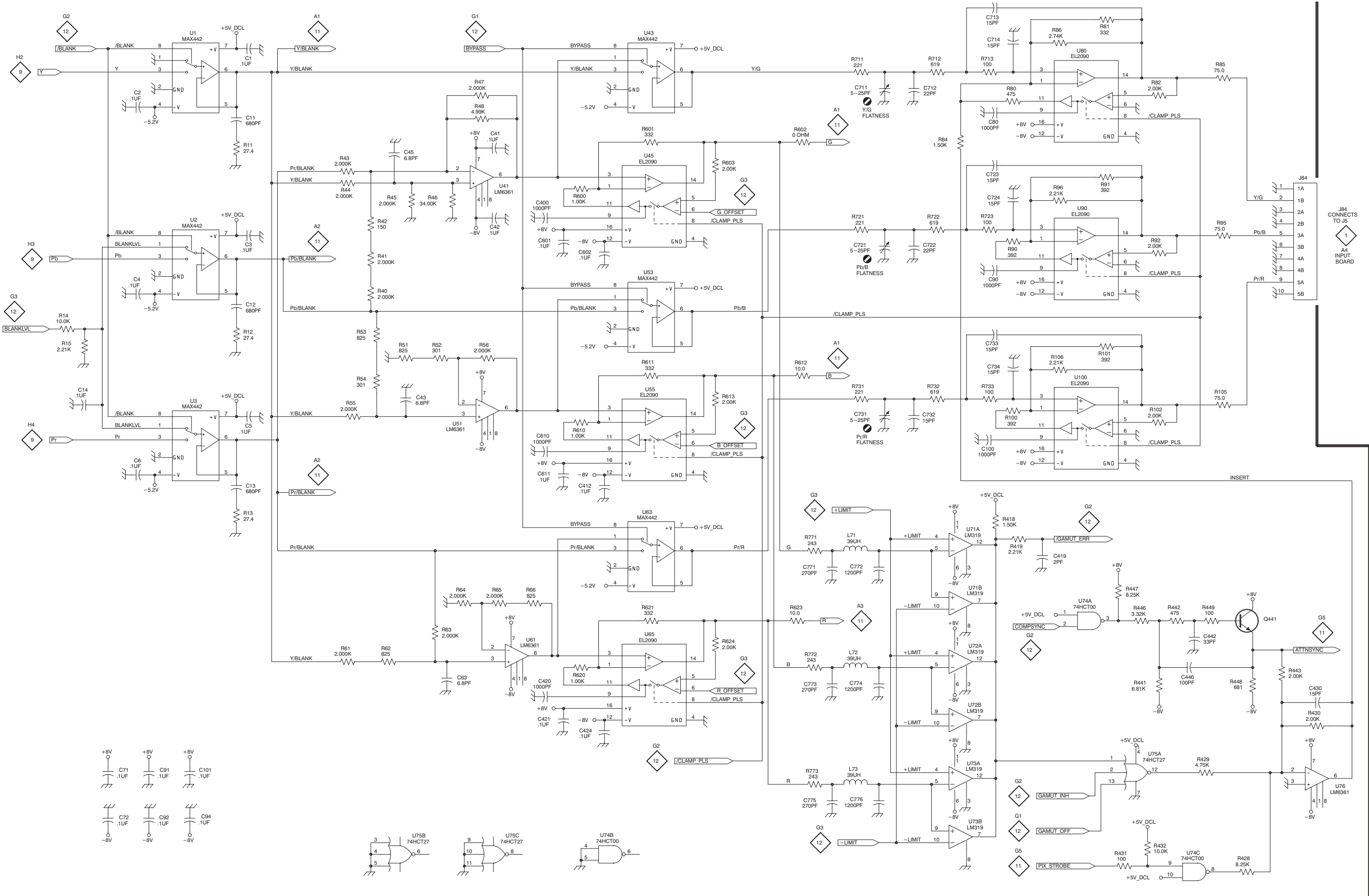
* 75 OHM COMPENSATED OUTPUTS, NOT USED.

Schematic Diagram <10> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A7. (Partial Assembly A7 also shown on schematic 11 and 12).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C1	B1	B2	C723	F1	A3	R65	C4	D4	R623	E4	D3
C2	A1	B2	C724	F2	B2	R66	D4	D4	R624	E4	D3
C3	B2	C2	C731	F3	A3	R80	F1	B2	R711	F1	A1
C4	A2	C2	C732	F3	A3	R81	G1	A2	R712	F1	A1
C5	B3	D2	C733	F2	A3	R82	G1	A2	R713	F1	B1
C6	A3	D2	C734	F3	B3	R84	F1	B2	R721	F2	A2
C11	B1	C2	C771	E4	C3	R85	H1	A2	R722	F2	A2
C12	B2	C2	C772	F4	C2				R723	F2	B2
C13	B3	D2	C773	E4	D3	R86	G1	A2	R731	F3	A3
C14	A3	C2	C774	F4	D2	R90	F2	B3	R732	F3	A3
C41	C1	C4	C775	E5	D3	R91	G1	A3	R733	F3	B3
			C776	F5	D2	R92	G2	A3	R771	E3	C3
C42	C2	C4				R95	H2	A3	R772	E4	D3
C43	C3	C4	J84	H2	A1	R96	G2	A3	R773	E5	D3
C45	C1	B4				R100	F3	B4			
C63	C4	D4	L71	E3	C3	R101	G2	A4	U1	B1	B2
C71	A5	E2	L72	E4	D3	R102	G3	A4	U2	B2	C2
C72	A5	E2	L73	E5	D2	R105	H3	A4	U3	B3	D2
C80	F1	A1				R106	G3	A4	U41	C1	B4
C90	F2	A2	Q441	H4	D1	R418	F3	F2	U43	D1	B2
C91	A5	B2				R419	F3	E1	U45	D1	B3
C92	A5	B3	R11	B1	C2	R428	H5	A1	U51	C3	C4
C94	B5	B2	R12	B2	C2	R429	G5	B1	U53	D2	C2
C100	F3	A3	R13	B3	D2				U55	D3	C3
			R14	A2	C2	R430	H4	A1	U61	D4	D4
C101	B5	B4	R15	A2	C2	R431	G5	E1	U63	D3	D2
C400	D2	C3	R40	C2	B4	R432	G5	D1	U65	D4	D3
C412	D3	D3	R41	C2	B4	R441	G4	E1	U71A	F3	E1
C419	G4	E1	R42	C2	B4	R442	G4	E1	U71B	F4	E1
C420	D4	E3	R43	C1	B4	R443	H4	B1	U72A	F4	E1
C421	D4	D3	R44	C2	B4	R446	G4	E1			
C424	D4	E3	R45	C2	B4	R447	G4	E1	U72B	F4	E1
C430	H4	A1	R46	C2	B4	R448	H4	E1	U73A	F5	E1
C442	G4	E1	R47	C1	B4	R449	H4	E1	U73B	F5	E1
C446	G4	E1				R600	D2	B3	U74A	G4	F2
C601	D2	B3	R48	C1	C4	R601	D1	B3	U74B	D5	F2
C602	D2	C3	R51	C2	C4	R602	E1	B3	U74C	G5	F2
C610	D3	D3	R52	C2	C4	R603	E1	B3	U75A	G5	D2
C611	D3	C3	R53	C2	C4				U75B	C5	D2
C711	F1	A1	R54	C3	C4	R610	D3	C3	U75C	C5	D2
			R55	C3	C4	R611	D3	C3	U76	H5	A1
C712	F1	A1	R56	C2	C4	R612	E3	C3	U80	G1	B1
C713	F1	A2	R61	C4	D4	R613	E3	C3	U90	G2	B2
C714	F1	B1	R62	C4	D4	R620	D4	D3	U100	G3	B3
C721	F2	A2	R63	C4	D4	R621	D4	D3			
C722	F2	A2	R64	C4	D4						



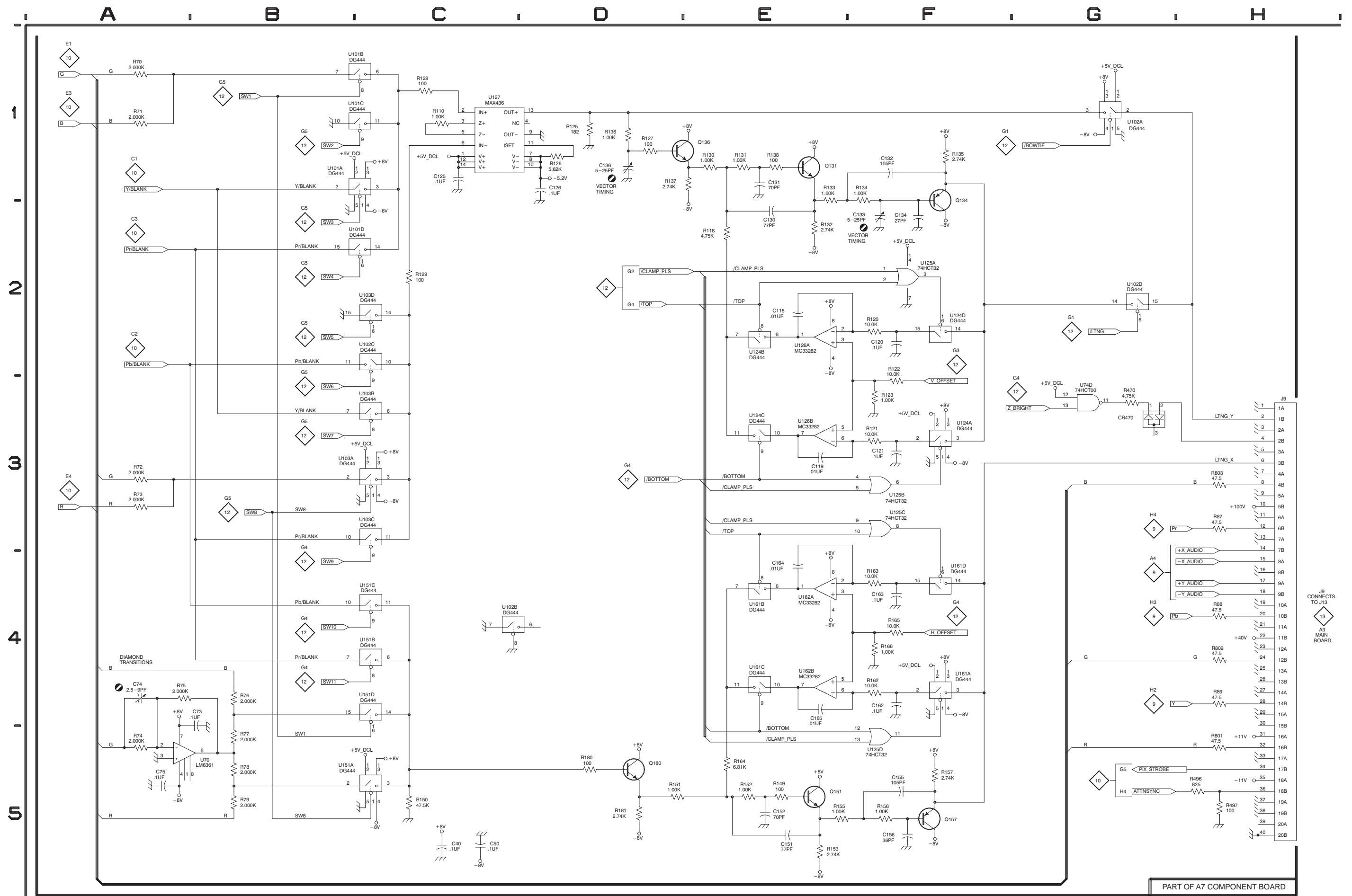
PART OF A7 COMPONENT BOARD

Schematic Diagram <11> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A7. (Partial Assembly A7 also shown on schematic 10 and 12).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C40	C5	F3	Q151	E5	F4	R134	F1	G3	U101D	B2	E2
C50	C5	E4	Q157	F5	G4	R135	F1	G2	U102A	G1	E3
C73	A4	E4	Q180	D5	F4	R136	D1	E2	U102B	C4	E3
C74	A4	D4				R137	D1	F2	U102C	C2	E3
C75	A5	D4	R70	A1	E3	R138	E1	F3	U102D	G2	E3
C118	E2	E3	R71	A1	E3	R149	E5	F4	U103A	C3	E3
C119	E3	F3	R72	A3	E3	R150	C5	E4			
C120	F2	E3	R73	A3	E3	R151	D5	F4	U103B	C3	E3
C121	F3	F3	R74	A5	D4	R152	E5	F4	U103C	C3	E3
C125	C1	F3	R75	A4	D4	R153	E5	G4	U103D	C2	E3
C126	D1	F3	R76	B4	E4				U124A	F3	F3
C130	E2	F2	R77	B5	E4	R155	E5	G4	U124B	E2	F3
			R78	B5	E4	R156	F5	G4	U124C	E3	F3
C131	E1	F3	R79	B5	E4	R157	F5	H4	U124D	F2	F3
C132	F1	G2				R162	F4	G3	U125A	F2	H3
C133	F2	H2	R87	H3	D2	R163	F4	F3	U125B	F3	H3
C134	F2	G3	R88	H4	C2	R164	E5	G4	U125C	F3	H3
C136	D1	E2	R89	H4	B2	R165	F4	G3	U125D	F5	H3
C151	E5	F4	R110	C1	E3	R166	F4	G3	U126A	E2	E3
C152	E5	F4	R118	E2	F2	R180	D5	E4	U126B	E3	E3
C155	F5	G4	R120	F2	E3	R181	D5	F4	U127	C1	F3
C156	F5	G4	R121	F3	F3	R470	G3	F2			
C162	F4	G3	R122	F3	F3	R496	H5	E1	U151A	C5	E3
C163	F4	G3	R123	F3	E3	R497	H5	D1	U151B	C4	E3
C164	E4	F3	R125	D1	E2	R801	H5	B2	U151C	C4	E3
C165	E4	G3	R126	D1	F3	R802	H4	C2	U151D	C4	E3
			R127	D1	F2	R803	H3	D2	U161A	F4	G3
CR470	G3	D2							U161B	E4	G3
			R128	C1	E2	U70	A5	D4	U161C	E4	G3
J9	H3	D1	R129	C2	E3	U74D	G3	F2	U161D	F4	G3
			R130	E1	F2	U101A	B1	E2	U162A	E4	G3
Q131	E1	G3	R131	E1	F3	U101B	B1	E2	U162B	E4	G3
Q134	F1	G3	R132	E2	G3	U101C	B1	E2			
Q136	D1	F2	R133	E1	G3						



J9
CONNECTS
TO J13
AS
MAIN
BOARD

PART OF A7 COMPONENT BOARD

Schematic Diagram <12> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A7. (Partial Assembly A7 also shown on schematic 9,10 and 11).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C36	G2	F2	J12	A3	L1	R221	G3	H1	U209	F4	M3
C180	B5	N4	J13	B1	O1	R222	G4	H1	U210	F1	L4
C181	C5	N4	J14	H2	F1	R223	G4	H1	U211A	C1	M3
C190	B5	O3				R515	E3	L2	U211B	E2	M3
C191	C5	O3	R36	H2	F2				U211C	C3	M3
C202	C3	L3	R213	F2	L3	U180	B4	O4	U211D	D1	M3
C206	E4	N2	R214	E3	L3	U190	B5	O2	U212	F2	L2
C207	D5	N2	R215	C2	M3	U202	C4	M1	U213A	E2	L3
C208	E3	L2	R216	D2	M3	U203	C1	M3	U213B	E2	L3
C209	F3	L3	R217	D2	M3	U204	D4	M2	U213C	E2	L3
C210	F2	L3	R218	D2	M4	U206	E3	N3	U213D	D1	L3
CR180	C5	N4	R219	D2	L3	U207	E4	N2	U220	C2	L4
CR190	C5	O3	R220	H2	D2	U208	F5	N3			

A B C D E F G H

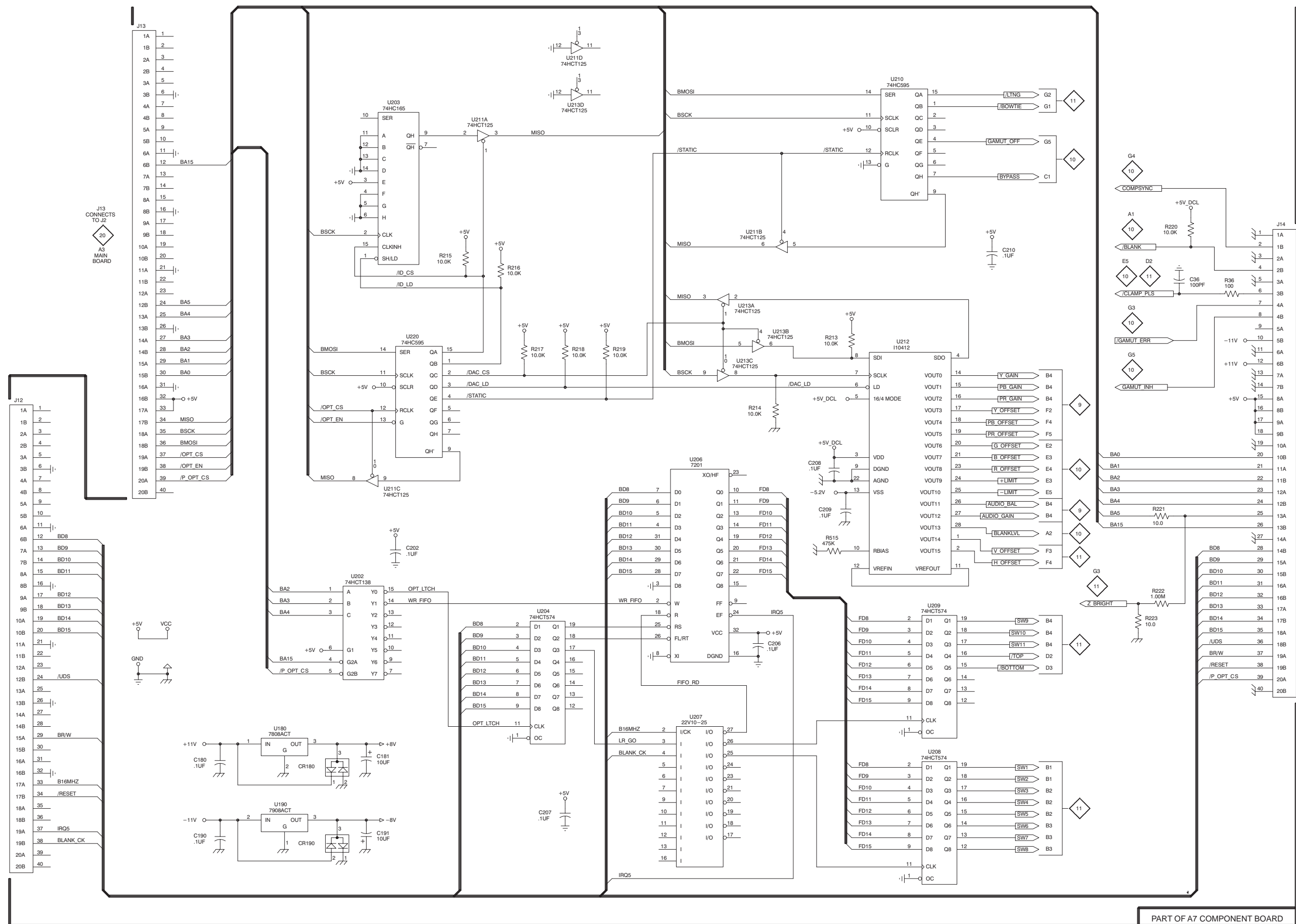
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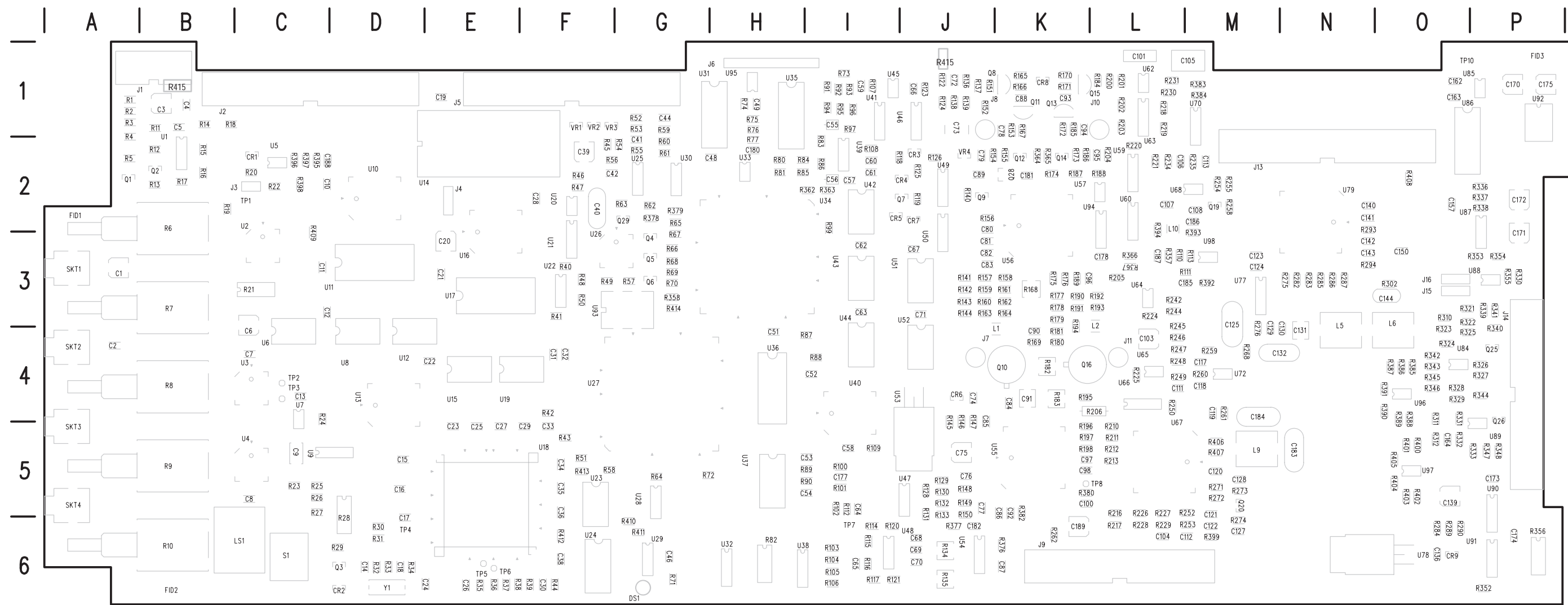
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A3 Main Board and Diagram <13> Component Locator (with cross-references to schematic diagrams 14 thru 21).

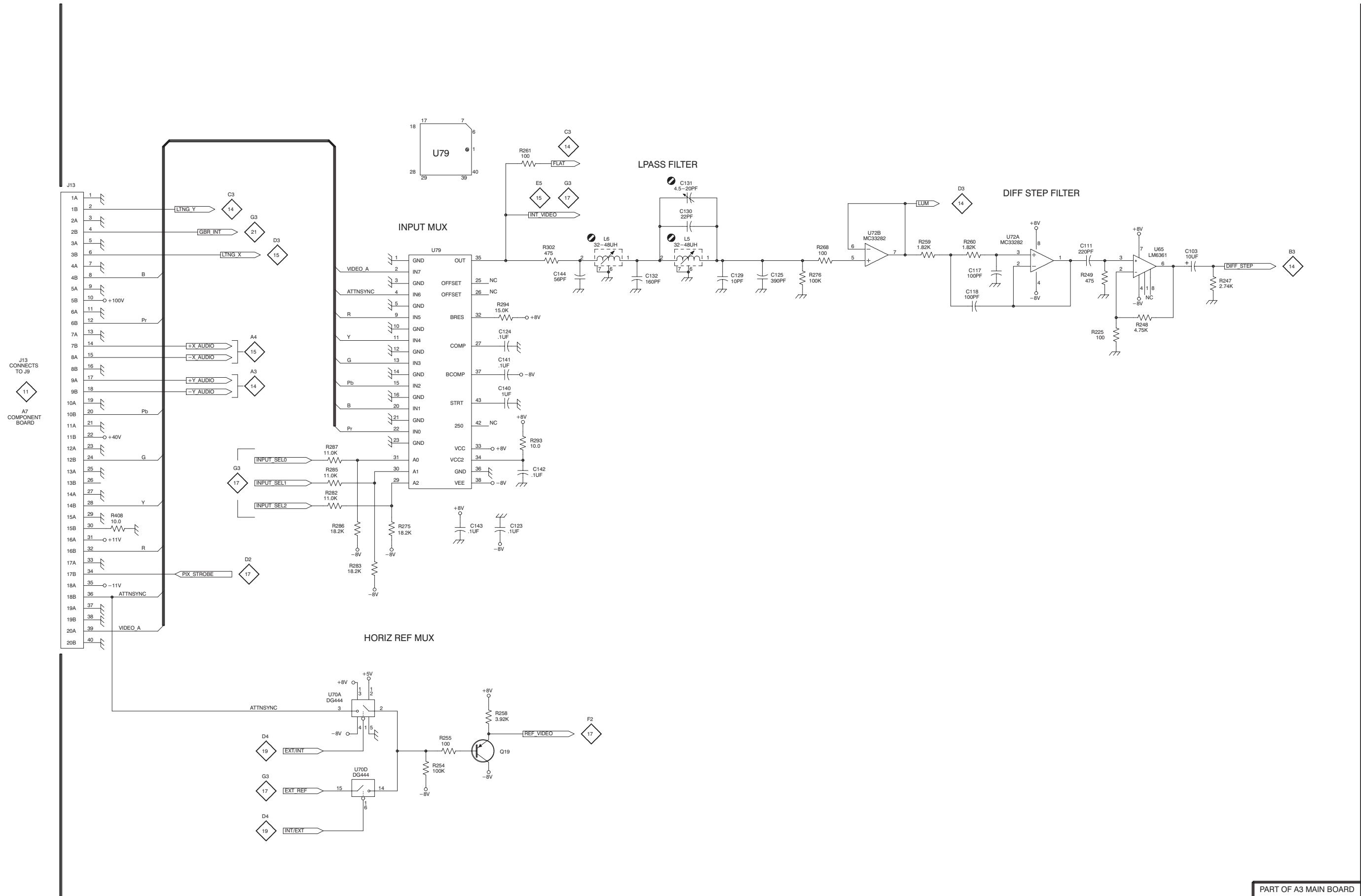
Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc																																
C1	21	A5	A3	C78	15	F2	K1	C185	15	G5	L3	R4	21	H1	A2	R77	21	E4	H2	R155	15	F3	K2	R245	14	E2	L4	R367	15	F3	L3	U15	16	E1	E4	U50A	19	H2	J2	C2	21	A5	A4	C79	15	F2	J2	C186	15	G5	M2	R5	21	G2	A2	R80	19	G3	H2	R156	15	D4	J2	R246	14	F2	L4	R376	18	G3	K6	U16	16	H2	E3	U50B	19	G1	J2
C3	21	G1	B1	C80	15	E5	J3	C187	15	H5	L3	R6	21	A2	B2	R81	19	G3	H2	R157	14	G1	J3	R247	13	H2	L4	R377	18	D4	J6	U17	16	G3	E3	U50C	19	H1	J2	C4	21	E2	B1	C188	21	B3	C2	R7	21	A5	B3	R82	19	G2	H6	R158	14	G1	K3	R248	13	G2	L4	R378	17	B5	G2	U18	16	B1	F5	U51	17	F3	I3				
C5	21	F2	B1	C81	15	F4	J3	C189	14	E3	K6	R8	21	A4	B4	R83	15	B1	I1	R159	14	F1	J3	R249	13	G2	L4	R379	17	B5	G2	U19	16	E2	E4	U52	17	F4	I3	C6	16	B1	C4	C82	15	E4	J3	R9	21	A4	B5	R84	19	G2	H2	R250	14	D3	L4	R380	14	E3	K5	U20	21	B1	F2	U53	21	D1	I4								
C7	21	D5	C4	C83	15	E4	J3	CR1	21	G4	C2	R10	21	A3	B6	R85	19	G3	H2	R160	14	F1	J3	R252	14	E4	L5	R382	14	F4	K5	U21	16	E3	F3	U54A	18	G3	J6	C8	21	D4	C5	C84	14	G3	K4	CR2	16	A1	D6	R161	14	F1	K3	R253	14	E3	L6	R383	15	B2	M1	U22A	16	C5	F3	U54B	18	D4	J6								
C9	16	A4	C5	C85	14	G3	J4	CR3	21	G3	J2	R11	21	G1	B1	R87	17	C4	H4	R162	14	F1	K3	R254	13	C5	M2	R384	15	B2	M1	U22B	16	C2	F3	U54C	18	G5	J6	C10	16	H1	C2	C86	14	G3	K5	CR4	21	F3	I2	R12	21	G2	B2	R88	17	C2	I4	R163	14	G1	J3	R255	13	C5	M2	R385	15	A4	O4	U22C	16	C5	F3	U54D	18	D5	J6
C11	16	G2	C3	C87	18	G3	K6	CR5	21	F4	I2	R13	21	G2	B2	R89	18	E4	H5	R164	14	G1	K3	R258	13	C4	M2	R386	15	A4	O4	U22D	16	C4	F3	U55	14	F3	J5	C12	16	D3	C3	C88	15	G2	K1	CR6	21	D1	J4	R14	21	E2	B1	R165	15	F1	K1	R259	13	F2	M4	R387	15	B4	O4	U23	16	G4	F5	U56	15	F4	K3				
C13	16	A4	C4	C89	15	F4	J2	CR7	21	F4	J2	R15	21	E2	B2	R90	18	E4	H5	R166	15	F2	K1	R260	13	F2	M4	R388	15	A3	O4	U24	19	A1	F6	U57A	14	E2	K2	C13	16	A4	C4	CR8	15	F2	K1	R16	21	F2	B2	R91	19	G4	I1	R167	15	F2	K1	R261	13	D1	M4	U24	19	A1	F6	U57B	14	E2	K2								
C14	16	C4	D6	C90	14	G1	K4	CR9	21	D2	O6	R17	21	F2	B2	R92	19	G4	I1	R168	14	G2	K3	R262	17	H2	K6	R389	15	B3	O4	U25A	19	E4	G2	U57C	14	E2	K2	C15	16	A5	D5	C91	14	H3	K4	R18	21	E2	B1	R93	19	G4	I1	R169	14	F2	K4	R268	13	E2	M4	R390	15	B3	O4	U25B	19	C4	G2	U59A	15	C5	L2				
C16	16	A5	D5	C92	14	F3	K5	DS1	16	A2	G6	R19	21	A5	B2	R94	19	G3	I1	R170	15	G1	K1	R271	14	C1	M5	R391	15	B4	O4	U25C	19	E4	G2	U59B	15	D3	L2	C17	16	A5	D6	C93	15	F2	K1	DS2	21	H1	H1	R20	21	H5	C2	R95	19	G3	I1	R171	15	G2	K1	R392	15	G5	M3	U25D	19	E4	G2	U59C	15	B2	L2				
C18	16	C4	D6	C94	15	G2	K1	DS3	21	H1	H2	R21	16	E3	C3	R96	19	G3	I1	R172	15	G2	K1	R272	14	C1	M5	R393	15	G5	M3	U26A	17	A5	F3	U59D	15	D4	L2	C19	16	F2	E1	C95	15	G3	L2	DS4	21	H2	H2	R22	21	H5	C2	R97	19	G5	I1	R173	15	G3	K2	R273	14	D1	M5	R394	15	G5	L2	U26B	17	A5	F3	U60	15	C3	L2
C20	16	H2	E3	C96	15	F4	K3	DS5	21	H2	H2	R23	19	B5	C5	R99	17	A4	I2	R174	15	G4	K2	R274	14	C1	M6	R395	21	B3	C2	U26C	17	B5	F3	U62A	15	C1	L1	C97	14	G3	K5	R100	14	B1	I5	R175	14	G1	K3	R275	13	C3	N3	R396	21	B3	C2	U26D	17	A5	F3	U62B	15	C2	L1												
C21	16	G3	E3	C98	14	F3	K5	J1	21	H3	A1	R24	16	B4	C4	R101	14	B1	I5	R176	14	G1	K3	R276	13	E2	M3	R397	21	B4	C2	U27	18	B1	F4	U63A	15	D1	L2	C22	16	E2	E4	C100	14	E3	K5	J2	20	F2	B1	R25	19	B5	C5	R102	15	D4	I5	R177	14	G1	K3	R282	13	B3	N3	R398	21	B3	C2	U28A	16	G5	G5	U63B	15	C1	L2
C23	16	B5	E5	C101	15	C1	L1	J4	21	C1	E2	R26	19	B5	C5	R103	18	F4	I6	R178	14	G1	K3	R284	21	D2	O6	R400	14	A2	O5	U28C	16	H3	G5	U63C	15	C2	L2	C24	16	C4	D6	C103	13	G2	L4	J5	20	G2	E1	R27	19	B5	C5	R104	18	F5	I6	R179	14	G1	K3	R285	13	B3	N3	R401	14	B2	O5	U28D	16	H4	G5	U63D	15	D2	L2
C25	16	A5	E5	C104	14	F5	L6	J6	21	H3	G1	R28	19	A4	D6	R105	18	F3	I6	R180	14	G2	K4	R286	13	C3	N3	R402	14	A2	O5	U64B	14	F2	L3	C26	16	A3	E6	C105	15	C2	L1	J7	14	H2	J4	R30	16	B2	D6	R106	18	F3	I6	R181	14	G1	K4	R287	13	B3	N3	R403	14	B1	O5	U28E	16	H4	G5	U65	13	G2	L4				
C27	16	A5	E5	C106	17	E3	L2	J8	15	H2	J1	R31	16	B3	D6	R107	19	G3	I1	R182	14	G3	K4	R289	21	D2	O6	R404	14	B2	O5	U28F	16	C2	G5	U66A	14	C3	L4	C28	16	E3	F2	C107	21	E1	L2	J9	17	H2	K6	R32	16	C4	D6	R108	19	G1	I2	R183	14	G3	K4	R290	21	D2	O6	R405	14	B2	O5	U29A	16	A4	G6	U66B	14	C4	L4
C29	16	A5	F5	C108	17	E3	M2	J10	15	H2	L1	R33	16	C4	D6	R109	17	C2	I5	R184	15	G1	L1	R293	13	D3	N3	R406	14	D3	M5	U29B	16	A2	G6	U66C	14	C4	L4	C30	16	B5	F6	C111	13	G2	L4	J11	14	H2	L4	R34	16	C3	D6	R110	15	F5	L3	R185	15	G2	K1	R294	13	C2	N3	R407	14	D2	M5	U29C	21	F3	G6	U66D	14	B3	L4
C31	18	C4	F4	C112	14	E5	L6	J13	13	A2	M2	R35	16	A3	E6	R111	15	G5	L3	R186	15	F3	K2	R302	13	D2	O3	R408	13	A3	O2	U29D	19	C3	G6	U67	14	D3	L5	C32	18	C4	F4	C113	17	E3	M2	J14	20	B2	P3	R36	16	A2	E6	R112	15	D5	I5	R187	15	G4	K2	R310	20	C4	O3	R409	21	B3	C2	U30A	19	E2	G2	U68	17	E3	L2
C33	18	A5	F5	C117	13	F2	M4	J15	14	A4	O3	R37	16	E5	E6	R113	15	G5	M3	R188	15	G4	L2	R189	14	G1	K3	R311	14	B4	O4	U30B	19	E2	G2	U70A	13	C4	M1	C34	16	A5	F5	C118	13	F2	M4	J16	14	A4	O3	R38	16	D5	E6	R114	18	F5	I6	R190	14	G1	K3	R312	14	B4	O5	R411	16	H5	G6	U30C	19	C1	G2	U70B	15	D3	M1
C35	16	A5	F5	C119	14	E5	M4	L1	14	G2	J4	R39	16	A2	F6	R115	18	F4	I6	R191	14	G1	K3	R321	15	B4	O3	R412	16	C4	F6	U30D	19	E3	G2	U70C	15	D3	M1	C36	16	B5	F5	C120	14	E3	M5	L2	14	G2	L4	R40	16	B5	F3	R116	18	F3	I6	R192	14	G2	L3	R322	20	C4	O3	R413	16	H5	F5	U31	19	F4	G1	U70D	13	C5	M1
C38	16	A5	F6	C121	14	E3	M6	L5	13	D2	N4	R41	16	C5	F3	R117	18	F3	I6	R193	14	G2	L3	R323	15	B4	O4	R414	17	C3	G3	U32	19	B2	H6	U72A	13	G2	M4	C39	21	C1	F2	C122	14	E4	M6	L6	13	D2	O3	R42	16	B1	F4	R118	21	F3	I2	R194	14	G1	K3	R324	15	B4	O4	R415	19	H2	I1	U33	19	E5	H2	U72B	13	F2	M4
C40	17	B5	F2	C123	13	C3	M3	L9	14	C3	M5	R43	20	H3	F5	R119	21	G4	J2	R194	14	G1	K3	R325	20	C4	O4	R416	19	H2	I1	U34	17	B1	I2	U77	19	C3	M3	C41	19	E5	G2	C124	13	C2	M3	L10	15	G5	L2	R44	16	A1	F6	R120	18	G3	I6	R195	14	G3	K4	R326	15	B4	P4	U78	21	D2	O6								
C42	21	A2	F2	C125	13	E2	M4	L2	14	G2	L4	R45	21	A1	F2	R121	18	G3	I6	R196	14	H3	K5	R327	14	A3	P4	SKT1	21	H2	A3	U35	19	F3	H1	U79	13	C2	N2	C44	19	F5	G1	C127	14	F5	M6	LS1	16	A1	C6	R46	21	B1	F2	R122	15	G1	J1	R197	14	H3	K5	R328	14	B2	O4	SKT2	21	H2	A4	U36	18	D2	H4	U84A	14	B3	O4
C46	19	B5	G6	C128	14	C1	M5	R47	21	B2	F2	R48	16	B4	F3	R123	19	G2	J1	R198	14	H3	K5	R329	14	B3	O4	SKT3	21	H1	A5	U38	19	B1	H6	U84B	15	B4	O4	C48	19	F3	G2	C129	13	E2	M3	P4	21	C1		R49	16	C4	F3	R124	15	F1	J1	R200	15	G1	L1	R330	14	B4	P3	SKT4	21	H1	A								



 **Static Sensitive Devices**
See Maintenance Section

A3 Main Board

Component locator for A3 Main board, and diagram <13> are located on back of this page.



PART OF A3 MAIN BOARD

Schematic Diagram <14> Component Locator Chart

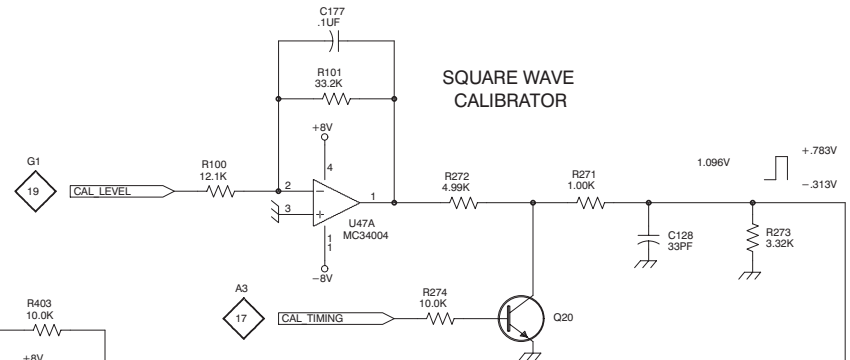
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3.

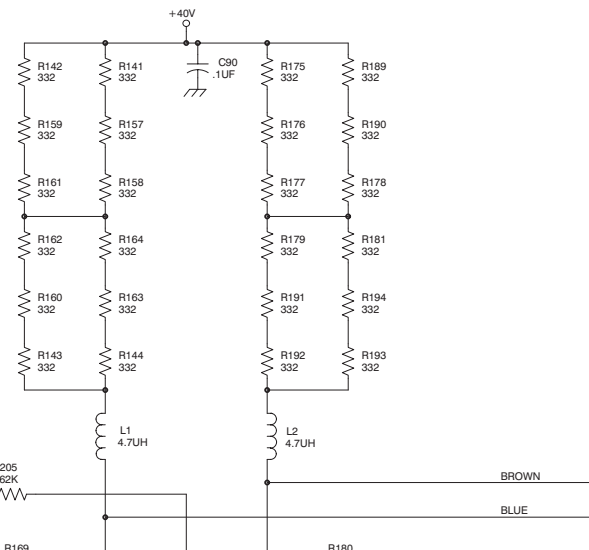
(Partial Assembly A3 also shown on schematic (13,15,16,17,18,19 and 20).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C76	F4	J5	Q20	C1	M5	R194	G1	K3	R333	B5	P5
C84	G3	K4				R195	G3	K4	R344	B3	P4
C85	G3	J4	R100	B1	I5	R196	H3	K5	R345	A3	O4
C86	G3	K5	R101	B1	I5	R197	H3	K5	R346	A3	O4
C90	G1	K4	R131	E5	J5	R198	H3	K5	R347	B5	P5
C91	H3	K4	R132	D5	J5	R205	F2	L3	R353	B4	O3
C92	F3	K5	R133	E5	J6	R206	G3	K4	R354	B4	P3
C97	G3	K5	R141	G1	J3				R355	B4	P3
C98	F3	K5	R142	F1	J3	R210	H3	L5	R380	E3	K5
C100	E3	K5	R143	F2	J3	R211	C4	L5	R382	F4	K5
C104	F5	L6	R144	G2	J3	R212	C4	L5	R399	A4	M6
C112	E5	L6	R149	D5	J5	R213	D4	L5	R400	A2	O5
C119	E5	M4	R150	D4	J6	R216	D4	L5	R401	B2	O5
C120	E3	M5				R217	D4	L6	R402	A2	O5
C121	E3	M6	R157	G1	J3	R224	F2	L3	R403	B1	O5
C122	E4	M6	R158	G1	K3	R226	D4	L5	R404	B2	O5
C127	F5	M6	R159	F1	J3	R227	D4	L5	R405	B2	O5
C128	C1	M5	R160	F1	J3	R228	D4	L6	R406	D3	M5
C150	F5	O3	R161	F1	K3	R229	D4	L6	R407	D2	M5
C157	E5	O2	R162	F1	K3	R242	F2	L3			
C164	B5	O5	R163	G1	J3	R244	E2	L3	TP8	F3	L5
C177	B1	I5	R164	G1	K3	R245	E2	L4			
C183	C3	N5	R168	G2	K3	R246	F2	L4	U47A	B1	J5
C184	C3	M4	R169	F2	K4	R250	D3	L4	U47C	E5	J5
C189	E3	K6	R175	G1	K3				U55	F3	J5
			R176	G1	K3	R252	E4	L5	U57A	E2	K2
J7	H2	J4	R177	G1	K3	R253	E3	L6	U57B	E2	K2
J11	H2	L4	R178	G1	K3	R271	C1	M5	U64B	F2	L3
J15	A4	O3	R179	G1	K3	R272	C1	M5	U66A	C3	L4
J16	A4	O3	R180	G2	K4	R273	D1	M5	U66B	C4	L4
						R274	C1	M6	U66C	C4	L4
L1	G2	J4	R181	G1	K4	R311	B4	O4	U66D	B3	L4
L2	G2	L4	R182	G3	K4	R312	B4	O5	U67	D3	L5
L9	C3	M5	R183	G3	K4	R327	A3	P4	U84A	B3	O4
			R189	G1	K3	R328	B2	O4	U88B	B4	O3
P15	A4		R190	G1	K3	R329	B3	O4	U89	B5	P5
P16	A4		R191	G1	K3	R330	B4	P3	U97A	B2	O5
			R192	G2	L3	R331	B5	O4	U97B	B2	O5
Q10	G2	K4	R193	G2	L3	R332	B5	O5			
Q16	G2	K4									

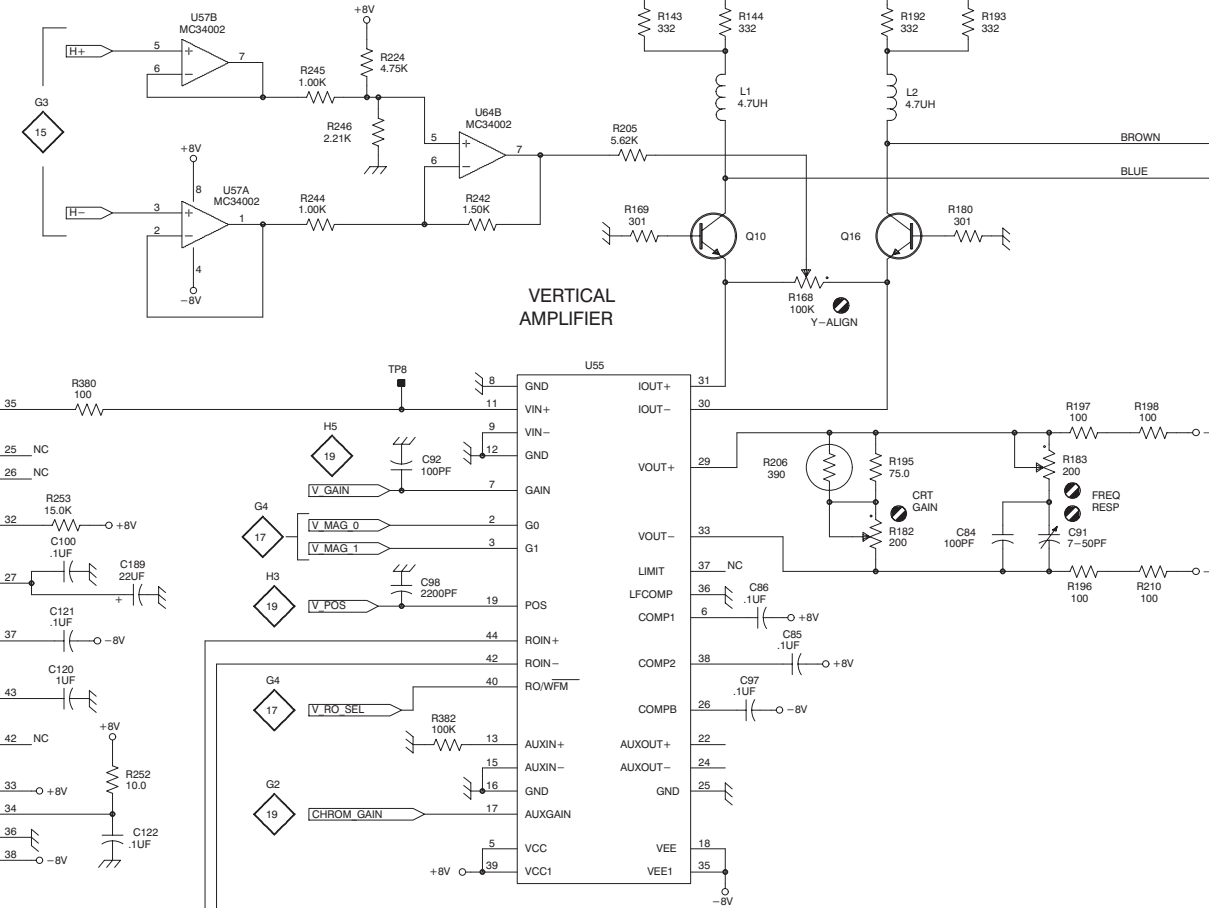
SQUARE WAVE CALIBRATOR



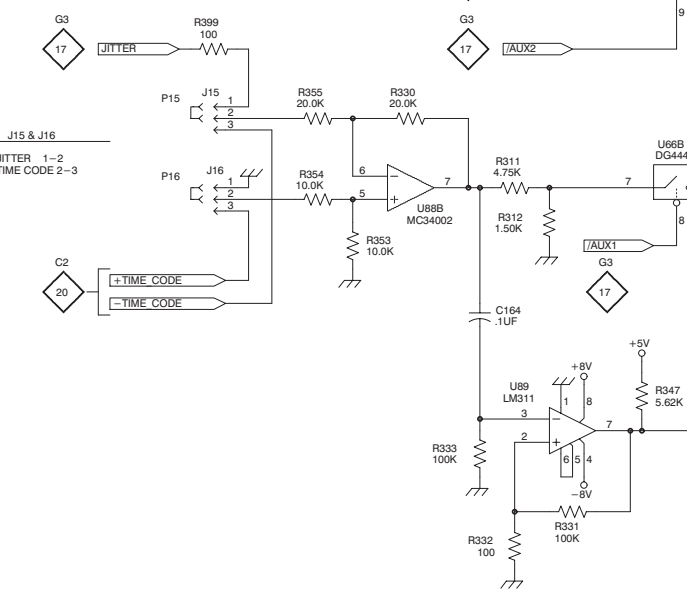
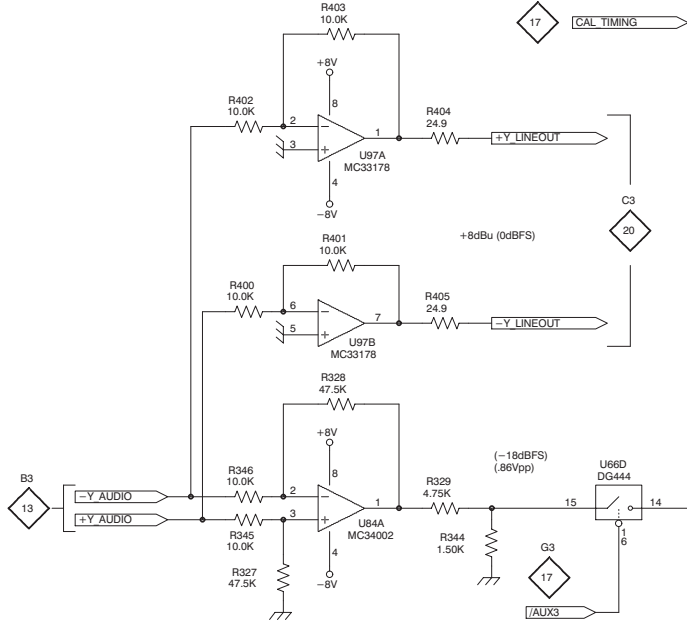
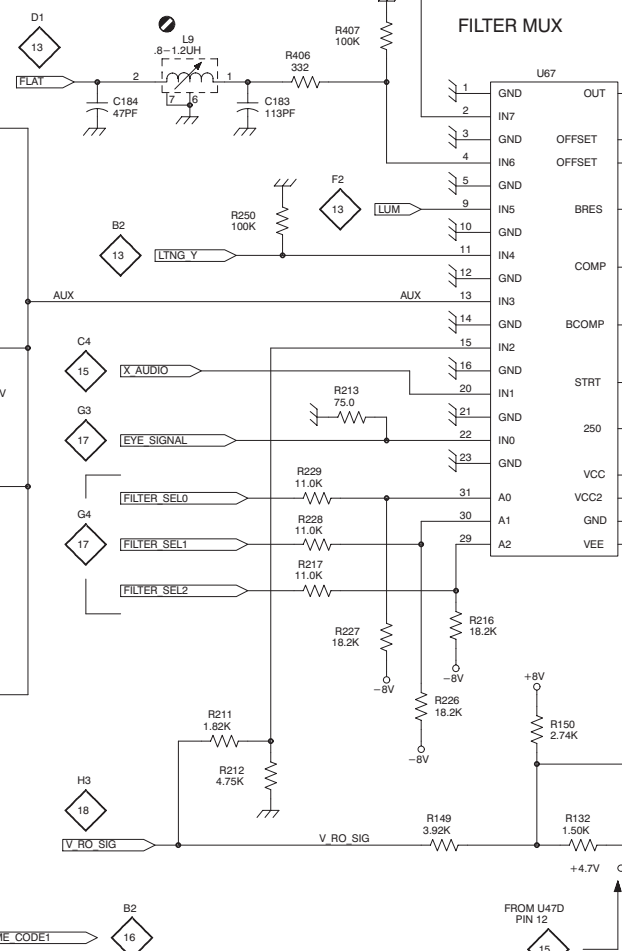
VERTICAL DEFLECTION



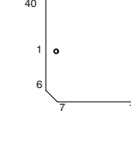
VERTICAL AMPLIFIER



FILTER MUX



U55



PART OF A3 MAIN BOARD

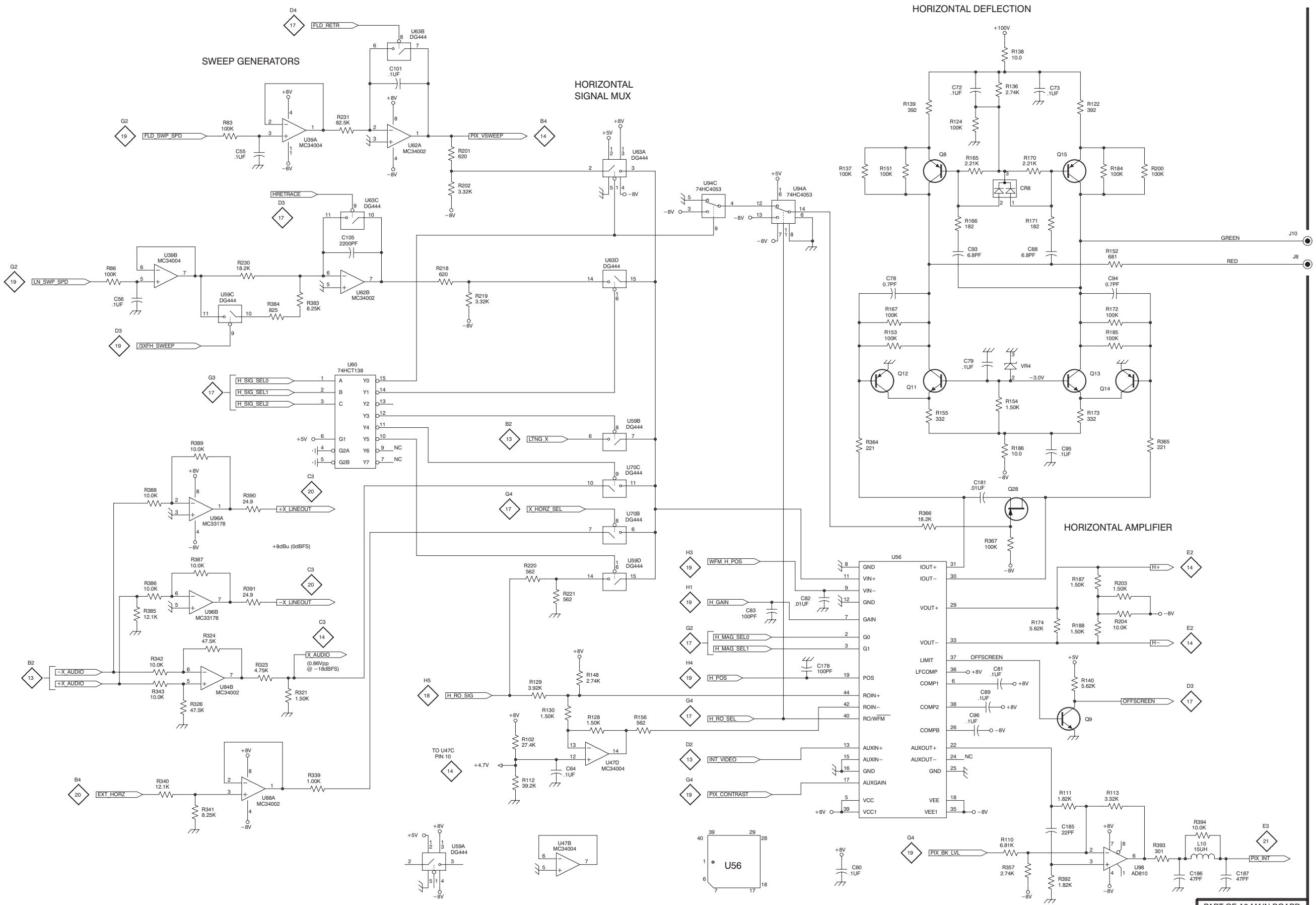
Schematic Diagram <15> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3.

(Partial Assembly A3 also shown on schematic 13, 14, 16, 17, 18, 19, 20, and 21).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C55	B1	I1	Q14	G3	K2	R184	G1	L1	R388	A3	O4
C56	A2	I2	Q15	G1	L1	R185	G2	K1	R389	B3	O4
C64	D5	I5	Q28	F3	K2	R186	F3	K2	R390	B3	O4
C72	F1	J1				R187	G4	K2	R391	B4	O4
C73	G1	J1	R83	B1	I1				R392	G5	M3
C78	F2	K1	R86	A2	I2	R188	G4	L2	R393	G5	M3
C79	F2	J2	R102	D4	I5	R200	G1	L1	R394	G5	L2
C80	E5	J3	R110	F5	L3	R201	C1	L1			
C81	F4	J3	R111	G5	L3	R202	C2	L1	U39A	B1	I2
C82	E4	J3	R112	D5	I5	R203	G4	L1	U39B	B2	I2
C83	E4	J3	R113	G5	M3	R204	G4	L2	U47B	D5	J5
C88	G2	K1	R122	G1	J1	R218	C2	L1	U47D	D5	J5
C89	F4	J2	R124	F1	J1	R219	C2	L1	U56	F4	K3
C93	F2	K1	R128	D4	J5	R220	D4	L2	U59A	C5	L2
C94	G2	K1	R129	D4	J5	R221	D4	L2	U59B	D3	L2
C95	G3	L2	R130	D4	J5	R230	B2	L1	U59C	B2	L2
C96	F4	K3	R136	F1	J1	R231	C1	L1	U59D	D4	L2
C101	C1	L1	R137	F1	J1	R321	B4	O3	U60	C3	L2
C105	C2	L1	R138	F1	J1	R323	B4	O4	U62A	C1	L1
C178	E4	L3				R324	B4	O4	U62B	C2	L1
C181	F3	K2	R139	F1	J1	R326	B4	P4	U63A	D1	L2
C185	G5	L3	R140	G4	J2				U63B	C1	L2
C186	G5	M2	R148	D4	J5	R339	B5	P3	U63C	C2	L2
C187	H5	L3	R151	F1	J1	R340	B5	P4	U63D	D2	L2
			R152	G2	J1	R341	B5	P3	U70B	D3	M1
CR8	F2	K1	R153	F2	K1	R342	B4	O4	U70C	D3	M1
			R154	F3	J2	R343	B4	O4	U84B	B4	O4
J8	H2	J1	R155	F3	K2	R357	G5	L3	U88A	B5	O3
J10	H2	L1	R156	D4	J2	R364	F3	K2	U94A	E2	K2
			R165	F1	K1	R365	G3	K2	U94C	E2	K2
L10	G5	L2	R166	F2	K1	R366	F3	L3	U96A	B3	O4
			R167	F2	K1	R367	F3	L3	U96B	B4	O4
Q8	F1	J1	R170	G1	K1	R383	B2	M1	U98	G5	M3
Q9	G4	J2	R171	G2	K1	R384	B2	M1			
Q11	F3	K1	R172	G2	K1	R385	A4	O4	VR4	F2	J2
Q12	F3	K2	R173	G3	K2	R386	A4	O4			
Q13	G3	K1	R174	G4	K2	R387	B4	O4			



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PART OF A3 MAIN BOARD

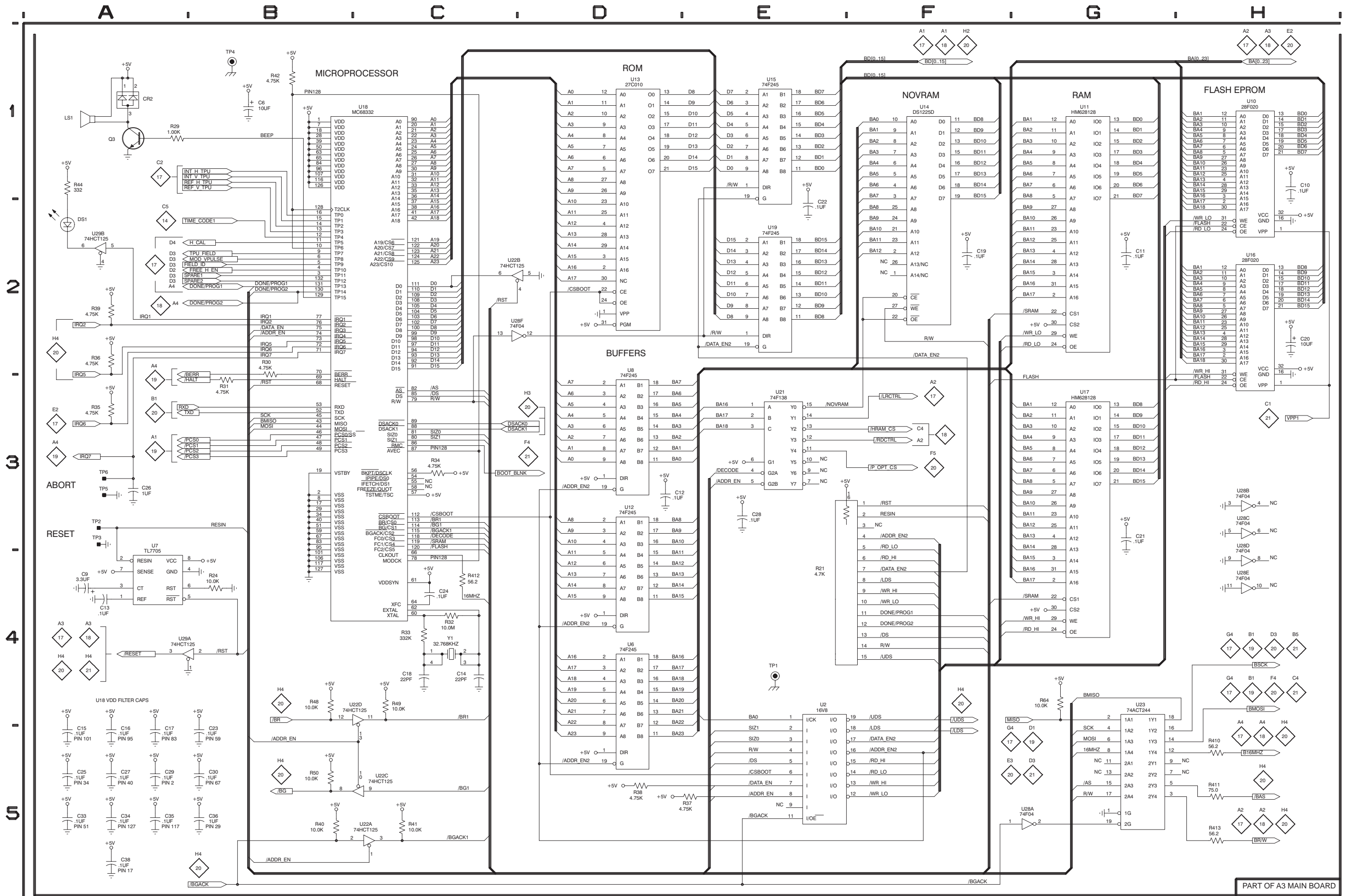
Schematic Diagram <16> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3.

(Partial Assembly A3 also shown on schematic 13,14,15,17,18,19,20 and 21).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C6	B1	C4	C35	A5	F5	R41	C5	F3	U13	D1	D4
C9	A4	C5	C36	B5	F5	R42	B1	F4	U14	F1	D2
C10	H1	C2	C38	A5	F6	R44	A1	F6	U15	E1	E4
C11	G2	C3				R48	B4	F3	U16	H2	E3
C12	D3	C3	CR2	A1	D6	R49	C4	F3	U17	G3	E3
C13	A4	C4				R50	B5	F3	U18	B1	F5
C14	C4	D6	DS1	A2	G6	R64	G4	G5	U19	E2	E4
C15	A5	D5				R410	H5	G6			
C16	A5	D5	LS1	A1	C6	R411	H5	G6	U21	E3	F3
C17	A5	D6				R412	C4	F6	U22A	C5	F3
C18	C4	D6	Q3	A1	D6	R413	H5	F5	U22B	C2	F3
C19	F2	E1							U22C	C5	F3
C20	H2	E3	R21	E3	C3	TP1	E4	C2	U22D	C4	F3
			R24	B4	C4	TP2	A3	C4	U23	G4	F5
C21	G3	E3	R29	A1	D6	TP3	A3	C4	U28A	G5	G5
C22	E2	E4	R30	B2	D6	TP4	B1	D6	U28B	H3	G5
C23	B5	E5	R31	B3	D6	TP5	A3	E6	U28C	H3	G5
C24	C4	D6	R32	C4	D6	TP6	A3	E6	U28D	H4	G5
C25	A5	E5	R33	C4	D6				U28E	H4	G5
C26	A3	E6	R34	C3	D6	U2	E4	C2	U28F	C2	G5
C27	A5	E5	R35	A3	E6	U6	D4	C4	U29A	A4	G6
C28	E3	F2	R36	A2	E6	U7	A4	C4	U29B	A2	G6
C29	A5	F5	R37	E5	E6	U8	D3	D4			
C30	B5	F6	R38	D5	E6	U10	H1	D2	Y1	C4	D6
C33	A5	F5	R39	A2	F6	U11	G1	C3			
C34	A5	F5	R40	B5	F3	U12	D3	D4			



Schematic Diagram <17> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3.
 (Partial Assembly A3 also shown on schematic 14, 15, 16, 18 and 19).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C40	B5	F2	Q4	B5	G3	R87	C4	H4	U26B	A5	F3
C51	C4	H4	Q5	B5	G3	R88	C2	I4	U26C	B5	F3
C52	C4	I4	Q6	C5	G3	R99	A4	I2	U26D	A5	F3
C57	H1	I2	Q29	B5	G2	R109	C2	I5	U34	B1	I2
C58	E2	I5							U40	E1	I4
C62	H1	I3	R57	B4	G3	R234	E3	L2	U42	F1	I2
C63	E5	I3	R62	C5	G2	R235	E3	M2	U43	F2	I3
C67	E5	J3	R63	B5	G2	R262	H2	K6	U44	F3	I3
C71	E5	J3	R65	B5	G2	R358	A3	G3	U51	F3	I3
C106	E3	L2	R66	C4	G3	R378	B5	G2	U52	F4	I3
C108	E3	M2	R67	B4	G3	R379	B5	G2	U68	E3	L2
C113	E3	M2	R68	C5	G3	R414	C3	G3	U93	A3	F3
			R69	C4	G3						
J9	H2	K6	R70	C5	G3	U26A	A5	F3			

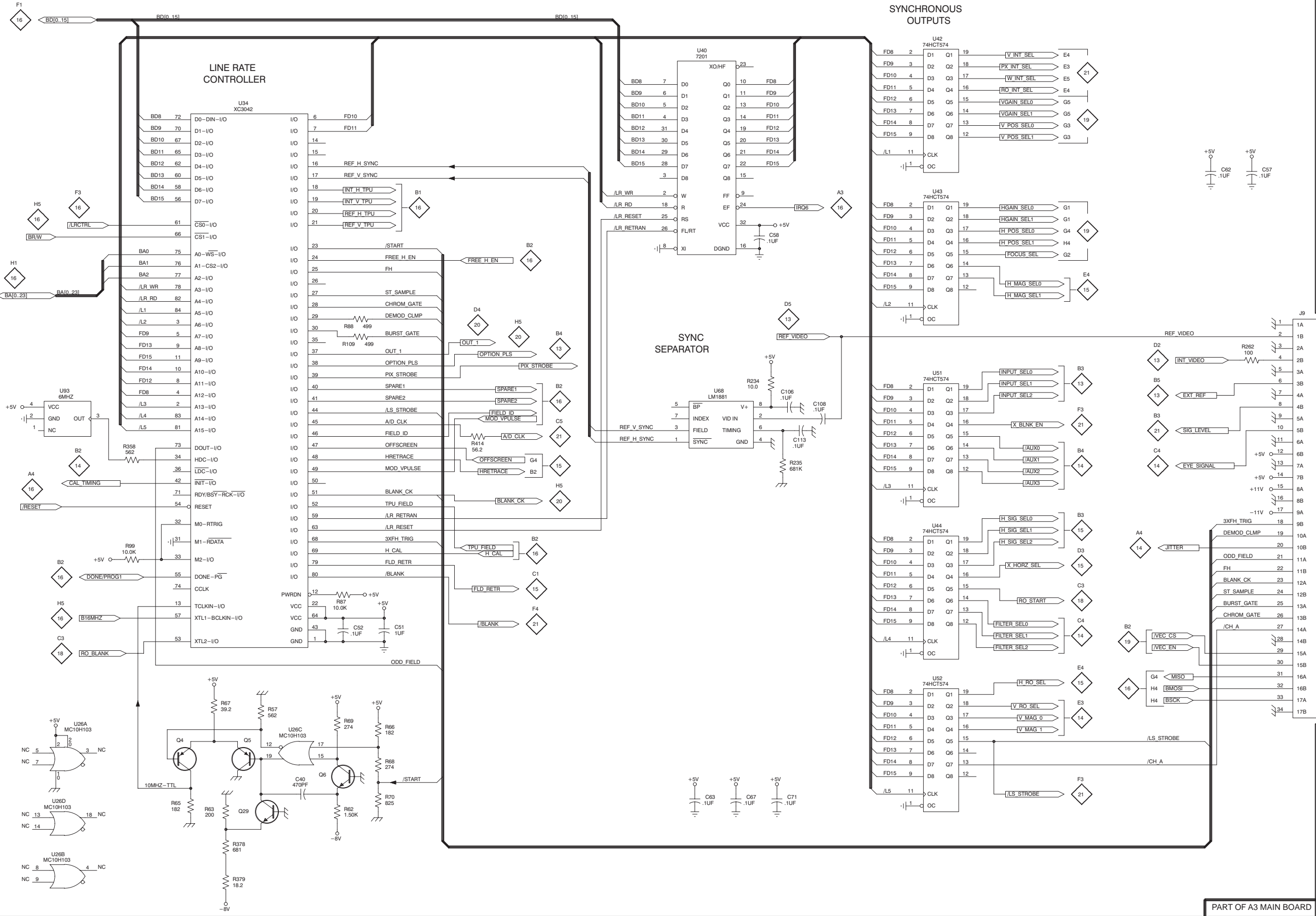
1

2

3

4

5



PART OF A3 MAIN BOARD

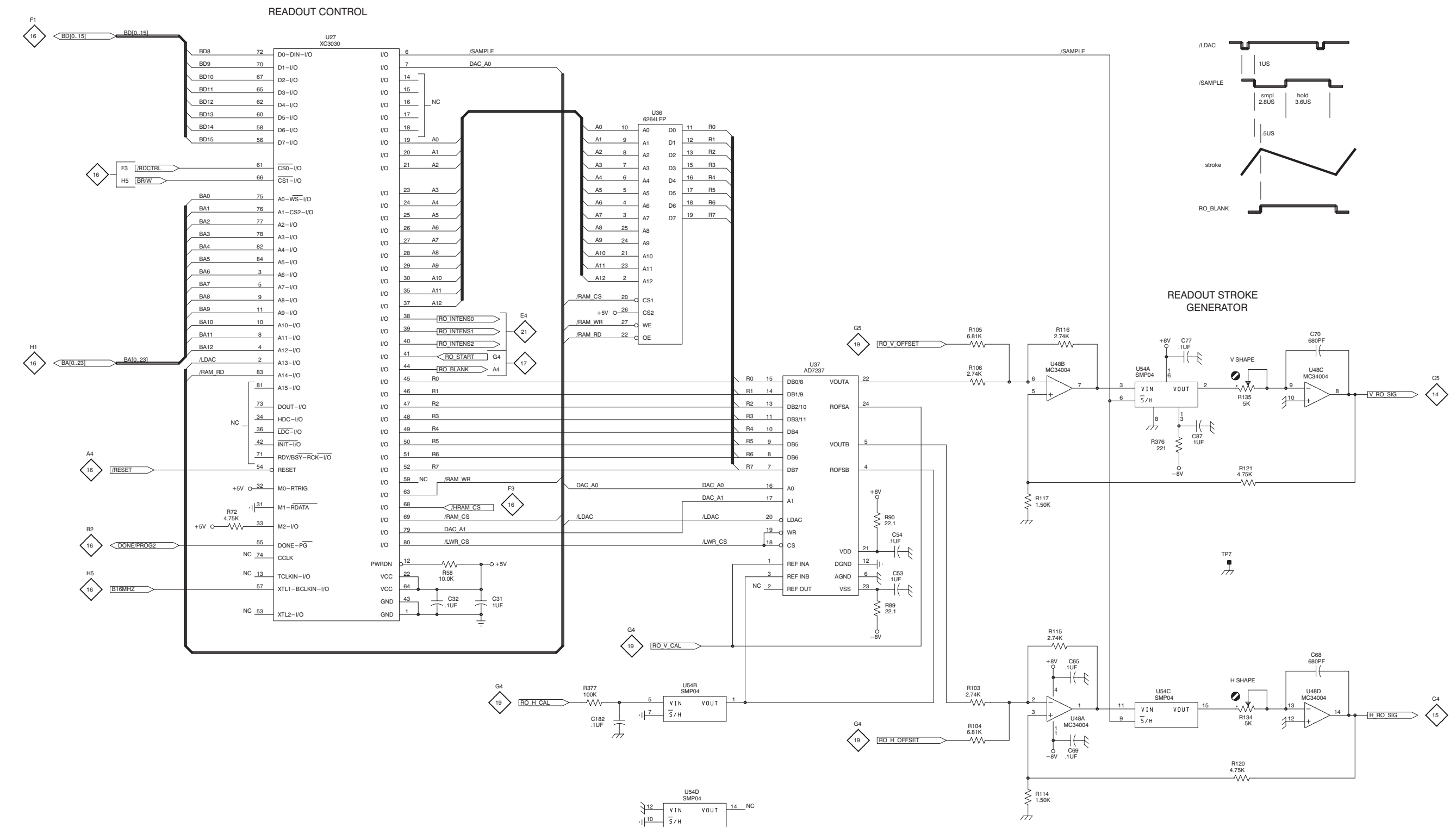
Schematic Diagram <18> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3.

(Partial Assembly A3 also shown on schematic 13, 14, 15, 16, 17, 19, 20, and 21).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C31	C4	F4	R58	C4	F5	R120	G5	I6	U37	E3	H5
C32	C4	F4	R72	B4	G5	R121	G3	I6	U48A	F4	J6
C53	E4	H5	R89	E4	H5	R134	G4	J6	U48B	F3	J6
C54	E4	H5	R90	E4	H5	R135	G3	J6	U48C	H3	J6
C65	F4	I6	R103	F4	I6	R376	G3	K6	U48D	H5	J6
C68	H4	J6	R104	F5	I6	R377	D4	J6	U54A	G3	J6
C69	F5	J6	R105	F3	I6				U54B	D4	J6
C70	H3	J6	R106	F3	I6	TP7	G4	I6	U54C	G5	J6
C77	G3	J5	R114	F5	I6				U54D	D5	J6
C87	G3	K6	R115	F4	I6	U27	B1	F4			
C182	D5	J6	R116	F3	I6	U36	D2	H4			
			R117	F3	I6						



PART OF A3 MAIN BOARD

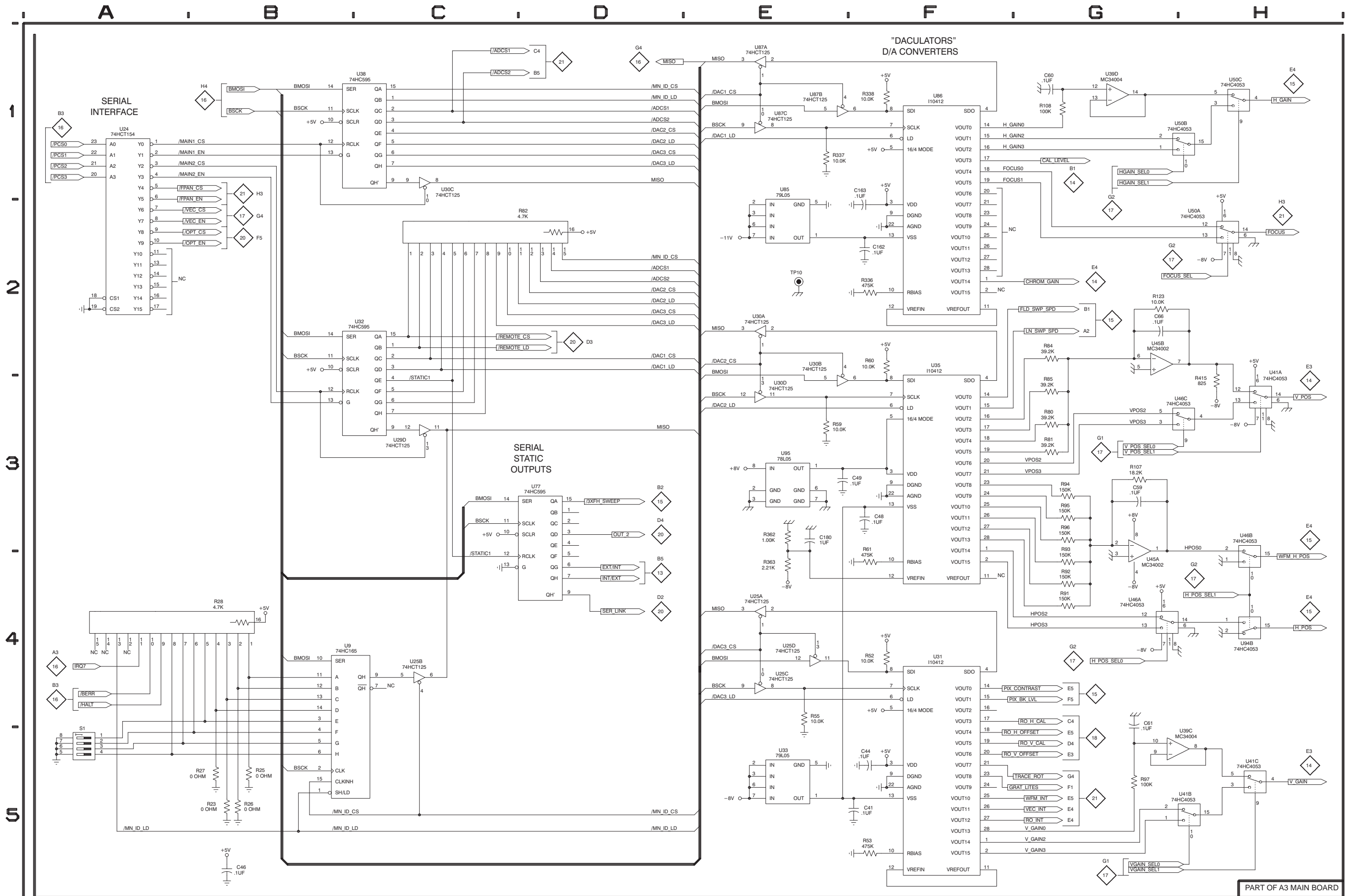
Schematic Diagram <19> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3.

(Partial Assembly A3 also shown on schematic 13, 14, 15, 16, 17, 18, 20, and 21).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C41	E5	G2	R61	F4	G2	S1	A5	C6	U39D	G1	I2
C44	F5	G1	R80	G3	H2				U41A	H3	I1
C46	B5	G6	R81	G3	H2				U41B	G5	I1
C48	F3	G2	R82	C2	H6	TP10	E2	O1	U41C	H5	I1
C49	E3	H1	R84	G2	H2						
C59	G3	I1	R85	G3	H2	U9	B4	C5	U45A	G3	I1
C60	G1	I2	R91	G4	I1	U24	A1	F6	U45B	G2	I1
C61	G4	I2	R92	G4	I1	U25A	E4	G2	U46A	G4	I1
C66	G2	J1	R93	G4	I1	U25B	C4	G2	U46B	H3	I1
C162	F2	O1	R94	G3	I1	U25C	E4	G2	U46C	G3	I1
C163	F2	O1	R95	G3	I1	U25D	E4	G2	U50A	H2	J2
C180	E3	H2	R96	G3	I1	U29D	C3	G6	U50B	G1	J2
			R97	G5	I1	U30A	E2	G2	U50C	H1	J2
R23	B5	C5	R107	G3	I1	U30B	E2	G2	U77	C3	M3
R25	B5	C5	R108	G1	I2	U30C	C1	G2	U85	E2	O1
R26	B5	C5	R123	G2	J1	U30D	E3	G2	U86	F1	O1
R27	B5	C5	R336	F2	P2	U31	F4	G1	U87A	E1	O2
R28	A4	D6	R337	E1	P2	U32	B2	H6	U87B	E1	O2
R52	F4	G1	R338	F1	P2	U33	E5	H2	U87C	E1	O2
R53	F5	G1	R362	E3	H2	U35	F3	H1	U94B	H4	K2
R55	E4	G2	R363	E4	I2	U38	B1	H6	U95	E3	H1
R59	E3	G1	R415	H2	B1	U39C	G5	I2			
R60	F2	G2									



PART OF A3 MAIN BOARD

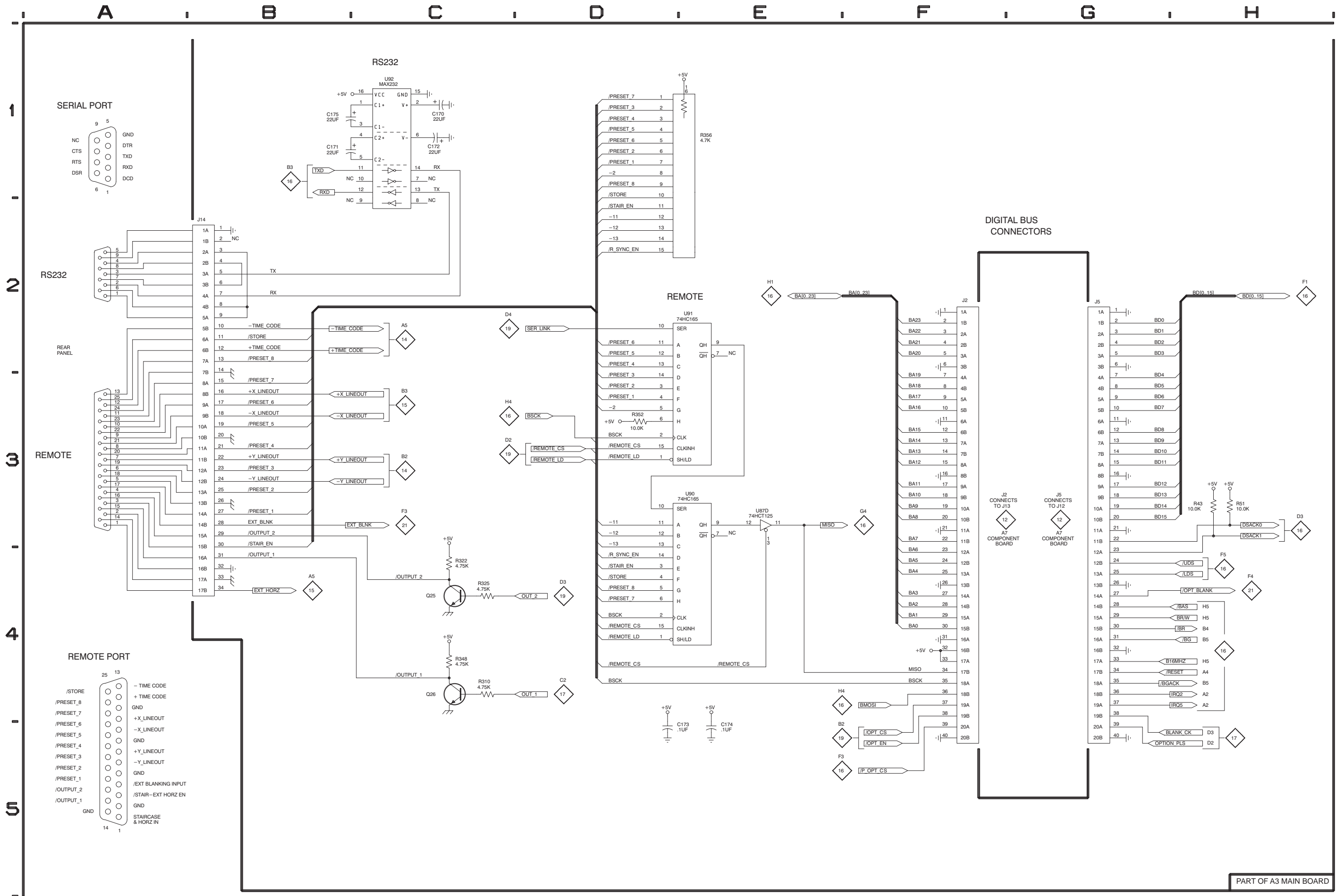
Schematic Diagram <20> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3.

(with cross-references to schematic diagrams 13, 14, 15, 16, 17, 18, 19, and 21).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C170	C1	P1	J2	F2	B1	R43	H3	F5	R356	D1	P6
C171	B1	P3	J5	G2	E1	R51	H3	F5			
C172	C1	P2	J14	B2	P3	R310	C4	O3	U87D	E3	O2
C173	D5	P5				R322	C4	O3	U90	D3	P5
C174	E5	P6	Q25	C4	P4	R325	C4	O4	U91	D2	O6
C175	B1	P1	Q26	C4	P5	R348	C4	P5	U92	C1	P1
						R352	D3	P6			

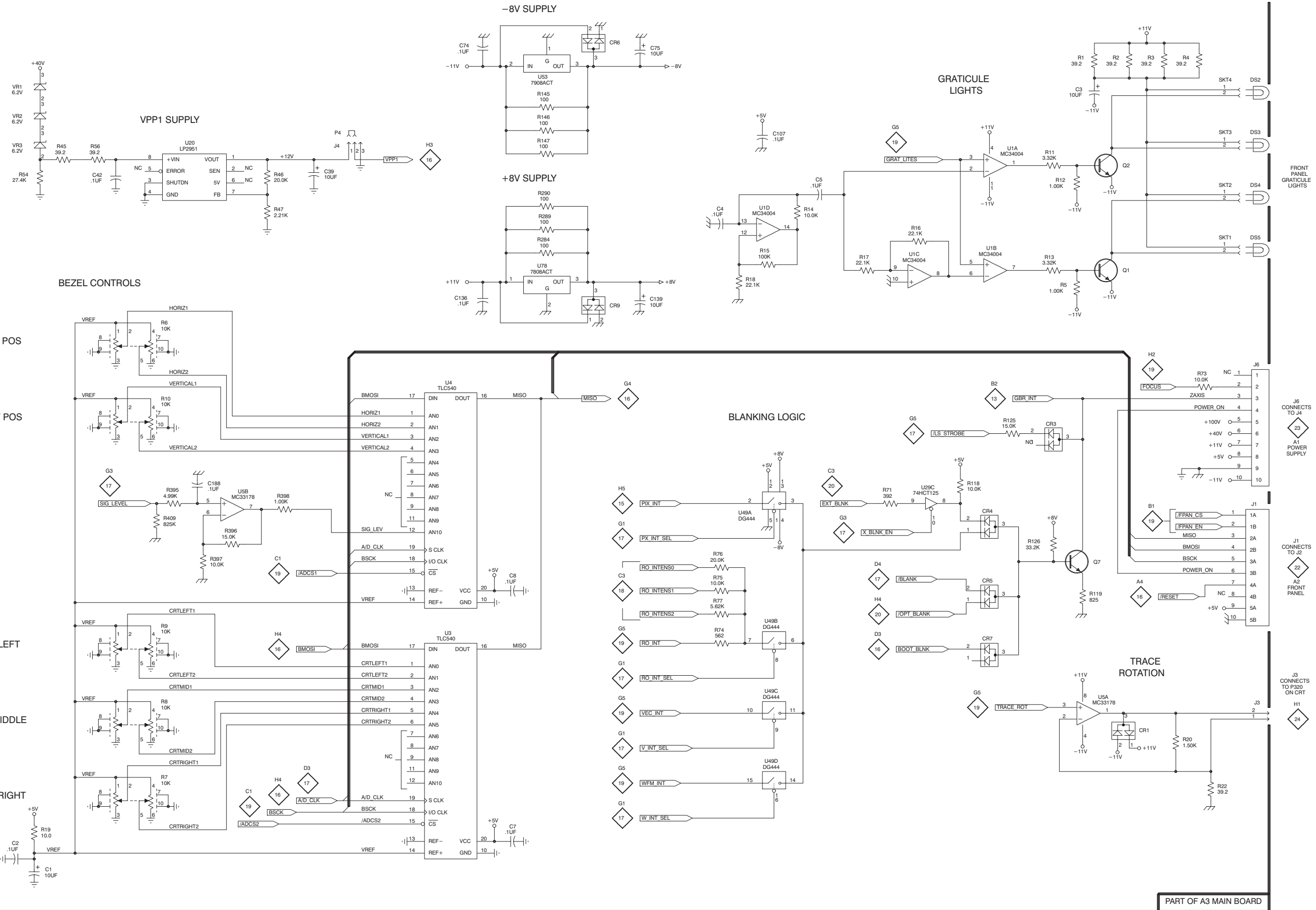


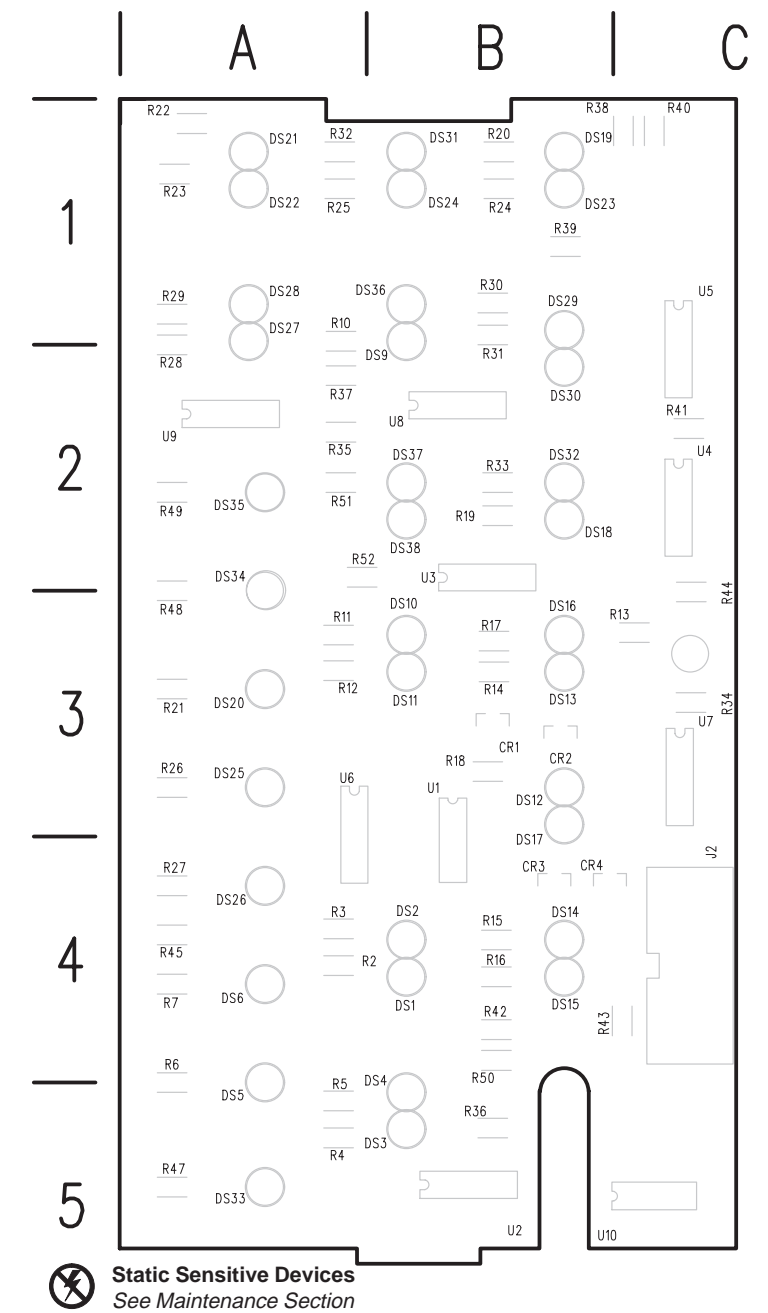
Schematic Diagram <21> Component Locator Chart

The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3. (Partial Assembly A3 also shown on schematic 13 thur 20).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C1	A5	A3	J1	H3	A1	R18	E2	B1	R398	B3	C2
C2	A5	A4	J3	H4	B2	R19	A5	B2	R409	B3	C2
C3	G1	B1	J4	C1	E2	R20	H5	C2			
C4	E2	B1	J6	H3	G1	R22	H5	C2	SKT1	H2	A3
C5	F2	B1				R45	A1	F2	SKT2	H2	A4
C7	D5	C4	P4	C1		R46	B1	F2	SKT3	H1	A5
C8	D4	C5				R47	B2	F2	SKT4	H1	A5
C39	C1	F2	Q1	G2	A2	R54	A1	G2			
C42	A2	F2	Q2	G1	B2	R56	A1	F2	U1A	F1	B2
C74	D1	J4	Q7	G4	I2	R71	F3	G6	U1B	F2	B2
C75	D1	J5				R73	H3	I1	U1C	F2	B2
C107	E1	L2	R1	G1	A1	R74	E4	H1	U1D	E2	B2
C136	D2	O6	R2	G1	A1	R75	E4	H1	U3	C4	C4
C139	D2	O5	R3	G1	A1	R76	E4	H1	U4	C3	C5
C188	B3	C2	R4	H1	A2	R77	E4	H2	U5A	G4	C2
			R5	G2	A2				U5B	B3	C2
CR1	G4	C2	R6	A2	B2	R118	F3	I2	U20	B1	F2
CR3	G3	J2	R7	A5	B3	R119	G4	J2	U29C	F3	G6
CR4	F3	I2	R8	A4	B4	R125	G3	J2	U49A	E3	J2
CR5	F4	I2	R9	A4	B5	R126	G3	J2	U49B	E4	J2
CR6	D1	J4	R10	A3	B6	R145	D1	J4	U49C	E4	J2
CR7	F4	J2	R11	G1	B1	R146	D1	J4	U49D	E5	J2
CR9	D2	O6	R12	G2	B2	R147	D1	J4	U53	D1	I4
			R13	G2	B2	R284	D2	O6	U78	D2	O6
DS2	H1	A5	R14	E2	B1	R289	D2	O6			
DS3	H1	A5	R15	E2	B2	R290	D2	O6	VR1	A1	F1
DS4	H2	A4				R395	B3	C2	VR2	A1	F1
DS5	H2	A3	R16	F2	B2	R396	B3	C2	VR3	A1	F1
			R17	F2	B2	R397	B4	C2			

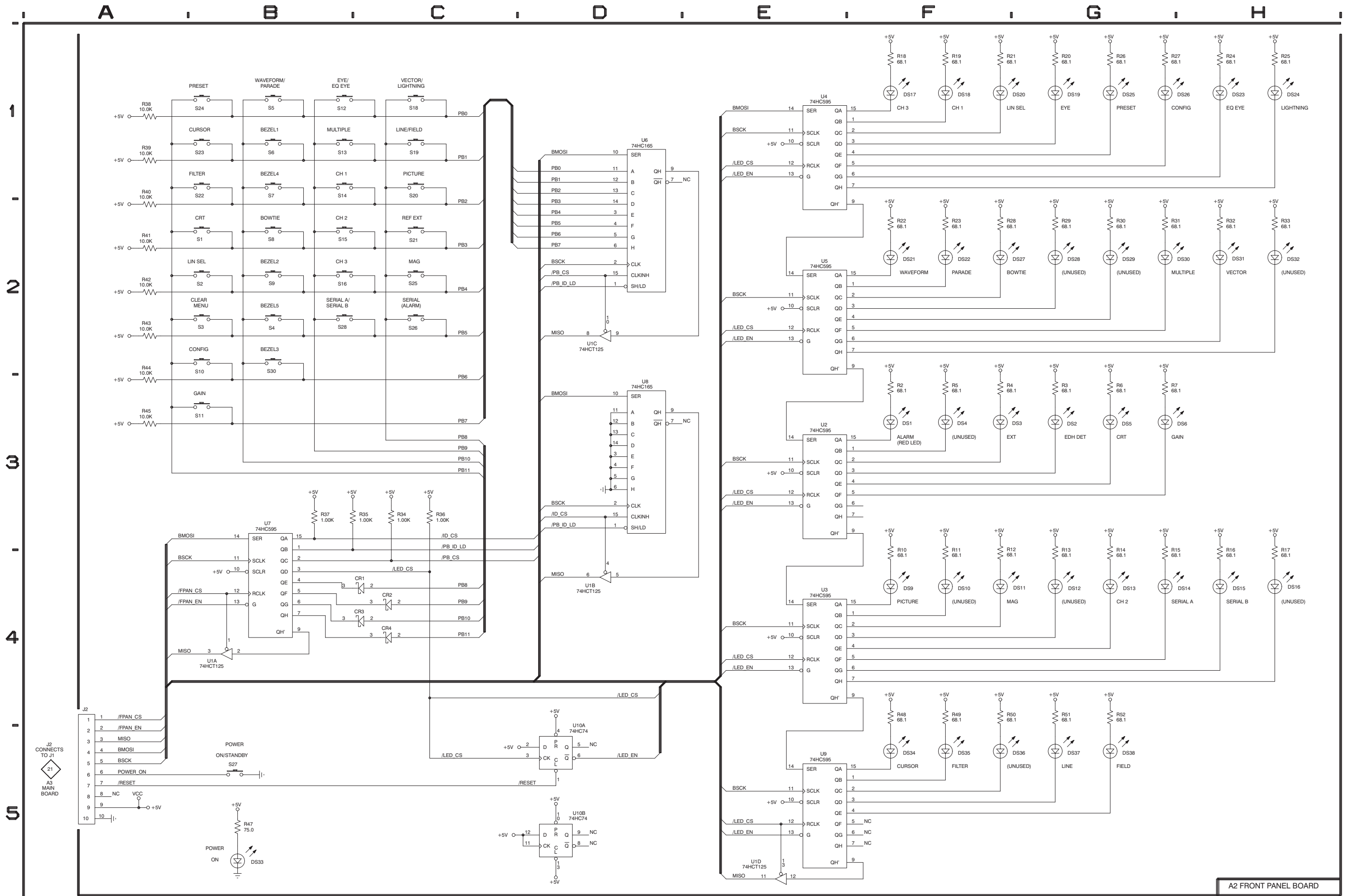


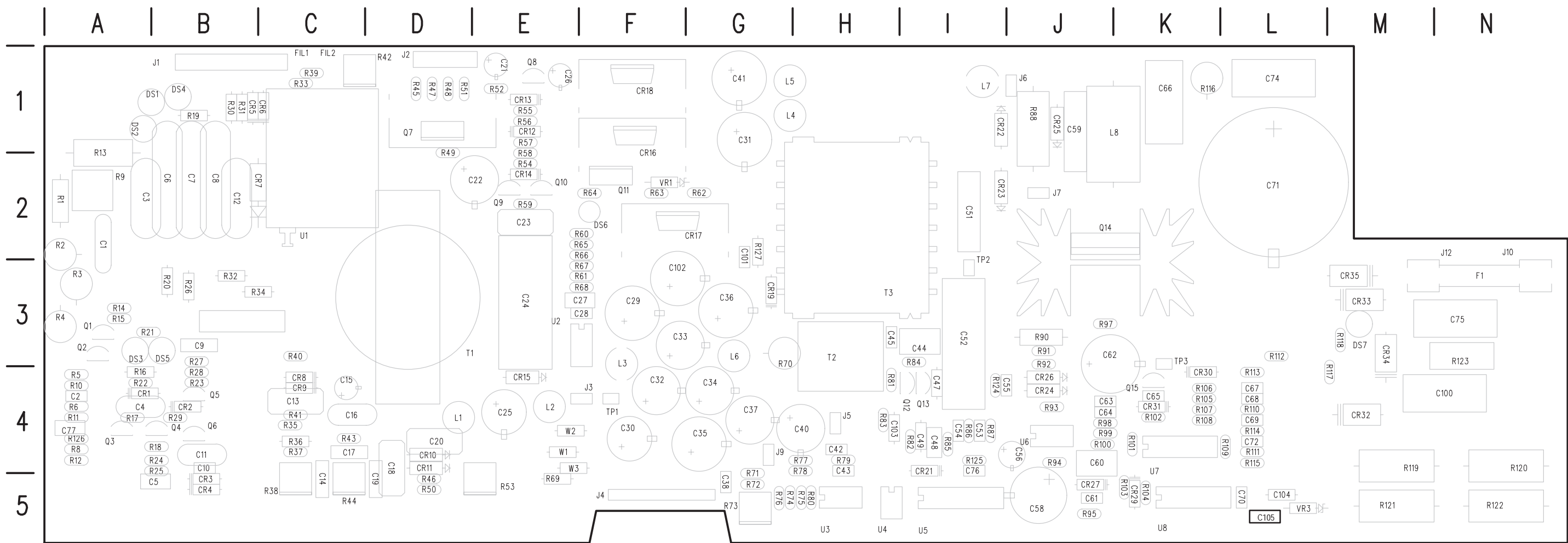


A2 Front Panel Board

A2 Front Panel Board and Diagram <22> Component Locator

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc			
CR1	C4	B3	DS16	H4	B3	DS33	B5	A5	R13	G3	B3	R30	G2	B1	R47	B5	A5	S11	B3	A4	S28	B2	B4
CR2	C4	B3	DS17	F1	B4	DS34	F5	A2	R14	G3	B3	R31	G2	B2	R48	F4	A3	S12	B1	B1	S30	B2	C2
CR3	C4	B4	DS18	F1	B2	DS35	F5	A2	R15	G3	B4	R32	H2	A1	R49	F4	A2	S13	B1	B2			
CR4	C4	B4	DS19	G1	B1	DS36	F5	A1	R16	H3	B4	R33	H2	B2	R50	F4	B5	S14	B1	B2	U1A	B4	B3
			DS20	F1	A3	DS37	G5	B2	R17	H3	B3	R34	C3	C3	R51	G4	A2	S15	B2	B3	U1B	D4	B3
DS1	F3	B4				DS38	G5	B2	R18	F1	B3	R35	B3	A2	R52	G4	A2	S16	B2	B4	U1C	D2	B3
DS2	G3	B4	DS21	F2	A1				R19	F1	B2	R36	C3	B5				S18	C1	B1	U1D	E5	B3
DS3	F3	A5	DS22	F2	A1	J2	A4	C4				R37	B3	A2	S1	B2	A4	S19	C1	B2	U2	E3	B5
DS4	F3	A5	DS23	H1	B1				R20	G1	B1	R38	A1	B1	S2	B2	A3				U3	E4	B2
DS5	G3	A5	DS24	H1	B1	R2	F3	A4	R21	F1	A3	R39	A1	B1	S3	B2	C5	S20	C1	B2	U4	E1	C2
DS6	G3	A4	DS25	G1	A3	R3	G3	A4	R22	F2	A1				S4	B2	C3	S21	C2	B5	U5	E2	C1
DS9	F4	B2	DS26	G1	A4	R4	F3	A5	R23	F2	A1	R40	A2	C1	S5	B1	A1	S22	B1	A2	U6	D1	A3
DS10	F4	B3	DS27	F2	A1	R5	F3	A5	R24	H1	B1	R41	A2	C2	S6	B1	C1	S23	B1	A2	U7	B3	C3
DS11	F4	B3	DS28	G2	A1	R6	G3	A4	R25	H1	A1	R42	A2	B4	S7	B1	C3	S24	B1	A3	U8	D3	B2
DS12	G4	B3	DS29	G2	B1	R7	G3	A4	R26	G1	A3	R43	A2	B4	S8	B2	A2	S25	C2	B3	U9	E5	A2
DS13	G4	B3	DS30	G2	B2	R10	F3	A1	R27	G1	A4	R44	A3	C3	S9	B2	C2	S26	C2	B4	U10A	D5	B5
DS14	G4	B4	DS31	H2	B1	R11	F3	A3	R28	F2	A2	R45	A3	A4	S10	B2	A4	S27	B5	A5	U10B	D5	B5
DS15	H4	B4	DS32	H2	B2	R12	F3	A3	R29	G2	A1												



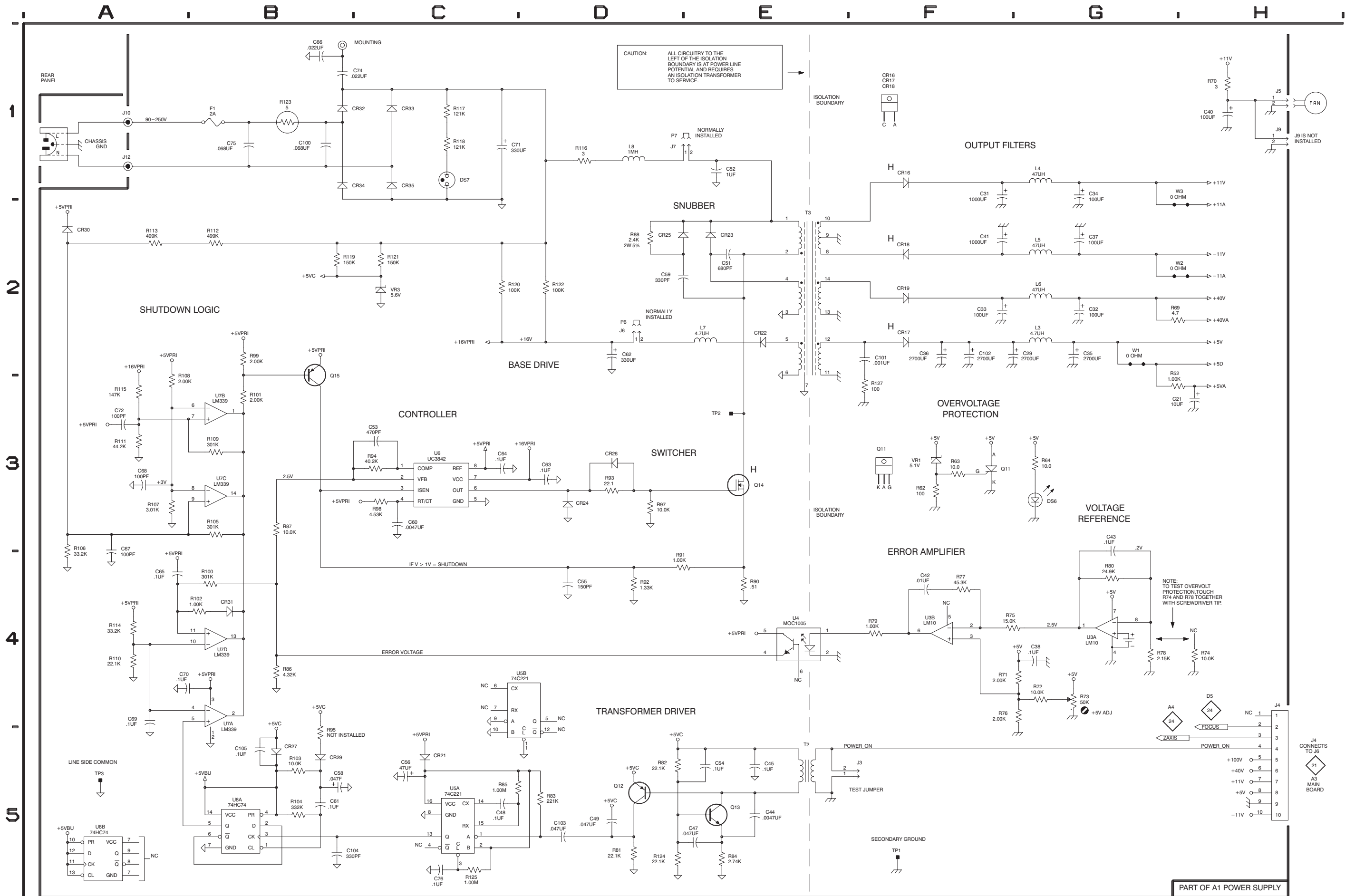


A1 Power Supply Board

 **Static Sensitive Devices**
See Maintenance Section

A1 Power Supply Board and Diagram <23> Component Locator (with cross-references to schematic diagram 24).

Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc									
C1	24	F4	A2	C33	23	F2	F3	C68	23	A3	L4	CR18	23	F2	F1	J3	23	F5	F4	Q13	23	E5	I4	R30	24	E2	B1	R61	24	C2	E3	R94	23	C3	J4	R126	24	C5	A4					
C2	24	B4	A4	C34	23	G1	G4	C69	23	A4	L4	CR19	23	F2	G3	J4	23	H4	F5	Q14	23	E3	J2	R31	24	E3	B1	R62	23	F3	G2	R95	23	B4	J5	R127	23	F3	G2					
C3	24	D3	A2	C35	23	G2	G4	C70	23	A4	L5					J5	23	H1	H4	Q15	23	E2	K4	R32	24	E2	B3	R63	23	F3	F2	R97	23	D3	J3									
C4	24	B5	A4	C36	23	F2	G3	C71	23	C1	L2	CR21	23	C5	I5	J6	23	D2	J1					R33	24	E3	C1	R64	23	G3	F2	R98	23	C3	J4	T1	24	C2	D3					
C5	24	C5	A5	C37	23	G2	G4	C72	23	A3	L4	CR22	23	E2	I1	J7	23	D1	J2	R1	24	E4	A2	R34	24	D2	B3	R65	24	B2	E2	R99	23	B2	J4	T2	23	E5	H3					
C6	24	D3	B2	C38	23	G4	G5	C74	23	B1	L1	CR23	23	E2	I2	J9	23	H1	G4	R2	24	E4	A2	R35	24	F3	C4	R66	24	C2	E2	R100	23	B4	J4	T3	23	E2	H3					
C7	24	D3	B2	C40	23	H1	H4	C75	23	B1	N3	CR24	23	D3	J4	J10	23	A1	N2	R3	24	E4	A3	R36	24	F1	C4	R67	24	C1	E3													
C8	24	E2	B2					C76	23	C5	I5	CR25	23	D2	J1	J12	23	A1	N2	R4	24	E4	A3	R37	24	F2	C4	R68	24	B1	E3	R101	23	B3	K4	TP1	23	F5	F4					
C9	24	D4	B3	C41	23	F2	G1	C77	24	C5	A4	CR26	23	D3	J4					R5	24	D5	A4	R38	24	F2	C5	R69	23	G2	E5	R102	23	A4	K4	TP2	23	E3	I3					
C10	24	C4	B4	C42	23	F4	H4	C100	23	B1	N4	CR27	23	B5	J5	L1	24	B2	D4	R6	24	B4	A4	R39	24	E3	C1	R70	23	H1	G4	R103	23	B5	K5	TP3	23	A5	K3					
C11	24	C4	B4	C43	23	G3	H5	C101	23	F2	G2	CR29	23	B5	K5	L2	24	D1	E4	R8	24	A4	A4	R40	24	C2	C3	R71	23	F4	G5	R104	23	B5	K5									
C12	24	E2	B2	C44	23	E5	I3	C102	23	F2	F3	CR30	23	A2	K4	L3	23	G2	F3	R9	24	F4	A2					R72	23	G4	G5	R105	23	B3	K4	U1	24	D1	C2					
C13	24	D2	C4	C45	23	E5	H3	C103	23	D5	H4	CR31	23	B4	K4	L4	23	G1	G1	R10	24	B4	A4	R41	24	D2	C4	R73	23	G4	G5	R106	23	A3	K4	U2	24	B2	E3					
C14	24	F2	C5	C47	23	E5	I4	C104	23	B5	L5	CR32	23	B1	M4	L5	23	G2	G1	R11	24	B4	A4	R42	24	E3	D1	R74	23	H4	G5	R107	23	A3	K4	U3A	23	G4	H5					
C15	24	C2	C4	C48	23	C5	I4	C105	23	B5	L5	CR33	23	C1	M3	L6	23	G2	G3	R12	24	D5	A4	R43	24	F3	C4	R75	23	F4	H5	R108	23	A2	K4	U3B	23	F4	H5					
C16	24	D2	C4	C49	23	D5	I4					CR34	23	B1	M3	L7	23	E2	I1	R13	24	E3	A2	R44	24	F2	C5	R76	23	F4	G5	R109	23	B3	L4	U4	23	E4	H5					
C17	24	F3	C4	C51	23	E2	I2	CR1	24	C4	A4	CR35	23	C1	M3	L8	23	D1	J1	R14	24	E5	A3	R45	24	F2	D1	R77	23	F4	H4	R110	23	A4	L4	U5A	23	C5	I5					
C18	24	D2	D4	C52	23	E1	I3	CR2	24	D4	B4									R15	24	E5	A3	R46	24	D2	D5	R78	23	G4	H5	R111	23	A3	L4	U5B	23	C4	I5					
C19	24	F2	D5	C53	23	C3	I4	CR3	24	C4	B5	DS1	24	E2	A1	P6	23	D2		R16	24	D4	A4	R47	24	F2	D1	R79	23	F4	H4	R112	23	B2	L3	U6	23	C3	J4					
C20	24	C2	D4	C54	23	E5	I4	CR4	24	D5	B5	DS2	24	E3	A1	P7	23	D1		R17	24	C5	A4	R48	24	F3	D1	R80	23	G4	H5	R113	23	A2	L4	U7A	23	B4	K5					
				C55	23	D4	I4	CR5	24	E2	B1	DS3	24	E4	A3					R18	24	C4	A4	R49	24	B3	D2					R114	23	A4	L4	U7B	23	B3	K5					
C21	23	H3	E1	C56	23	C5	J4	CR6	24	E2	C1	DS4	24	D3	B1	Q1	24	E5	A3	R19	24	D3	B1	R50	24	D2	D5	R81	23	D5	H4	R115	23	A3	L4	U7C	23	B3	K5					
C22	24	B2	D2	C58	23	B5	J5	CR7	24	D3	B2	DS5	24	E4	B3	Q2	24	E5	A3	R20	24	D3	B3	R51	24	F3	D1	R82	23	D5	I4	R116	23	D1	K1	U7D	23	B4	K5					
C23	24	B3	E2	C59	23	D2	J1	CR8	24	D2	C4	DS6	23	G3	F2	Q3	24	C4	A4					R52	23	G3	E1	R83	23	D5	H4	R117	23	C1	L3	U8A	23	B5	K5					
C24	24	B2	E3	C60	23	C3	J4	CR9	24	E2	C4	DS7	23	C1	M3	Q4	24	D4	B4	R21	24	E5	A3	R53	24	D2	E5	R84	23	E5	I3	R118	23	C1	M3	U8B	23	A5	K5					
C25	24	D1	E4					CR10	24	D2	D4					Q5	24	D4	B4	R22	24	B5	A4	R54	24	B2	E2	R85	23	C5	I4	R119	23	B2	M4									
C26	24	A2	E1	C61	23	B5	J5	CR11	24	D2	D4	F1	23	B1	N3	Q6	24	D4	B4	R23	24	C4	B4	R55	24	A2	E1	R86	23	B4	I4					VR1	23	F3	F2					
C27	24	B1	E3	C62	23	D2	J3	CR12	24	A2	E1					Q7	24	B2	D1	R24	24	C4	A4	R56	24	A2	E1	R87	23	B3	I4	R120	23	C2	N4	VR3	23	C2	L5					
C28	24	B1	E3	C63	23	D3	J4	CR13	24	A2	E1	FIL1	24	C3	C1	Q8	24	A2	E1	R25	24	C5	A5	R57	24	B2	E1	R88	23	D2	J1	R121	23	C2	M5									
C29	23	F2	F3	C64	23	C3	J4	CR14	24	B2	E2	FIL2	24	C3	C1	Q9	24	A2	E2	R26	24	D3	B3	R58	24	A2	E2	R90	23	E4	J3	R122	23	D2	N5	W1	23	G2	E4					
C30	24	D1	F4	C65	23	A4	K4	CR15	24	C1	E4					Q10	24	B2	E2	R27	24	D4	B3	R59	24	B3	E2	R91	23	D4	J3	R123	23	B1	N3	W2	23	G2	E4					
C31	23	F1	G1	C66	23	B1	K1	CR16	23	F1	F2	J1	24	F3	B1	Q11	23	F3	F2	R28	24	C4	B4	R60	24	B1	E2	R92	23	D4	J4	R124	23	D5	I4	W3	23	G2	E4					
C32	23	G2	F4	C67	23	A3	L4	CR17	23	F2	G2	J2	24	F2	D1	Q12	23	D5	I4	R29	24	D4	B4					R93	23	D3	J4	R125	23	C5	I4									



Schematic Diagram <24> Component Locator Chart

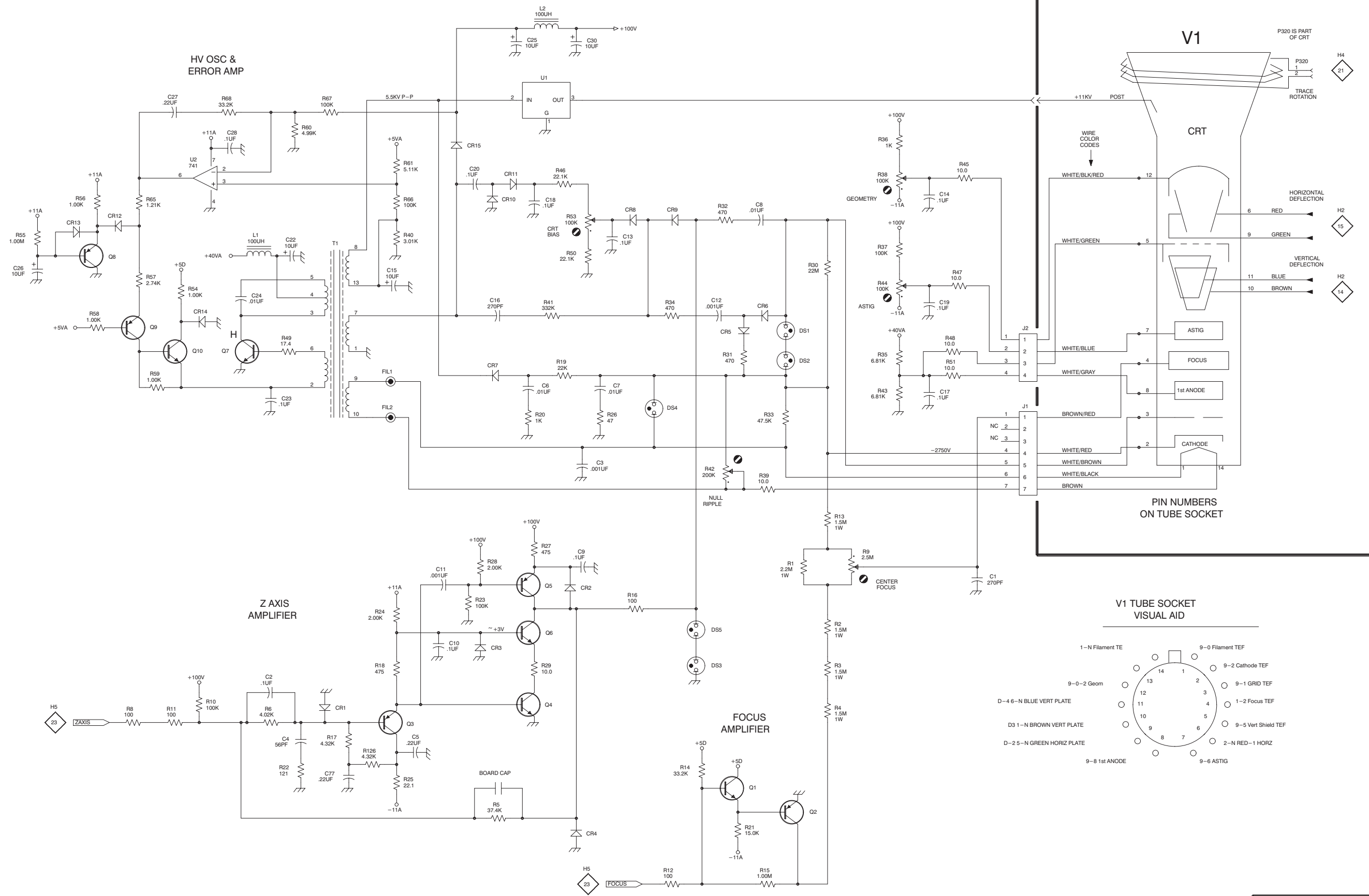
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A1. (Partial Assembly A1 also shown on schematic 23).

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C1	F4	A2	CR7	D3	B2	R1	E4	A2	R37	F2	C4
C2	B4	A4	CR8	D2	C4	R2	E4	A2	R38	F2	C5
C3	D3	A2	CR9	E2	C4	R3	E4	A3	R39	E3	C1
C4	B5	A4	CR10	D2	D4	R4	E4	A3	R40	C2	C3
C5	C5	A5	CR11	D2	D4	R5	D5	A4	R41	D2	C4
C6	D3	B2	CR12	A2	E1	R6	B4	A4	R42	E3	D1
C7	D3	B2	CR13	A2	E1	R8	A4	A4	R43	F3	C4
C8	E2	B2	CR14	B2	E2	R9	F4	A2	R44	F2	C5
C9	D4	B3	CR15	C1	E4	R10	B4	A4	R45	F2	D1
C10	C4	B4				R11	B4	A4			
C11	C4	B4	DS1	E2	A1	R12	D5	A4	R46	D2	D5
C12	E2	B2	DS2	E3	A1	R13	E3	A2	R47	F2	D1
C13	D2	C4	DS3	E4	A3				R48	F3	D1
			DS4	D3	B1	R14	E5	A3	R49	B3	D2
C14	F2	C5	DS5	E4	B3	R15	E5	A3	R50	D2	D5
C15	C2	C4				R16	D4	A4	R51	F3	D1
C16	D2	C4	FIL1	C3	C1	R17	C5	A4	R53	D2	E5
C17	F3	C4	FIL2	C3	C1	R18	C4	A4	R54	B2	E2
C18	D2	D4				R19	D3	B1	R55	A2	E1
C19	F2	D5	J1	F3	B1	R20	D3	B3	R56	A2	E1
C20	C2	D4	J2	F2	D1	R21	E5	A3	R57	B2	E1
C22	B2	D2				R22	B5	A4	R58	A2	E2
C23	B3	E2	L1	B2	D4	R23	C4	B4	R59	B3	E2
C24	B2	E3	L2	D1	E4	R24	C4	A4	R60	B1	E2
C25	D1	E4				R25	C5	A5	R61	C2	E3
C26	A2	E1	Q1	E5	A3	R26	D3	B3	R65	B2	E2
C27	B1	E3	Q2	E5	A3				R66	C2	E2
C28	B1	E3	Q3	C4	A4	R27	D4	B3	R67	C1	E3
C30	D1	F4	Q4	D4	B4	R28	C4	B4	R68	B1	E3
C77	C5	A4	Q5	D4	B4	R29	D4	B4	R126	C5	A4
			Q6	D4	B4	R30	E2	B1			
CR1	C4	A4	Q7	B2	D1	R31	E3	B1	T1	C2	D3
CR2	D4	B4	Q8	A2	E1	R32	E2	B3			
CR3	C4	B5	Q9	A2	E2	R33	E3	C1	U1	D1	C2
CR4	D5	B5	Q10	B2	E2	R34	D2	B3	U2	B2	E3
CR5	E2	B1				R35	F3	C4			
CR6	E2	C1				R36	F1	C4			

A B C D E F G H

1
2
3
4
5



PART OF A1 POWER SUPPLY



Replaceable Mechanical Parts

Replaceable Mechanical Parts

This section contains a list of the components that are replaceable for the WFM 601i. Use this list to identify and order replacement parts. There is a separate Replaceable Mechanical Parts list for each instrument.

Parts Ordering Information

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

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest circuit improvements. Therefore, when ordering parts, it is important to include the following information in your order.

- Part number
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

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

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

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 replaceable parts.

Cross Index–Mfr. Code Number to Manufacturer

The Mfg. Code Number to Manufacturer Cross Index for the mechanical parts list is located immediately after this page. The cross index provides codes, names, and addresses of manufacturers of components listed in the mechanical parts list.

Abbreviations

Abbreviations conform to American National Standards Institute (ANSI) standard Y1.1.

Chassis Parts

Chassis-mounted parts and cable assemblies are located at the end of the Replaceable Electrical Parts list.

Column Descriptions

Figure & Index No. (Column 1)	Items in this section are referenced by figure and index numbers to the illustrations.																																																												
Tektronix Part No. (Column 2)	Indicates part number to be used when ordering replacement part from Tektronix.																																																												
Serial No. (Column 3 and 4)	Column three (3) indicates the serial number at which the part was first used. Column four (4) indicates the serial number at which the part was removed. No serial number entered indicates part is good for all serial numbers.																																																												
Qty (Column 5)	This indicates the quantity of mechanical parts used.																																																												
Name and Description (Column 6)	<p>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.</p> <p>Following is an example of the indentation system used to indicate relationship.</p> <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 5px;">1</td> <td style="padding-right: 5px;">2</td> <td style="padding-right: 5px;">3</td> <td style="padding-right: 5px;">4</td> <td style="padding-right: 5px;">5</td> <td>Name & Description</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Assembly and/or Component</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Mounting parts for Assembly and/or Component</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*MOUNTING PARTS*/*END MOUNTING PARTS*</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Detail Part of Assembly and/or Component</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Mounting parts for Detail Part</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*MOUNTING PARTS*/*END MOUNTING PARTS*</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Parts of Detail Part</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Mounting parts for Parts of Detail Part</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*MOUNTING PARTS*/*END MOUNTING PARTS*</td> </tr> </table> <p>Mounting Parts always appear in the same indentation as the Item it mounts, while the detail parts are indented to the right. Indented items are part of and included with, the next higher indentation. Mounting parts must be purchased separately, unless otherwise specified.</p>	1	2	3	4	5	Name & Description						Assembly and/or Component						Mounting parts for Assembly and/or Component						*MOUNTING PARTS*/*END MOUNTING PARTS*						Detail Part of Assembly and/or Component						Mounting parts for Detail Part						*MOUNTING PARTS*/*END MOUNTING PARTS*						Parts of Detail Part						Mounting parts for Parts of Detail Part						*MOUNTING PARTS*/*END MOUNTING PARTS*
1	2	3	4	5	Name & Description																																																								
					Assembly and/or Component																																																								
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					Mounting parts for Parts of Detail Part																																																								
					MOUNTING PARTS/*END MOUNTING PARTS*																																																								
Mfr. Code (Column 7)	Indicates the code number of the actual manufacturer of the part. (Code to name and address cross reference can be found immediately after this page.)																																																												
Mfr. Part Number (Column 8)	Indicates actual manufacturer's part number.																																																												

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
S4246	JAPAN SERVO CO LTD	7 KANDA MITOSHIRO-CHO CHIYODA-KU	TOKYO JAPAN
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK0860	LABEL GRAPHICS	6700 SW BRADBURY CT	PORTLAND OR 97224
TK1155	QUALITY PLASTIC INJECTION MOLDING	3910 INDUSTRIAL AVE	COEUR D'ALENE ID 83814
TK1163	POLYCAST INC	9898 SW TIGARD ST	TIGARD OR 97223
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
0GV52	SCHAFFNER EMC INC	9-B FADEM ROAD	SPRINGFIELD, NJ 07081
0J9P9	GEROME MFG CO INC	PO BOX 737 403 NORTH MAIN	NEWBERG OR 97132
0KBZ5	MORELLIS Q & D PLASTICS	1812 16TH AVE	FOREST GROVE OR 97116
0KB01	STAUFFER SUPPLY	810 SE SHERMAN	PORTLAND OR 97214
05791	LYN-TRON INC	3150 DAMON WAY	BURBANK CA 91505-1015
06383	PANDUIT CORP	17301 RIDGELAND	TINLEY PARK IL 60477-3048
07416	NELSON NAME PLATE CO	3191 CASITAS	LOS ANGELES CA 90039-2410
18677	SCANBE MFG CO DIV OF ZERO CORP	3445 FLETCHER AVE	EL MONTE CA 91731
31918	ITT SCHADOW INC	8081 WALLACE RD	EDEN PRAIRIE MN 55344-2224
34785	DEK INC	3480 SWENSON AVE	ST CHARLES IL 60174-3450
4Y264	CANARE CABLE INC	511 5TH STREET UNIT G	SAN FERNANDO CA 91340
54186	MICRO POWER SYSTEMS INC	3151 JAY ST	SANTA CLARA CA 95054
55335	JKL COMPONENTS CORP	13343 PAXTON STREET	PACOIMA CA 91331
71400	BUSSMANN DIV OF COOPER INDUSTRIES INC	114 OLD STATE RD PO BOX 14460	ST LOUIS MO 63178
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
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
80126	PACIFIC ELECTRICORD CO	747 W REDONDO BEACH PO BOX 10	GARDENA CA 90247-4203
85471	BOYD CORP	13885 RAMOMA AVE	CHINO CA 91710
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61108-5181

Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
1-1	333-4134-00			1		PANEL,FRONT:WFM601I	80009	333413400
-2	-----			1		CIRCUIT BD ASSY:FRONT PANEL (SEE A2 REPL) *MOUNTING PARTS*		
-3	210-0407-00			4		NUT,PLAIN,HEX:6-32 X 0.25,BRS CD PL *END MOUNTING PARTS*	73743	3038-402
-4	214-4528-00			1		SPRING,GROUND:STAINLESS STEEL	8X345	214-4528-00
-5	119-4381-00			1		KEYPAD ASSY:1740A	31918	900259
-6	361-1620-00			1		SPACER,FR PNL:POLYCARBONATE	TK1163	361-1620-00
-7	366-0649-00			5		KNOB:GY,0.127 ID X 0.392 OD X 0.5 H	80009	366064900
-8	333-4023-00			1		PANEL,FRONT:CRT,1740A/1750A	TK1163	333-4023-00
-9	426-2455-00			1		FRAME,CRT:BEZEL *MOUNTING PARTS*	TK1163	426-2455-00
-10	211-0690-02			2		SCREW,MACHINE:6-32 X 0.875,PNH,SST *END MOUNTING PARTS*	93907	B20-70430
-11	378-0258-00			1		FLTR,CONTRASTIN:GRAY,POLYCARBONATE	80009	378025800
-12	348-0660-00			4		CUSHION,CRT:POLYURETHANE	80009	348066000
-13	426-2456-00			1		FRAME SECT,CAB:FRONT *MOUNTING PARTS*	TK1163	426-2456-00
-14	211-0721-00			2		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-15	-----			1		CIRCUIT BD ASSY:MAIN (SEE A3 REPL) *MOUNTING PARTS*		
-16	211-0721-00			8		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR	0KB01	ORDER BY DESC
-17	214-3903-01			4		SCREW,JACK:4-40 X 0.312 EXT THD,4-40 INT THD,0.188 HEX,STEEL,CADPLATE *END MOUNTING PARTS*	0KB01	214-3903-01
-18	337-3837-00			1		SHEILD,ELEC:PLASTIC,MAIN	85471	337-3837-00
-19	337-3952-00			1		SHIELD,ELEC:POWER SUPPLY,TOP,PLASTIC *MOUNTING PARTS*	80009	337395200
-20	211-0721-00			4		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-21	334-3003-00			1		MARKER,IDENT:MKD DANGER	TK0860	ORDER BY DESC
-22	-----			1		CIRCUIT BD ASSY:POWER SUPPLY (SEE A1 REPL) *MOUNTING PARTS*		
-23	211-0721-00			3		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR	0KB01	ORDER BY DESC
-24	129-1410-00			4		SPACER,POST:1.312 SPACING,6-32 INT & EXT,0.250 HEX,STEEL,CAD PLATING CHROMATE CONVERSION COAT(YELLOW) *END MOUNTING PARTS*	05791	ST6981-1.312-32
-25	337-3951-00			1		SHIELD,ELEC:POWER SUPPLY,PLASTIC	80009	337395100
-26	-----			1		CIRCUIT BD ASSY:COMPONENT (SEE A7 REPL) *MOUNTING PARTS*		
-27	211-0721-00			4		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-28	337-3838-00			1		SHEILD,ELEC:PLASTIC,COMPONENT	80009	337383800
-29	337-3948-00			1		SHIELD,ELEC:COMPONENT	80009	337394800
-30	-----			1		CIRCUIT BD ASSY:CPOROCESSOR (SEE A6 REPL) *MOUNTING PARTS*		
-31	210-0457-00			4		NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL *END MOUNTING PARTS*	TK0435	ORDER BY DESC

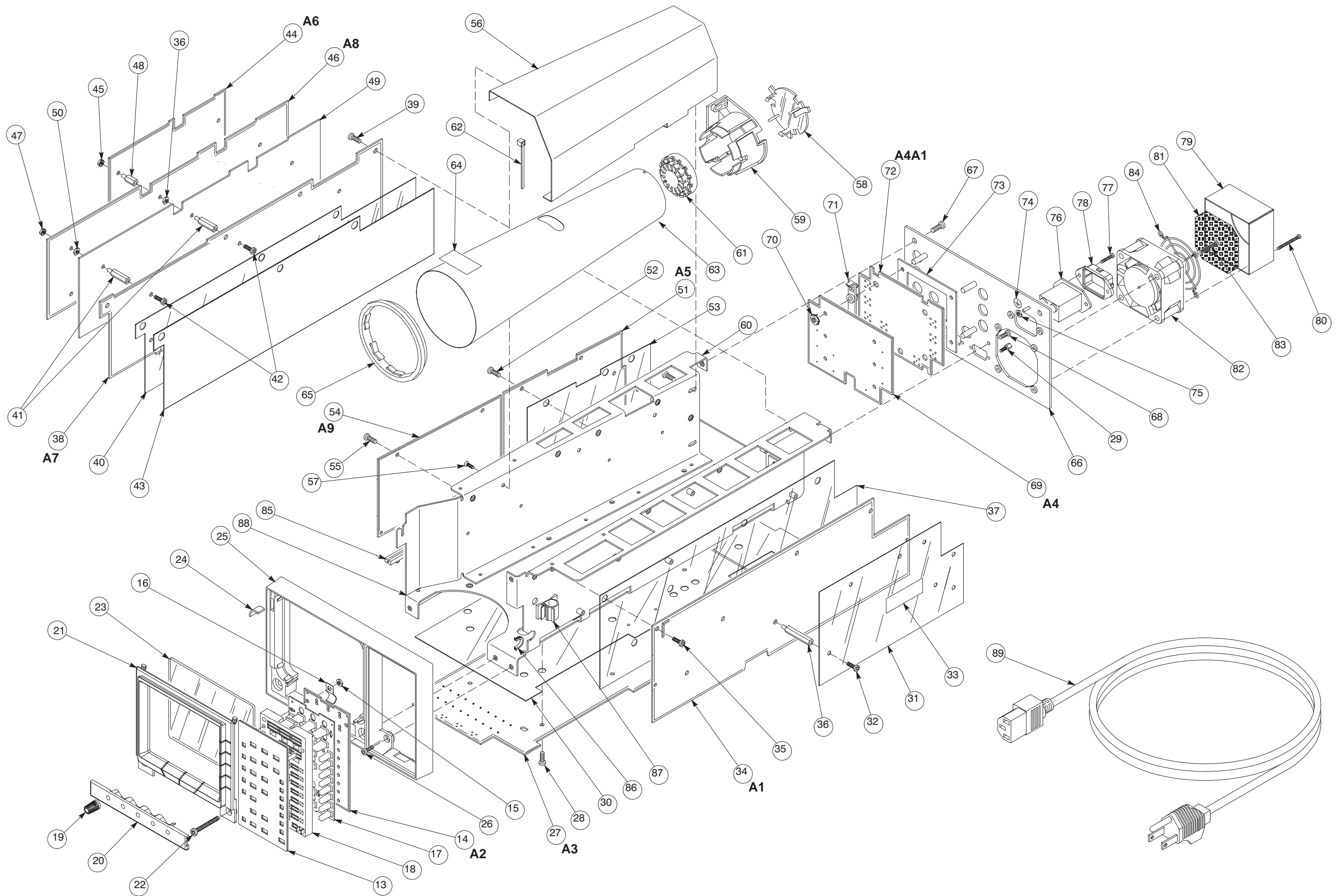
Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
-32	-----			1		CIRCUIT BD ASSY:DAC (SEE A8 REPL) *MOUNTING PARTS*		
-33	210-0457-00			2		NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	TK0435	ORDER BY DESC
-34	129-0962-00			4		SPCR,POST:0.5 L,6-32 ONE END,BRS,CU SN ZNPL,0.25 HEX *END MOUNTING PARTS*	80009	129096200
-35	389-1730-00			1		CIRCUIT BOARD:SHIELD *MOUNTING PARTS*	80009	389173000
-36	210-0407-00			6		NUT,PLAIN,HEX:6-32 X 0.25,BRS CD PL *END MOUNTING PARTS*	73743	3038-402
-37	129-1444-00			6		SPACER,POST:6-32 X 0.200,0.975 L,0.250 HEXALUMINUM *MOUNTING PARTS*	80009	129144400
-38	211-0721-00			6		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-39	-----			1		CIRCUIT BD ASSY:DESERIALIZER (SEE A5 REPL) *MOUNTING PARTS*		
-40	211-0721-00			3		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-41	337-3839-01			1		SHIELD,ELEC:PLASTIC,VECTOR	80009	337383901
-42	-----			1		CIRCUIT BD ASSY:EYE PATTERN (SEE A9 REPL) *MOUNTING PARTS*		
-43	211-0721-00			2		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-44	337-3947-00			1		SHIELD,ELEC:CRT *MOUNTING PARTS*	80009	337394700
-45	211-0541-00			6		SCREW,MACHINE:SCREW,TPG,TR:6-32 X 0.250,FLH100, STL,CDPL,TYPE TT,T-10 TORX DR *END MOUNTING PARTS*	80009	211-0541-00
-46	200-4042-00			1		CAP,CRT SOCKET:	TK1163	200-4042-00
-47	426-2096-01			1		MOUNT,RESILIENT:1740A *MOUNTING PARTS*	TK1155	426-2096-01
-48	211-0721-00			2		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-49	136-1247-00			1		SKT,CRT ASSY:HARNESS:14 POS 136-0202-04 X 13,24-26 AWG,300V,UL1430WIRE W/ULTRA HI CRIMPTERM,12.75 L STRAP,TIEDOWN,E:5.5 L MIN,PLASTIC,WHITE	80009	136124700
-50	346-0120-00			6			06383	SST1.5M
-51	337-3487-00			1		SHIELD,ELEC:CRT,STL	0J9P9	337-3487-00
-52	334-1379-00			1		MARKER,IDENT:MKD HI VACUUM	07416	ORDER BY DESC
-53	386-4443-00			1		SUPPORT,SHIELD:CRT,FRONT,PLASTIC	80009	386444300
-54	333-4091-00			1		PANEL,REAR:WFM601 *MOUNTING PARTS*	80009	333409100
-55	211-0720-01			2		SCREW,MACH:6-32 X 0.50,PNH,STL,TORX T-15WITH SLOT	0KB01	211-0720-01
-56	211-0721-00			2		SCREW,MACH:6-32 X 0.375,PNH,STL,CDPL,T-15 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-57	-----			1		CIRCUIT BD ASSY:INPUT (SEE A4 REPL) *MOUNTING PARTS*		
-58	210-0457-00			4		NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-59	344-0467-00			2		CLIP,INPUT:POLYCARBONATE	TK1163	344-0467-00
-60	-----			1		CIRCUIT BD ASSY:BNC (SEE A4A1 REPL)		
-61	361-1655-00			1		SLEEVE,SPACER:A SHAPED,BNC SPACER,2.9 X 3.2 X 0.063 THK ALUM,ETCH &CHROMATE,4 HOLES 0.156 DIA	80009	361165500
-62	334-3379-00			1		MARKER,IDENT:MARKED GROUND SYMBOL	07416	ORDER BY DESC
-63	210-0407-00			1		NUT,PLAIN,HEX:6-32 X 0.25,BRS CD PL	73743	3038-402

Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
-64	-----			1		FILTER,RFI:6A,250VAC,400HZ (SEE FL1 REPL) *MOUNTING PARTS*		
-65	211-0014-00			2		SCREW,MACHINE:4-40 X 0.5,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-66	131-4131-00			1		CONN,PLUG,ELEC:MALE W/LOCKING ADPTR,EXT MTG	80126	B-0778
-67	200-4150-00			1		COVER,FAN:2.5 X 2.5 X 1.39 THK,WFM601 SAF CONT *MOUNTING PARTS*	80009	200415000
-68	211-0530-00			2		SCREW,MACHINE:6-32 X 1.750,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-69	378-0415-00			1		FILTER,AIR:2.360 X 2.360,220PPI,0.188THKSAF CONT	80009	378041500
-70	-----			1		FAN,DC:TUBEAXIAL:12V,1.4W,3,500 RPM,14.8 CFM,30DBA, 60MM X 60MM X 25.4MM,BALL BEARING,8"LEAD W/CONN, HEAT SHRINK (SEE B1 REPL) *MOUNTING PARTS*		
-71	211-0529-00			2		SCREW,MACHINE:6-32 X 1.250,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-72	200-4151-00			1		GUARD,FAN:2,75 INCHS,WIRE FORM,NICKEL CHROME PLATED,FG238	54186	FG238
-73	351-0688-00			1		GUIDE,CKT BOARD:NYLON,12.0 L	18677	11633-5
-74	348-0171-00			1		GROMMET,PLASTIC:BLACK,U-SHAPED,0.276 ID	0KBZ5	NA
-75	343-0916-00			1		CLAMP,LOOP:0.5 ID,NYLON	34785	029-500
-76	426-2497-00			1		FRAME,CHASSIS:ALUMINUM	80009	426249700
						STANDARD ACCESSORIES		
	011-0163-00			2		TERM,COAXIAL:BNC,TERMINATION SINGLR ENDED;75 OHM,26DB TO 300MHZ,50OHM INTERMATABLE	4Y264	BCP-TA
	070-8966-00			1		MANUAL,TECH:USERS,WFM601I	TK2548	070896600
	150-0168-00			4		LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75FOR SKT MT	55335	73W
	159-0021-00			1		FUSE,CARTRIDGE:3AG,2A,250V,FAST BLOW,	71400	AGC-2
	378-0415-00			4		FILTER,AIR:2.360 X 2.360,220PPI,0.188THKSAF CONT	80009	378041500
-77	161-0216-00			1		CABLE ASSY,PWR:3,18 AWG,2.5M L,BLACK (STANDARD ONLY)	80126	C7120-25M-BL
						OPTIONAL ACCESSORIES		
	161-0215-00			1		CABLE ASSY,PWR:3,0.75MU,2.5MM L,GREY (EUROPEAN OPTION A1 ONLY)	80126	0-5335-008-GY
	161-0066-10			1		CA ASSY,PWR:3,0.1MM SQ,250V/10A,2.5 METER,STR, IEC320,RCPT X 13A,FUSED UK PLUG(13A FUSE),UNITED KINGDOM,SAF CONT (UNITED KINGDOM OPTION A2 ONLY)	S3109	BS/13-H05VVF3G0
	161-0066-11			1		CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER,STR, IEC320,RCPT,AUSTRALIA,SAF CONT (AUSTRALIAN OPTION A3 ONLY)	S3109	198-000
	161-0066-12			1		CA ASSY,PWR:3,18 AWG,250V/10A,98 INCH,STR, IEC320,RCPT X NEMA 6-15P,US,SAF CONT (NORTH AMERICAN OPTION A4 ONLY)	TK2541	13E68,25-1E-250
	161-0154-00			1		CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER,STR, IEC320,RCPT,SWISS,SAF CONT (SWISS OPTION A5 ONLY)	S3109	12-H05VVF3G 00-
	016-0475-00			1		VIEWING HOOD:1740	80009	016047500
	070-8967-00			1		MANUAL,TECH:SERVICE,WFM601I	80009	070896700
	200-3897-01			1		COVER,FRONT:1700F02,HOT STAMPED	80009	200389701
	-----			1		CAMERA,SCOPE:C9 (OPTION 20 ONLY)		
	-----			1		PLAIN,CASE:1700F00		
	-----			1		PTD CASE ASSY:1700F02		
	-----			1		RACK ADAPTER,SIDE-BY-SIDE:1700F05		
	-----			1		FILLER PANEL:1700F06		
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FIG. 1 EXPLODED VIEW





Glossary and Index

Glossary

AES/EBU Informal name for a digital audio standard established jointly by the Audio Engineering Society and European Broadcasting Union organizations.

APL (Average Picture Level.) The average signal level (with respect to blanking) during active picture time, expressed as a percentage of the difference between the blanking and reference white levels.

Back Porch The portion of the video signal which lies between the trailing edge of the horizontal sync pulse and the start of the active picture time. Burst is located on back porch.

Bandwidth The range of frequencies over which signal amplitude remains constant (within some limit) as it is passed through a system.

Baseband Refers to the composite video signal as it exists before modulating the picture carrier. Composite video distributed throughout a studio and used for recording is at baseband.

Bit A binary representation of 1 or 0. One of the quantized levels of a pixel.

Bit Parallel Byte-wise transmission of digital video down a multi-conductor cable where each pair of wires carries a single bit. This standard is covered under SMPTE125M, EBU 3267-E and CCIR 656.

Bit Serial Bit-wise transmission of digital video down a single conductor such as coaxial cable. May also be sent through fiber optics. This standard is covered under CCIR 656.

Black Burst (NTSC) Also called “color black,” black burst is a composite video signal consisting of all horizontal and vertical synchronization information, burst, and usually setup. Typically used as the house reference synchronization signal in television facilities.

Black Burst (PAL) Also called “color black,” black burst is a composite video signal consisting of all horizontal and vertical synchronization information and burst. Typically used as the house reference synchronization signal in television facilities.

Blanking Level Refers to the 0 IRE level for NTSC systems (0.3 volt level, with respect to sync tip, for PAL systems) which exists before and after horizontal sync and during the vertical interval.

Bowtie Bowtie display. A display used to assess relative timing and gain through a three channel component system.

Burst (NTSC) A small reference packet of the subcarrier sine wave, typically 8 or 9 cycles, which is sent on every line of video. Since the carrier is suppressed, this phase and frequency reference is required for synchronous demodulation of the color information in the receiver.

Burst (PAL) A small reference packet of the subcarrier sine wave sent during the horizontal blanking interval on every line of video. Since the carrier is suppressed, this phase and frequency reference is required for synchronous demodulation of the color difference signals in the receiver.

B–Y (NTSC) One of the color difference signals used in the NTSC system, obtained by subtracting luminance from the blue camera signal. This is the signal which drives the horizontal axis of a vectorscope.

B–Y (PAL) One of the color difference signals used in the PAL system, obtained by subtracting luminance (Y) from the blue camera signal (B).

Cable Equalization The process of altering the frequency response of a video amplifier to compensate for high-frequency losses in coaxial cable.

CCIR International Radio Consultative Committee, an international standards committee.

CCIR–601 An international standard for component digital television from which was derived SMPTE 125M (was RP–125) and EBU 3246E standards. CCIR defines the sampling systems, matrix values, and filter characteristics for both Y, B–Y, R–Y and RGB component digital television.

CCIR–656 The physical parallel and serial interconnect scheme for CCIR–601. CCIR 656 defines the parallel connector pinouts as well as the blanking, sync, and multiplexing schemes used in both parallel and serial interfaces. Reflects definitions in EBU Tech 3267 (for 625 line signals) and in SMPTE 125M (parallel 525) and SMPTE 259M (serial 525).

Chrominance Chrominance refers to the color information in a television picture. Chrominance can be further broken down into two properties of color: hue and saturation.

Chrominance Signal The high-frequency portion of the video signal which is obtained by quadrature amplitude modulation of a 3.58 MHz (NTSC) or 4.43 MHz (PAL) subcarrier with R–Y and B–Y information.

Clock Jitter Timing uncertainty of the data cell edges in a digital signal.

Clock Recovery The reconstruction of timing information from digital data.

Color Black See Black Burst.

Color Difference Signals Signals used by color television systems to convey color information in such a way that the signals go to zero when there is no color in the picture. R–Y, B–Y, I, and Q are all color difference signals for the NTSC

system; U and V are color difference signals for the PAL system. Component system color difference signal is Y, P_B, P_R as specified by SMPTE and CCIR standards.

Color Gamut The area between minimum and maximum reproducible limits for elements of the color difference or RGB signals.

Component Analog The unencoded output of a camera, videotape recorder, etc., consisting of three primary color signals: red, green, and blue (RGB) that together convey all necessary picture information. In some component video formats, these three components have been translated into a luminance signal and two color difference signals, for example, Y, B–Y, R–Y.

Component Digital A digital representation of a component analog signal set, most often Y, B–Y, R–Y. The encoding parameters are specified by CCIR 601. The parallel interface is specified by CCIR 656 and SMPTE 125M (1991).

Composite Digital A digitally encoded video signal, such as NTSC or PAL video, that includes horizontal and vertical synchronizing information.

Composite Video A single video signal containing all of the necessary information to reproduce a color picture. Created by adding quadrature amplitude modulated R–Y and B–Y to the luminance signal for NTSC systems or U and V to the luminance signal for PAL systems.

CW Continuous Wave. Refers to a separate subcarrier sine wave used for synchronization of chrominance information.

D1 A component digital video recording format that uses data conforming to the CCIR–601 standard. Records on 19mm magnetic tape. (Often used incorrectly to indicate component digital video.)

D2 A composite digital video recording format that uses data conforming to SMPTE 244M. Records on 19mm magnetic tape. (Often used incorrectly to indicate composite digital video.)

dB (Decibel) A decibel is a logarithmic unit used to describe signal ratios. For voltages, $dB = 20 \text{ Log}_{10} (V_1/V_2)$.

DC Restorer A circuit used in picture monitors and waveform monitors to clamp one point of the waveform to a fixed DC level.

Deserializer A device that converts serial digital information to parallel.

Diamond Diamond display. A simplified vector display for RGB signals that defines the valid gamut limits in the form of two diamonds.

D-to-A Converter (digital to analog) A device that converts digital signals to analog signals.

EAV End of active video in component digital systems

EBU European Broadcasting Union. An organization of European broadcasters that, among other activities, produces technical statements and recommendations for the 625/50 line television system.

EDH (error detection and handling) Proposed SMPTE RP-165 for recognizing inaccuracies in the serial digital signal. It may be incorporated into serial digital equipment and employ a simple LED error indicator.

Embedded Audio Digital audio is multiplexed onto a serial digital data stream.

Equalization (EQ) Process of altering the frequency response of a video amplifier to compensate for high-frequency losses in coaxial cable.

Equalizer The pulses which occur before and after the broad pulses in the vertical interval.

Eye Pattern A waveform used to evaluate channel performance.

Field In interlaced scan systems, the information for one picture is divided up into two fields. Each field contains one half of the lines required to produce the entire picture. Adjacent lines in the picture are in alternate fields.

Frame A frame (sometimes called a “picture”) contains all the information required for a complete picture. For interlaced scan systems, there are two fields in a frame.

Front Porch The portion of the video signal between the end of active picture time and the leading edge of horizontal sync.

Gamma (NTSC) Since picture monitors have a non-linear relationship between the input voltage and brightness, the signal must be correspondingly predistorted. Gamma correction is always done at the source (camera) in television systems: the R, G, and B signals are converted to $R^{1/\gamma}$, $G^{1/\gamma}$, and $B^{1/\gamma}$. Values of about 2.2 are typically used for gamma.

Gamma (PAL) Since picture monitors have a non-linear relationship between the input voltage and brightness, the signal must be correspondingly predistorted. Gamma correction is always done at the source (camera) in television systems: the R, G, and B signals are converted to $R^{1/\gamma}$, $G^{1/\gamma}$, and $B^{1/\gamma}$. Values for gamma range from 2.2 to 2.8.

Gamut See Color Gamut.

GBR The same signals as RGB, but rearranged in sequence to correspond with SMPTE specification.

Genlock The process of locking both sync and burst of one signal to sync and burst of another, making the two signals completely synchronous.

Graticule The scale which is used to quantify the information on a waveform monitor or vectorscope display. Graticules may either be screened onto the faceplate of the CRT itself (internal graticule), or onto a piece of glass or plastic which fits in front of the CRT (external graticule). They can also be electronically generated.

Horizontal Blanking Horizontal blanking is the entire time between the end of the active picture time of one line and the beginning of active picture time of the next line. It extends from the start of front porch to the end of back porch.

Horizontal Sync Horizontal sync is the -40 IRE pulse in NTSC systems (-300 mV pulse for PAL systems) occurring at the beginning of each line. This pulse signals the picture monitor to go back to the left side of the screen and trace another horizontal line of picture information.

Hue Hue is the property of color which allows us to distinguish between colors such as red, yellow, purple, etc.

Hum Hum refers to the undesirable coupling of the 60 Hz power sine wave for NTSC systems (50 Hz power sine wave in PAL systems) into other electrical signals.

Interpolation In digital video, the creation of new pixels in the image by some method of mathematically manipulating the values of neighboring pixels.

IRE (NTSC) A unit equal to $1/140$ of the peak-to-peak amplitude of the video signal, which is typically 1 volt. The 0 IRE point is at blanking level, with sync tip at -40 IRE and white extending to $+100$ IRE. IRE stands for Institute of Radio Engineers, the organization which defined the unit.

Jitter An undesirable random signal variation with respect to time.

Lightning Lightning display. A display, for use with SMPTE specified color difference signal (Y , P_B , P_R), that plots the two color difference signals against luminance to create a display similar in appearance to a lightning bolt.

Linear Distortion Refers to distortions which are independent of signal amplitude.

Luminance The signal which represents brightness, or the amount of light in the picture. This is the only signal required for black and white pictures, and for color systems it is obtained as a weighted sum ($Y = 0.3R + 0.59G + 0.11B$) of the R, G, and B signals.

Modulated (NTSC) When referring to composite television test signals, this term implies that chrominance information is present. (For example, a modulated staircase has subcarrier on each step.)

Non-Linear Distortion Refers to distortions which are amplitude-dependent.

NRZ Non return to zero. A coding scheme that is polarity sensitive. 0 = logic low; 1 = logic high.

NRZI Non return to zero inverse. A video data scrambling scheme that is polarity insensitive. 0 = no change in logic; 1 = a transition from one logic level to the other.

NTSC National Television System Committee. The organization which developed the television standard currently in use in the United States, Canada, and Japan. Now generally used to refer to that standard.

PAL Phase Alternate Line. Refers to one of the television systems used in Europe and many other parts of the world. The phase of one of the color difference signals alternates from line to line to help cancel out phase errors.

Parallel Cable A multi-conductor cable carrying simultaneous transmission of data bits. Analogous to the rows of a marching band passing a review point.

Reclocking The process of clocking the data with a regenerated clock.

Resolution The number of bits (four, eight, ten, etc.) determines the resolution of the digital signal.

4-bits = a resolution of 1 in 16

8-bits = a resolution of 1 in 256

10-bits = a resolution of 1 in 1024

Eight bits is the minimum acceptable for broadcast TV.

RGB Red, Green, and Blue. Also referred to as GBR. The three primary colors used in color television's additive color reproduction system. These are the three color signals generated by the camera and used by the picture monitor to produce a picture.

RP-125 See SMPTE 125M

R-Y One of the color difference signals is obtained by subtracting luminance (Y) from the red camera signal.

Sampling Process where analog signals are measured, often millions of times per second for video.

Sampling Frequency The number of discrete sample measurements made in a given period of time. Often expressed in megahertz for video.

Saturation The property of color which relates to the amount of white light in the color. Highly saturated colors are vivid, while less saturated colors have more white mixed in and, therefore, appear pastel. For example, red is highly saturated, while pink is the same hue, but much less saturated.

In signal terms, saturation is determined by the ratio between luminance level and chrominance amplitude. It should be noted that a vectorscope does not display saturation; the length of the vectors represents chrominance amplitude. In order to verify that the saturation of the colors in a color bar signal is correct, you must check luminance amplitudes with a waveform monitor in addition to observing the vectors.

SAV Start of active video in component digital systems

SCH The timing relationship between the horizontal sync pulses and the zero crossings of the reference subcarrier (burst).

Scrambling 1. To transpose or invert digital data according to a prearranged scheme in order to break up the low-frequency patterns associated with serial digital signals. 2. The digital signal is shuffled to produce a better spectral distribution.

Serial Digital Digital information that is transmitted in serial form. Often used informally to refer to serial digital television signals.

Serializer A device that converts parallel digital information to serial digital.

Setup In NTSC systems, video black is typically 7.5 IRE above the blanking level. This 7.5 IRE level is referred to as the black setup level, or simply as setup.

SMPTE (Society of Motion Picture and Television Engineers) A professional organization that recommends standards for the television and film industries.

SMPTE 125M (was RP-125) The SMPTE recommended practice for bit parallel digital interface for component video signals. SMPTE 125M defines the parameters required to generate and distribute component video signals on a parallel interface.

SMPTE 244M The SMPTE recommended practice for bit parallel digital interface for composite video signals. SMPTE 244M defines the parameters required to generate and distribute composite video signals on a parallel interface.

SMPTE 259M The SMPTE recommended practice for 525 line serial digital component and composite interfaces.

Subcarrier The modulation sidebands of the color subcarrier contain the R-Y (V) and B-Y (U) information. For NTSC, subcarrier frequency is 3.579545 MHz. For PAL, subcarrier frequency is 4,433,618.75 Hz.

Sync Word A synchronizing bit pattern, differentiated from the normal data bit patterns, used to identify reference points in the television signal; also to facilitate word framing in a serial receiver.

Termination In order to accurately send a signal through a transmission line, there must be an impedance at the end which matches the impedance of the source and of the line itself. Amplitude errors and reflections will otherwise result. Video is a $75\ \Omega$ system, so a $75\ \Omega$ terminator must be put at the end of the signal path.

TRS Timing reference signals in composite digital systems (four words long)

TRS-ID (timing reference signal identification) A reference signal used to maintain timing in composite digital systems. It is four words long.

U The B–Y signal after a weighting factor of 0.493 has been applied. The weighting is necessary to reduce peak modulation in the composite signal.

V The R–Y signal after a weighting factor of 0.877 has been applied. The weighting is necessary to reduce peak modulation in the composite signal.

Vectorscope A specialized oscilloscope which demodulates the video signal and presents a display of R–Y versus B–Y in NTSC systems (or V versus U in PAL systems). The angle and magnitude of the displayed vectors are respectively related to hue and saturation.

Vertical Interval The synchronizing information which appears between fields and signals the picture monitor to go back to the top of the screen to begin another vertical scan.

Waveform Monitor A specialized oscilloscope that plots voltage versus time to evaluate television signals.

Y Abbreviation for luminance.

125M See SMPTE 125M

4:2:2 A commonly–used term for a component digital video format. The details of the format are specified in the CCIR–601 standard document. The numerals 4:2:2 denote the ratio of the sampling frequencies of the single luminance channel to the two color difference channels. For every four luminance samples, there are two samples of each color difference channel. See *CCIR–601*.

4fsc Four times subcarrier sampling rate used in composite digital systems. In NTSC this is 14.3 MHz. In PAL this is 17.7 MHz.

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Manual Change Information

Tektronix products are constantly under development for increased performance or lower cost to the customer. Often, changes are incorporated into a product as soon as they are shown to meet the highest quality standards.

This aggressive policy of product improvement can result in changes that are not reflected in the appropriate sections of the manual. Information regarding such changes will appear on the following pages. If no change notices are inserted after this page, the manual is correct as printed.

Please review any included change information and note the changes that will affect your use of the product. A single change may apply to several sections of the manual. Because change information sheets are inserted until all the changes are incorporated into every applicable section of the manual, some duplication may result.

Date: 9/23/94Change Reference: M81435

Product:	Manual P/N:	Effective S/N:
WFM601	070-8876-00	B011472
WFM601i	070-8967-00	B010663

Eff F/W Ver 1.4

Replaceable Electrical Parts and Schematic Changes

Section 7 Replaceable Electrical Parts

Change to Read:

A3	671-2958-06	CKT BD ASSY:MAIN BOARD (WFM601 ONLY)
A3	671-3155-02	CKT BD ASSY:MAIN BOARD (WFM601i ONLY)
A3U13	160-9720-01	IC, MEMORY:CMOS, EPROM;128K X 8;PRGM 27C010
A3U62	156-5854-01	IC, LINEAR:BIFET, OP-AMP;DUAL;AD712JR, SO8

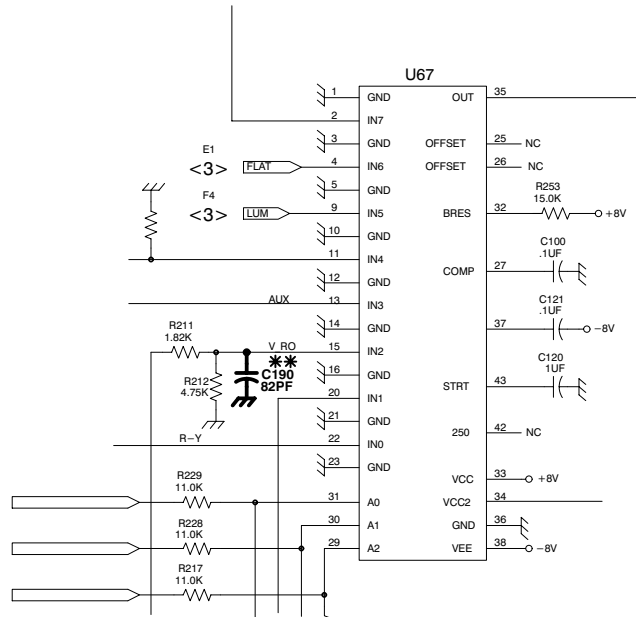
Delete:

A3LS1 119-2101-00
Also delete 136-5011-00 IC socket at A3U13

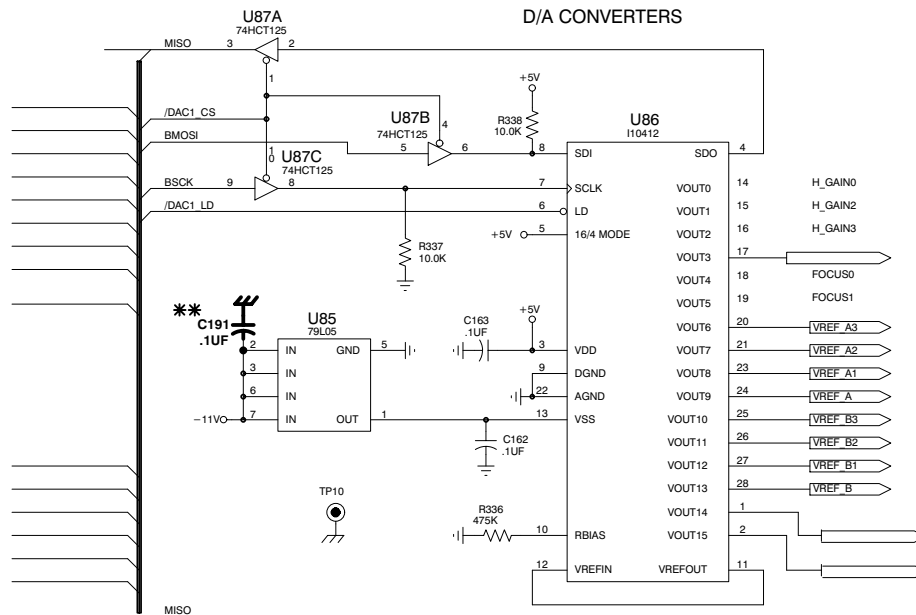
Add:

A3C190	283-5248-00	CAP,FXD,CERAMIC:MLC;82PF,5%,200V
A3C191	283-0024-00	CAP,FXD,CERAMIC:MLC;0.1UF,20%,50V

Added parts are shown on the following partial schematics:



Part of A3 Main board Schematic 12, Vertical Output, showing added part.



Part of A3 Main board Schematic 17, DACs & Serial, showing added part.

Product: Manual P/N: Effective S/N:
 WFM601i 070-8967-00 B010958

Replaceable Parts List, Schematic, and Illustration Changes

Section 8 Replaceable Electrical Parts

Change to Read:

A8	671-2676-04	CKT BD ASSY:DAC BOARD
A8C171	290-1312-00	CAP,FXD,ALUM:2.2UF,20%,315V;RADIAL,105 DEG
A8R85	321-5042-00	RES,FXD:THICK FILM;39.2 OHM,1%,0.125W
A8R88	321-5032-00	RES,FXD:THICK FILM;15.0K OHM,1%,0.125W

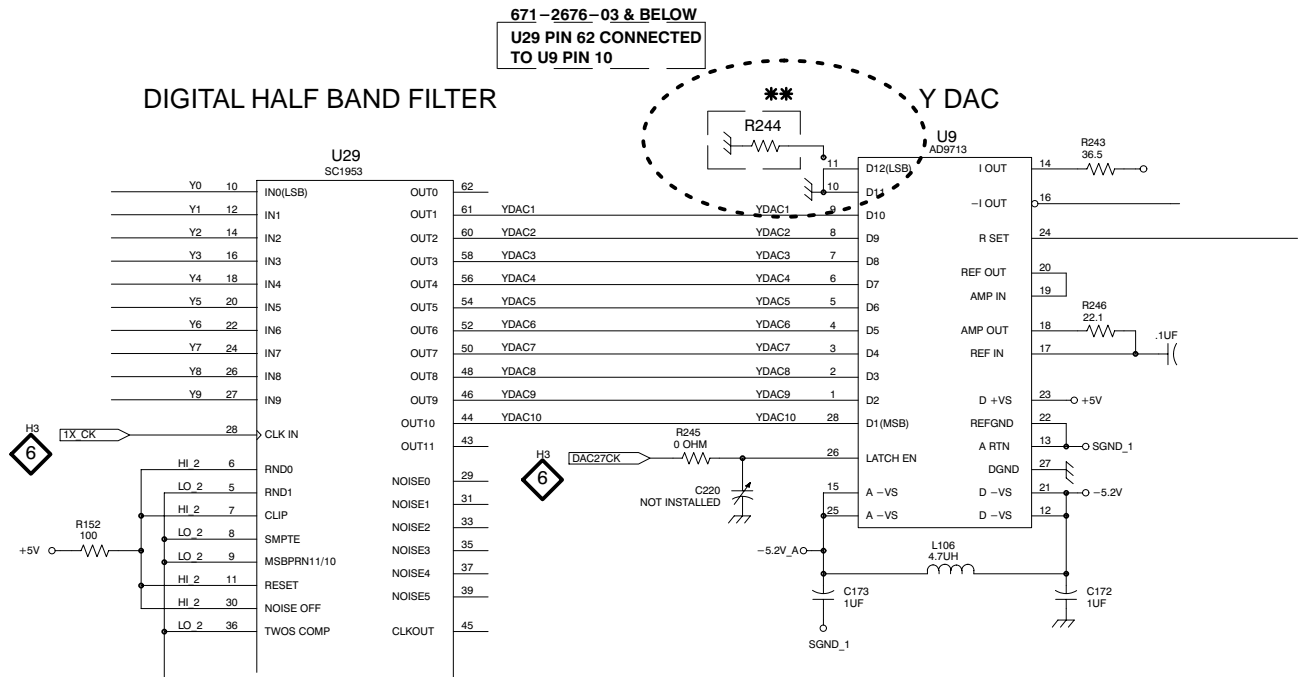
Add:

A8C243	283-5109-00	CAP,FXD,CER DI:MLC;680PF,5%,100V,NPO,1206;SMD
A8C244	283-5098-00	CAP,FXD,CER DI:MLC;0.1UF,+80%-20%,50V,Z5U,1206;SMD
A8R272	321-5043-00	RES,FXD:THICK FILM;47.5 OHM,1%,0.125W
A8U95	163-0458-00	IC,DGTL:CMOS;EEPLD,16V8-25,PRGM

Delete:

A8C2 A8R1 A8R2 A8R150 A8R151 A8R244

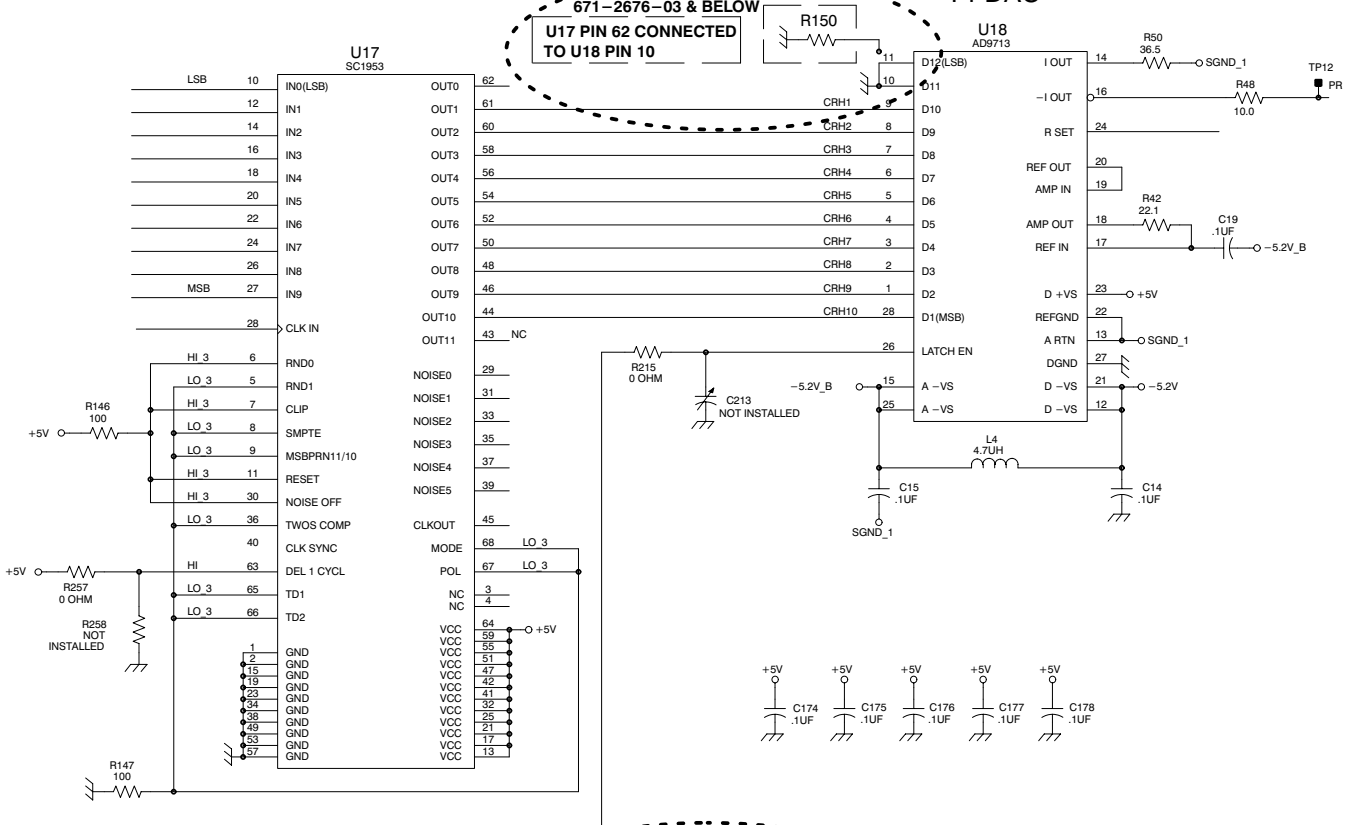
Added parts and circuitry changes are shown on the following schematics:



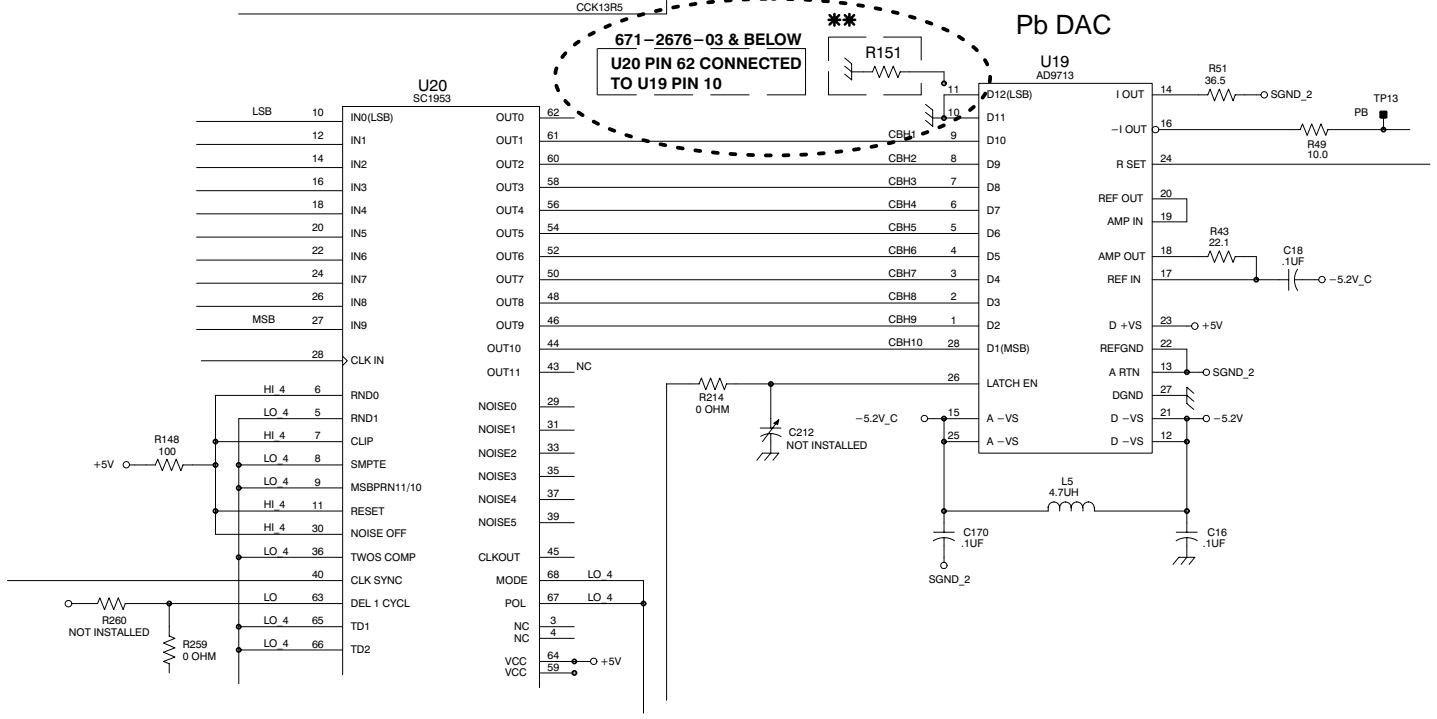
Part of Schematic 7, A8 DAC board, showing circuit changes.

DIGITAL HALF BAND FILTERS

Pr DAC



Pb DAC



Part of Schematic 8, A8 DAC board, showing circuit changes.

A B C D E F G H

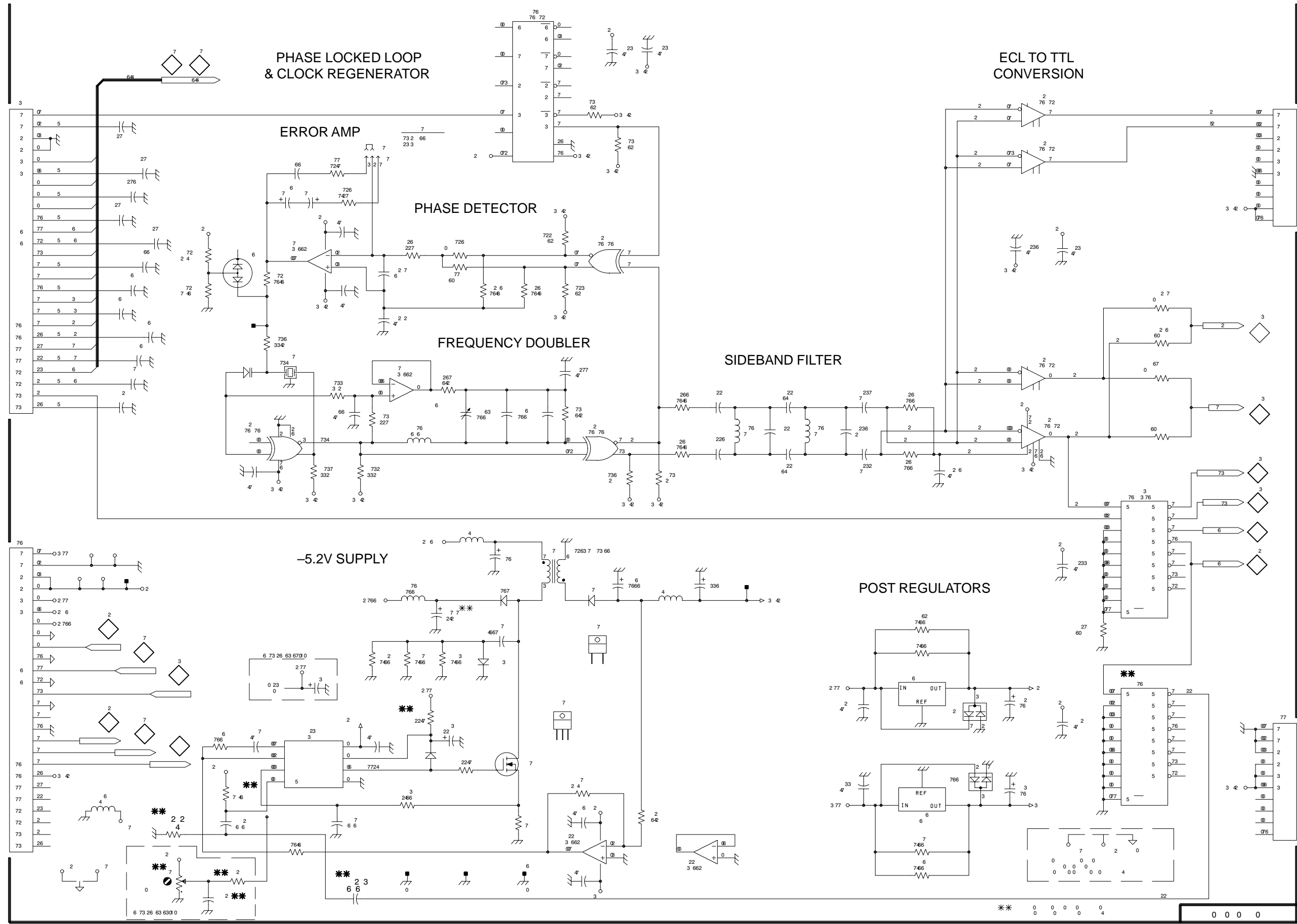
1

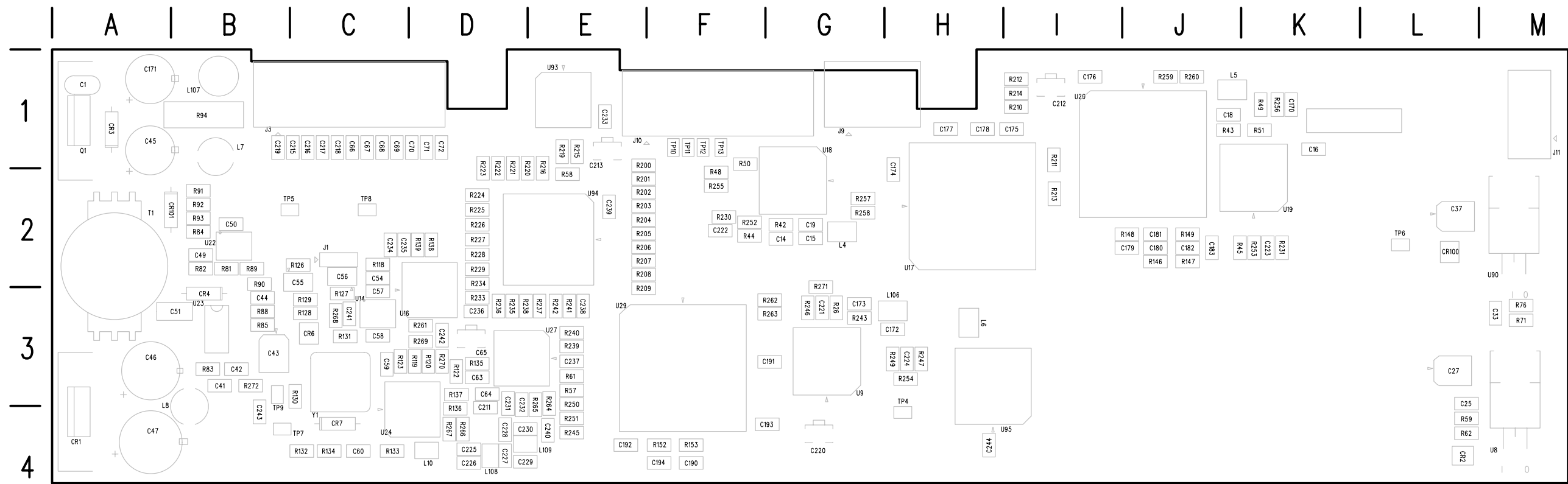
2

3

4

5





A8 DAC Board

671-2676-04